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Auburn University Bulletin — Volume 121 May 2026

A Land-Grant University

Auburn's bulletin provides a listing of academic programs, degree requirements and details about policies.

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Auburn University is an equal opportunity educational institution/employer.

- College of Agriculture
- College of Architecture, Design and Construction
- Raymond J. Harbert College of Business
- College of Education
- Samuel Ginn College of Engineering
- College of Forestry, Wildlife and Environment
- College of Human Sciences
- College of Liberal Arts
- College of Nursing
- James Harrison College of Pharmacy
- College of Sciences and Mathematics
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Aerospace Studies (AFROTC) - AIRF 1927
African American & Africana Studies - AAAS 1928
Agric Economics - AGEC 1928
Agriculture - AGRI 1932
Animal Sciences - ANSC 1933
Anthropology - ANTH 1936
Applied Biotechnology - APBT 1939
Architecture - ARCH 1939
Art - ARTS 1942
Auburn Global - GLOB 1946
Aviation Management - AVMG 1948
Biological & Agricultural Technology Management - BATM 1950
Biochemistry - BCHE 1952
Biology - BIOL 1952
Biomaterials and Packaging - BIOP 1963
Biosystems Engineering - BSEN 1965

Building Science - BSCI 1968
Business Administration - BUSI 1973
Business Analytics - BUAL 1975
Career and Technical - CTCT 1977
Chemical Engineering - CHEN 1981
Chemistry - CHEM 1984
Civil Engineering - CIVL 1989
Communication - COMM 1998
Communication and Journalism - CMJN 2003
Community and Civic Engagement - CCEN 2004
Community Planning - CPLN 2004
Computer Science & Software Engineering - COMP 2006
Computer Science - CPSC 2012
Consumer and Design Sciences - CADS 2014
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Vision and Mission

Vision

To lead and shape the future of higher education.

Our vision describes the aspiration for Auburn University 20 years in the future. It is deliberately intended to be lofty—realistic and ever challenging while also bold and ambitious. It is a challenge to ourselves to achieve greatness. Our vision is an invitation to the Auburn Family and those who do not yet know Auburn University to join us in our quest to inspire, innovate, and transform.

Auburn University has established itself as an excellent comprehensive, public land-grant university. However, excellence is not enough. We aspire to become a world-renowned institution that excels in education, research, and service—and to become a model of higher education. We understand that higher education is on the precipice of change. We intend to lead and shape that change.

Our goals describe Auburn University's highest priorities for the next five years. The accomplishment of these goals will best position our institution to achieve its 20-year vision.

Mission

As a land-grant institution, Auburn University is dedicated to improving the lives of the people of Alabama, the nation, and the world through forward-thinking education, life-enhancing research and scholarship, and selfless service.

Auburn University's mission concisely describes our central purpose. Our mission statement begins with a reference to the university's origins and obligations as a public land-grant university. The 1862 *Morrill Act* created institutions of higher education that focused on agriculture and mechanical arts—a response to changing social and economic conditions. Land-grant universities would provide practical solutions to pressing societal problems and provide higher education to a much broader segment of American citizenry. Land-grant universities would eventually serve as the creators of economic opportunity and development. As such, we must never lose sight of the important educational, research and service responsibilities inherent in our land-grant lineage. Subsequent to its founding as a land-grant university, Auburn has also been designated, through federal legislation, as a sea-grant and space-grant university.

Our first responsibility is to **educate our students and prepare them for life**. We endeavor to expand their minds, broaden their experiences, and hone their capabilities by imparting both theoretical knowledge and practical skills. Our goal is to empower and inspire our students to be their very best and to achieve their hopes and dreams. A key element of our public charter and of the *Auburn Creed* is to ensure our students are instilled with a strong work ethic, sound character traits, and core values of honesty and respect. We encourage students to make valuable contributions and to lead their fellow citizens in creating meaningful change. This responsibility to build moral character and inculcate active social responsibility distinguishes the student experience at all land-grant universities, and certainly at Auburn University.

Our second responsibility is to **drive the development of research and scholarship** that creates and advances knowledge. We support, build upon, and leverage the expertise of our faculty, students, and partners to discover, innovate, and create new science, new technologies, and new applications and methodologies that tangibly improve our world.

Our third responsibility, **engagement and outreach**, leverages the value of the first two elements. Our duty is to enable our students, graduates, faculty and partners to transform the fruits of our research and scholarship into products, methods, and services that meet our communities' most pressing needs. Delivering real-world, practical solutions is what sets land-grant universities apart and is core to Auburn University's foundation.

To be among the best land-grant universities, we must continue to excel in all three responsibilities. This requires leveraging the synergy found in the interchange of education, research, and service to maximize our impact on Alabama and the world.

REAFFIRMED: July 19, 2009
REAFFIRMED: February 1, 2013
REVISED: November 18, 2016
REVISED: November 16, 2020
REVISED: April 16, 2021

General Information

AUBURN UNIVERSITY, chartered in 1856, is located in Auburn, Alabama, and traces its beginning to the East Alabama Male College, a private liberal arts institution whose doors opened in 1859. From 1861 to 1866 the college was closed because of the Civil War. The college had begun an affiliation with the Methodist Church before the war. Due to financial straits, the church transferred legal control of the institution to the state in 1872, making it the first land-grant college in the South to be established separate from the state university. It thus became the Agricultural and Mechanical College of Alabama.

Women were admitted in 1892, and in 1899 the name again was changed, to the Alabama Polytechnic Institute. In 1960, the school acquired a more appropriate name, Auburn University, a title more in keeping with its location, size, and complexity. The institution has experienced its greatest growth since World War II, and today enrolls more than 30,000 students. The majority are Alabama residents.

Auburn University Montgomery was established as a separately administered branch campus in 1967. The institution has developed rapidly, especially since moving to a 500-acre campus east of Montgomery in 1971. Current enrollment at AUM exceeds 5,000.

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Auburn University Calendar 2025–2026

Auburn University reserves the right to make adjustments to this calendar.

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Undergraduate Calendar 2025–2026

2025 Summer Semester — Full Term

Date	Event
May 19	Classes Begin
May 20	Last Day to Add Course

May 21 - Jun 2	Drop Course Penalty Days—Dropping a course during these days will result in a $100 Drop Fee per course dropped.
May 26	Memorial Day — No Classes
Jun 2	10th Class Day—Last day to request a meal plan change. Last day to drop from course with no grade assignment.
Jun 19	Juneteenth Holiday — No Classes
Jun 23	Early Alert/Mid-Term Grade Deadline
Jun 23	Mid-Semester — 24th Class Day
Jun 24-25	NO CLASS - Study/Reading day for Mini-Semester I on these days
June 26-27	NO CLASS - Finals for Mini-Semester I on these days
Jul 4	Independence Day — No Classes
Jul 29	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. "W" assigned. Students who need to submit forms to lift holds on their accounts must submit the forms several business days ahead of the deadline to allow for processing.
Aug 1	Classes End
Aug 4-5	Study/Reading Days
Aug 6-8	Final Exam Period
Aug 9	Commencement

2025 Summer Mini-Semester I

Date	Event
May 19	Classes Begin
May 20	Last Day to Add Course
May 21-23	Drop Course Penalty Days—Dropping a course during these days will result in a $100 Drop Fee per course dropped.
May 23	5th Class Day—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
May 26	Memorial Day — No Classes
Jun 4	Early Alert/Mid-Term Grade Deadline
Jun 4	Mid-Semester — 12th Class Day
Jun 18	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. "W" assigned. Students who need to submit forms to lift holds on their accounts must submit the forms several business days ahead of the deadline to allow for processing.
Jun 19	Juneteenth Holiday — No Classes
Jun 23	Classes End
Jun 24-25	NO CLASS - Study/Reading Days for Mini-Semester 1
Jun 26-27	Final Exam Period

2025 Summer Mini-Semester II

Date	Event
Jun 30	Classes Begin
Jul 1	Last Day to Add Course
Jul 2-7	Drop Course Penalty Days—Dropping a course during these days will result in a $100 Drop Fee per course dropped.
Jul 4	Independence Day — No Classes

Jul 7	5th Class Day—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Jul 16	Early Alert/Mid-Term Grade Deadline
Jul 16	Mid-Semester — 12th Class Day
Jul 29	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. "W" assigned. Students who need to submit forms to lift holds on their accounts must submit the forms several business days ahead of the deadline to allow for processing.
Aug 1	Classes End
Aug 4-5	No Class - Study/Reading Days for Mini-Semester II
Aug 6-8	Final Exam Period
Aug 9	Commencement

2025 Fall Semester

Date	Event
Aug 18	Classes Begin
Aug 18–Sep 8	Resignation Fee—Dropping all courses during this period will result in a $100 resignation fee.
Aug 22	Last Day to Add Course
Aug 23–Sep 8	Drop Course Penalty Days—Dropping a course during these days will result in a $100 Drop Fee per course dropped.
Aug 29	10th Class Day—Last day to request a meal plan change.
Sep 1	Labor Day — No Classes
Sep 8	15th Class Day—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Oct 7	Early Alert/Mid-Term Grade Deadline
Oct 7	Mid-Semester — 36th Class Day
Oct 9-10	Fall Break
Oct 17	41st Class Day—Student deadline for request to move finals to Associate Deans
Nov 21	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. "W" assigned. Students who need to submit forms to lift holds on their accounts must submit the forms several business days ahead of the deadline to allow for processing.
Nov 24–28	Thanksgiving Holiday — No Classes
Dec 5	Classes End
Dec 6–7	No Class - Study/Reading Days
Dec 8-12	Final Exam Period
Dec 13	Commencement

2026 Spring Semester

Date	Event
Jan 7	Classes Begin
Jan 7-28	Resignation Fee—Dropping all courses during this period will result in a $100 resignation fee.
Jan 13	Last Day to Add Course
Jan 14-28	Drop Course Penalty Days—Dropping a course during these days will result in a $100 Drop Fee per course dropped.

Jan 19	Martin Luther King, Jr. Day — No Classes
Jan 21	10th Class Day—Last day to request a meal plan change.
Jan 28	15th Class Day—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Feb 26	Early Alert/Mid-Term Grade Deadline
Feb 26	Mid-Semester — 36th Class Day
Mar 5	41st Class Day—Student deadline for request to move finals to Associate Deans
Mar 9-13	Spring Break
Apr 17	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. "W" assigned. Students who need to submit forms to lift holds on their accounts must submit the forms several business days ahead of the deadline to allow for processing.
Apr 24	Classes End
Apr 25-26	No Class - Study/Reading Days
Apr 27 - May 1	Final Exam Period
May 1-4	Commencements

2026 Summer Semester — Full Term

Date	Event
May 18	Classes Begin
May 19	Last Day to Add Course
May 20–Jun 1	Drop Course Penalty Days—Dropping a course during these days will result in a $100 Drop Fee per course dropped.
May 25	Memorial Day — No Classes
Jun 1	10th Class Day—Last day to request a meal plan change. Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Jun 19	Juneteenth Holiday — No Classes
Jun 22	Early Alert/Mid-Term Grade Deadline
Jun 22	Mid-Semester — 24th Class Day
Jun 23-24	NO CLASS - Study/Reading Days for Mini-Semester I on these days
Jun 26-27	NO CLASS - Finals for Mini-Semester I on these days
Jul 3	Independence Day — No Classes
Jul 28	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. "W" assigned. Students who need to submit forms to lift holds on their accounts must submit the forms several business days ahead of the deadline to allow for processing.
Jul 31	Classes End
Aug 3-4	No Class - Study/Reading Days
Aug 5-7	Final Exam Period
Aug 8	Commencement

2026 Summer Mini-Semester I

Date	Event
May 18	Classes Begin
May 19	Last Day to Add Course
May 20–22	Drop Course Penalty Days—Dropping a course during these days will result in a $100 Drop Fee per course dropped.

May 22	5th Class Day—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
May 25	Memorial Day — No Classes
Jun 3	Early Alert/Mid-Term Grade Deadline
Jun 3	Mid-Semester — 12th Class Day
Jun 16	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. "W" assigned. Students who need to submit forms to lift holds on their accounts must submit the forms several business days ahead of the deadline to allow for processing.
Jun 19	Juneteenth Holiday — No Classes
Jun 22	Classes End
Jun 23-24	NO CLASS - Study/Reading Days
Jun 25-26	Final Exam Period

2026 Summer Mini-Semester II

Date	Event
Jun 29	Classes Begin
Jun 30	Last Day to Add Course
Jul 1-6	Drop Course Penalty Days—Dropping a course during these days will result in a $100 Drop Fee per course dropped.
Jul 3	Independence Day — No Classes
Jul 6	5th Class Day—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Jul 15	Early Alert/Mid-Term Grade Deadline
Jul 15	Mid-Semester — 12th Class Day
Jul 28	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. "W" assigned. Students who need to submit forms to lift holds on their accounts must submit the forms several business days ahead of the deadline to allow for processing.
Jul 31	Classes End
Aug 3-4	NO CLASS- Study/Reading Days
Aug 5-7	Final Exam Period
Aug 8	Commencement

Graduate Calendar 2025–2026

Auburn University reserves the right to make adjustments to this calendar.

Summer 2025: Full, Mini-Semesters I & II

Date	Event
May 19	Classes Begin for Full and Mini-Semester I
May 20	Last Day to Add Course for Full and Mini-Semester I
May 21-23	Drop Course Penalty Days for Mini-Semester I. Dropping a course during these days will result in a $100 Drop Fee per course dropped.
May 21– Jun 2	Drop Course Penalty Days for Full Semester. Dropping a course during these days will result in a $100 Drop Fee per course dropped.

May 23	5th Class Day for Mini-Semester I—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
May 26	Memorial Day — No Classes
Jun 2	10th Class Day for Full Summer—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Jun 17	Last Day to Withdraw for Mini-Semester I—Last day to withdraw from course with no grade penalty. "W" assigned.
Jun 19	Juneteenth Holiday — No Classes
Jun 23	Classes End for Mini-Semester I
Jun 23	Mid-Semester for Full Semester — 24th Class Day
Jun 24-25	No Class - Study/Reading Days for Mini-Semester I
Jun 26-27	Final Exam Period for Mini-Semester I
Jun 30	Classes Begin for Mini-Semester II
Jul 1	Last Day to Add Course for Mini-Semester II
Jul 2-7	Drop Course Penalty Days for Mini-Semester II—Dropping a course during these days will result in a $100 Drop Fee per course dropped.
Jul 4	Independence Day — No Classes
Jul 7	5th Class Day for Mini-Semester II—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Jul 14	Last Day to submit Master's thesis in PDF format for format check to thesis@auburn.edu
Jul 14	Last Day to submit Dissertation First Submission Approval Form and dissertation in PDF format for format check to doctoral@auburn.edu
Jul 16	Early Alert/Mid-Term Grade Deadline for Mini-Semester II
July 16	Mid-Semester – 12th Class Day for Mini-Semester II
Jul 29	Last Day to Withdraw for Full and Mini-Semester II—Last day to withdraw from course with no grade penalty. "W" assigned.
Jul 29	Last Day for Master’s Thesis students to submit Thesis Master’s Final Examination Form, ETD Final Approval Form and electronic thesis in PDF format to the AUETD system.
Jul 29	Last day for Master's Non-Thesis/EDS students to submit Comprehensive Examination Form.
Jul 29	Last Day for Doctoral Final Defense and submission of Report on the Final Examination Form
Aug 1	Classes End for Full and Mini-Semester II
Aug 4-5	No Class- Study/Reading Days for Full and Mini-Semester II
Aug 4	Last Day for doctoral student submission of the ETD Final Approval Form and electronic dissertation in PDF format to the AUETD system and to submit the Survey of Earned Doctorates (SED Survey).
Aug 6-8	Final Exam Period for Full and Mini-Semester II
Aug 9	Last day for students to request graduation applications for Fall 2025.
Aug 9	Commencement

Fall 2025

Date	Event
Aug 18	Classes Begin
Aug 18–Sep 8	Resignation Fee—Dropping all courses during this period will result in a $100 resignation fee.
Aug 22	Last Day to Add Course
Aug 23–Sep 8	Drop Course Penalty Days—Dropping a course during these days will result in a $100 Drop Fee per course dropped.
Aug 29	10th Class Day – Last day to request a meal plan change.
Sep 1	Labor Day — No Classes
Sep 8	15th Class Day. Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Oct 7	Early Alert/Mid-Term Grade Deadline
Oct 7	Mid-Semester and 36th Class Day
Oct 9-10	Fall Break — No Classes
Oct 17	41st Class Day – Student deadline for request to move finals to Associate Deans
Nov 11	Last day to submit master’s thesis in PDF format for format check to thesis@auburn.edu.
Nov 11	Last day to submit Dissertation First Submission Approval Form and dissertation in PDF format for format check to doctoral@auburn.edu.
Nov 21	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. "W" assigned.
Nov 24–28	Thanksgiving Holiday — No Classes
Dec 2	Last Day for master’s thesis students to submit Thesis Master’s Final Examination Form, ETD Final Approval Form and electronic thesis in PDF format to the AUETD system.
Dec 2	Last day for Master's Non-Thesis/EDS students to submit Comprehensive Examination Form
Dec 5	Classes End
Dec 6-7	Study/Reading Days
Dec 9	Last day for completion of Doctoral ETD Approval Form, electronic dissertation to AUETD system for approval, and complete the Survey of Earned Doctorates (SED).
Dec 8-12	Final Exam Period
Dec 13	Last day for students to request graduation applications for Spring 2026.
Dec 13	Commencement

Spring 2026

Date	Event
Jan 7	Classes Begin
Jan 7-28	Resignation Fee—Dropping all courses during this period will result in a $100 resignation fee.
Jan 13	Last Day to Add Course
Jan 14-28	Drop Course Penalty Days. Dropping a course during these days will result in a $100 Drop Fee per course dropped.
Jan 19	Martin Luther King, Jr. Day — No Classes

Jan 21	10th Class Day—Last day to request a meal plan change.
Jan 28	15th Class Day—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Feb 26	Early Alert/Mid-Term Grade Deadline
Feb 26	Mid-Semester — 36th Class Day
Mar 5	41st Class Day – Student deadline for request to move finals to Associate Deans
Mar 9-13	Spring Break
Apr 7	Last Day to submit master’s thesis in PDF format for format check to thesis@auburn.edu.
Apr 7	Last Day to submit Dissertation First Submission Approval Form and dissertation in PDF format for format check to doctoral@auburn.edu.
Apr 17	Last Day to Withdraw. Last day to withdraw from course with no grade penalty. "W" assigned.
Apr 21	Last Day for master’s thesis students to submit Thesis Master’s Final Examination Form, ETD Final Approval Form and electronic thesis in PDF format to the AUETD system.
Apr 21	Last day for Master's Non-Thesis/EDS students to submit Comprehensive Examination Form.
Apr 21	Last Day for Doctoral Final Defense and submission of Report on the Final Examination Form.
Apr 24	Classes End
Apr 25-26	Study/Reading Days
Apr 28	Last Day for Doctoral Student Submission of the ETD Final Approval Form and electronic dissertation in PDF format to the AUETD system and to submit the Survey of Earned Doctorates (SED Survey).
Apr 27 - May 1	Final Exam Period
May 2	Last day for students to request graduation applications for Summer 2026.
May 1-4	Commencements

Summer 2026: Full, Mini-Semesters I & II

Date	Event
May 18	Classes Begin for Full and Mini-Semester I
May 19	Last Day to Add Course for Full and Mini-Semester I
May 20 – May 22	Drop Course Penalty Days for Mini-Semester I. Dropping a course during these days will result in a $100 Drop Fee per course dropped.
May 20–Jun 1	Drop Course Penalty Days for Full Semester. Dropping a course during these days will result in a $100 Drop Fee per course dropped.
May 22	5th Class Day for Mini-Semester I—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
May 25	Memorial Day — No Classes
Jun 1	10th Class Day for Full Summer—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Jun 3	Early Alert/Mid Term Grade Deadline for Mini-Semester I

Jun 3	Mid Semester 12th Class day for Mini-Semester I
Jun 16	Last Day to Withdraw for Mini-Semester I—Last day to withdraw from course with no grade penalty. "W" assigned.
Jun 19	Juneteenth Holiday — No Classes
Jun 22	Early Alert/Mid Term Grade Deadline for Full Term
Jun 22	Mid-Semester for Full Semester — 24th Class Day
Jun 22	Classes End for Mini-Semester I
Jun 23-26	No Class for Full Semester
Jun 23-24	No Class - Study/Reading Day for Mini-Semester I
Jun 25-26	Final Exam Period for Mini-Semester I
Jun 29	Classes Begin for Mini-Semester II
Jun 30	Last Day to Add Course for Mini-Semester II
Jul 1	Last day to submit Dissertation First Submission Approval Form with University Reader info and dissertation in PDF for format check.
Jul 1-6	Drop Course Penalty Days for Mini-Semester II—Dropping a course during these days will result in a $100 Drop Fee per course dropped.
Jul 3	Independence Day — No Classes
Jul 6	5th Class Day for Mini-Semester II—Last day to drop from course with no grade assignment. Last day for potential tuition refund for dropped classes.
Jul 15	Early Alert/Mid Term Grade Deadline for Mini-Semester II
Jul 15	Mid Semester 12th Class day for Mini Semester II
Jul 22	Last Day to submit Master's thesis in PDF format for format check to thesis@auburn.edu
Jul 22	Last Day to submit Dissertation First Submission Approval Form and dissertation in PDF format for format check to doctoral@auburn.edu
Jul 28	Last Day to Withdraw for Full and Mini-Semester II—Last day to withdraw from course with no grade penalty. "W" assigned.
Jul 29	Last Day for master’s thesis students to submit Thesis Master’s Final Examination Form, ETD Final Approval Form and electronic thesis in PDF format to the AUETD system.
Jul 29	Last day to submit Non-Thesis Oral Examination Form.
Jul 29	Last Day for Doctoral Final Defense and submission of Report on the Final Examination Form.
Jul 31	Last Day for doctoral student submission of the ETD Final Approval Form and electronic dissertation in PDF format to the AUETD system and to submit the Survey of Earned Doctorates (SED Survey).
Jul 31	Classes End for Full and Mini-Semester II
Aug 3-4	No Class - Study/Reading Day for Full and Mini-Semester II
Aug 5-7	Final Exam Period for Full and Mini-Semester II
Aug 9	Last day for students to request graduation applications for Fall 2026.
Aug 9	Commencement

Online Calendar 2025–2026

Auburn University reserves the right to make adjustments to this calendar.

Summer 2025

Date	Event
May 19	Classes Begin
May 20	Last Day to Add Course
May 27	Last day to drop course with no grade assigned. Last day for potential tuition refund for dropped classes.
Jun 23	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. “W” assigned.
July 9	Classes and Final Exams End

Fall 2025 Term A

Date	Event
Aug 18	Classes Begin
Aug 19	Last Day to Add Course
Aug 27	Last day to drop course with no grade assigned. Last day for potential tuition refund for dropped classes.
Sept 23	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. “W” assigned.
Oct 9	Classes and Final Exams End

Fall 2025 Term B

Date	Event
Oct 14	Classes Begin
Oct 15	Last Day to Add Course
Oct 22	Last day to drop course with no grade assigned. Last day for potential tuition refund for dropped classes.
Nov 18	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. “W” assigned.
Dec 4	Classes and Final Exams End
Dec 14	Commencement

Spring 2026 Term A

Date	Event
Jan 7	Classes Begin
Jan 8	Last Day to Add Course
Jan 15	Last day to drop course with no grade assigned. Last day for potential tuition refund for dropped classes.
Feb 11	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. “W” assigned.
Feb 25	Classes and Final Exams End

Spring 2026 Term B

Date	Event
Mar 16	Classes Begin
Mar 17	Last Day to Add Course
Mar 24	Last day to drop course with no grade assigned. Last day for potential tuition refund for dropped classes.
Apr 20	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. “W” assigned.

May 1	Classes and Final Exams End
May 2	Commencement

Summer 2026

Date	Event
May 18	Classes Begin
May 19	Last Day to Add Course
May 26	Last day to drop course with no grade assigned. Last day for potential tuition refund for dropped classes.
Jun 22	Last Day to Withdraw—Last day to withdraw from course with no grade penalty. “W” assigned.
Jul 8	Classes and Final Exams End

Auburn University Libraries

Auburn University Libraries consists of three libraries on campus. The largest library on campus is the Ralph Brown Draughon Library, a 377,000 square-foot structure with seating for 4,850. It is co-located with the Mell Classroom Building on Mell Street. Branch libraries are located in the College of Veterinary Medicine and the College of Architecture, Design and Construction. Auburn University is one of the 125 universities that are members of the Association of Research Libraries. AU Libraries serves as a Federal Depository Library for Alabama.

AU Libraries’ collections exceeds 4.6 million volumes, more than 2.7 million items in microform, and 152,000 maps. The libraries license access to over 200 electronic databases, including online full-text access to over 5,000 scholarly journals and receive more than 57,000 current serials, including publications issued by the U.S. government.

The libraries offer an online catalog to library holdings at www.lib.auburn.edu (http://www.lib.auburn.edu/), expedited electronic document delivery to faculty and students via the AubieExpress service, delivery of books or documents held at other libraries via Interlibrary Loan, and expedited purchasing of titles requested by faculty or students via Purchase Request.

The Draughon Library contains the Learning Commons for group study as well as an entire floor dedicated to quiet, individual study. More than 1400 power outlets to allow students to use personal laptops while in the library. RBD Library also offers carrels for faculty and graduate student use and over 200 university and public computer workstations, including laptop computers that can be checked out to faculty and students.

The Innovation and Research Commons (I&RC) provides access to the latest multimedia hardware and software along with on-site expertise to assist users – to include help with the Adobe Creative Cloud. The I&RC also contains a maker space where students from all schools may experiment with 3D printers, laser cutters, electronics stations, sewing machines, and advanced virtual reality and augmented reality equipment.

Reference service and library use instruction is provided by subject-specialist librarians. Draughon Library also features an expanded assistive technology workstation area on the second floor that hold three workstations with specialized software for helping vision-impaired patrons use library and Internet resources.

The Special Collections and Archives Department collects rare and unique material related to the history, literature and natural history of Alabama; the American Civil War; the history of aviation; and family history in the southeastern United States.

Library borrowing privileges are extended to enrolled students; members of the administrative, research, instructional and extension staffs of the university; student, faculty and staff spouses; and active alumni association members.

Enrollment Statistics

- College of Agriculture (p. 63)
- College of Architecture, Design and Construction (p. 65)
- Harbert College of Business (p. 65)
- College of Education (p. 66)
- Samuel Ginn College of Engineering (p. 70)
- College of Forestry, Wildlife and Environment (p. 73)

- Graduate School (p. 73)
- College of Human Sciences (p. 74)
- Interdepartmental Programs (p. 75)
- College of Liberal Arts (p. 75)
- College of Nursing (p. 78)
- Harrison College of Pharmacy (p. 78)
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- U.S. Territories and Possessions (p. 84)
- Enrollment by Foreign Country (p. 85)

COLLEGE OF AGRICULTURE — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Agricultural Business & Econ (AGEC)	139	50	6	5	200
Agricultural Communications (AGCM)	8	28			36
Agricultural Science (AGSC)	36	34			70
Animal Sciences - Allied Indus (ANAI)	19	44			63
Animal Sciences (ANSC)			10	21	31
Animal Sciences - Equine (ANEQ)	4	27			31
Animal Sciences - Meat Science (ANMS)	5	5			10
Animal Sciences - Pre-Veterinary (ANPV)	59	314			373
Animal Sci-Production/Mngt (ANPM)	1				1
Applied Biotechnology (APBT)	9	15			24
Applied Economics (APEA)			14	4	18
Biol and Agric Tech Mngt (BATM)	26	7			33
Crop and Soil Science - Production (CSPR)	7	4			11
Crop and Soil Science - Science (CSSN)		2			2

Crop and Soil Science - Soil, Water, Land (CSSW)	2	1			3
Crop and Soil Science - Turfgrass (CSTU)	21	2			23
Crop and Soil Science (CSSI)			4	1	5
Crop, Soil and Environ Sci (CSGR)			61	45	106
Earth System Science (ESSA)			3		3
Environmental Science (ENVI)	21	37			58
Fish & Allied Aquac-Pre Vet (FIPV)	1	1			2
Fish, Aquacult and Aquatic Sc (FAAS)			46	47	93
Fish, Aquacult & Aquatic Sc (FIFA)	15	6			21
Food Sci Opt Grad-Poultry Sci (FDSG)			2	8	10
Horticulture Doctoral Lvl (HRTD)			6	6	12
Horticulture Master's Lvl (HRTM)			11	12	23
Horticulture Undergraduate (HRTB)	40	51			91
Marine Resources Mgmt (FIMR)	3	3			6
Plant Sciences-Entomology (ENTM)			14	12	26
Plant Pathology (PLPH)			7	21	28
Poultry Science-Doctoral (PLTD)			10	8	18
Poultry Science-Masters (PLTM)			8	12	20
Poultry Science - Pre-Veterinary (POPV)	9	6			15
Poultry Science-Production (POPP)	15	9			24
Undeclared Agriculture (UNAG)	1				1
TOTAL AGRICULTURE	441	646	202	202	1491

COLLEGE OF ARCHITECTURE, DESIGN AND CONSTRUCTION — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Architecture (ARCH)	94	147			241
Building Construction (DBSC)			6	3	9
Building Science - Construction (BSCC)			23	6	29
Building Science (BSCI)	258	48			306
Construction Management (BSCM)			26	19	45
Environmental Design (ENVD)	37	63			100
Executive Tech Const Mngt (ETCM)				1	1
Graphic Design (GDES)	19	101			120
Industrial Design Studies (IDSS)		1			
Industrial Design (IDSN)			9	9	18
Industrial Design (INDD)	72	50			122
Interior Architecture (ARIA)	19	33			52
Landscape Architecture (LAND)	40	37	7	6	90
Pre-Architecture (PARC)	58	103			161
Pre-Building Science (PBSC)	377	66			443
Pre-Graphic Design, Arch (PGDE)	21	75			96
Pre-Industrial Design (PIND)	19	19			38
Real Estate Development (RLDV)			43	10	53
TOTAL ARCHITECTURE	1014	743	114	54	1925

HARBERT COLLEGE OF BUSINESS — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Accounting (ACCT)	302	278	56	64	700
Business - Finance Conc (BFIN)			5	3	8
Business - Management Conc (BMGT)			9	7	16
Business Admin (Executive) (BUSX)			50	19	69

Business Administration (BSAD)	242	162			404
Business Administration-GR (BUSA)			396	203	599
Business Admin-Physician (BUSP)			17	11	28
Business Analytics (BUAL)	110	74	6	1	191
Business - Information Sys Conc (BISM)			4	4	8
Business-Supply Chain Mgt Conc (BSCN)			4	3	7
Finance (FINC)	731	245			976
Finance (FINN)			28	12	40
Information Systems Management (ISMN)	145	32			177
Management Information Systems (MIS)			17	11	28
Management (MNGT)	188	136			324
Marketing (MKTG)	216	532			748
Pre-Business (PREB)	1420	864			2284
Supply Chain Management (SCMN)	377	120	15	4	516
Supply Chain Management Innovation (SCMV)			1	2	3
Supply Chain Planning (SCPL)			1	1	2
Undeclared Business (UNBU)	1	1			2
TOTAL BUSINESS	3732	2444	609	345	7130

COLLEGE OF EDUCATION — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Admin Elem & Sec Ed Specialist (AESS)			2	11	13
Admin of Elem & Secondary Ed (AESG)			11	32	43
Admin. of Higher Education (AHEG)			17	33	50
Admin of Supervis & Curriculum (ASCG)			13	41	54
Adult Ed & Engl Lang Teaching (ADEL)			1		1
Adult Ed Graduate (ADEG)			24	57	81

Adult Ed Specialist (ADES)			1	6	7
Agriscience Ed Graduate (CAGG)			13	26	39
Agriscience Ed Specialist (CAGS)			2	5	7
Agriscience Ed Undergraduate (CAGB)		3			3
Biology Ed Graduate (CBIG)			2		2
Biology Ed Specialist (CBIS)				1	1
Bus & Mktg Ed Undergraduate (CBMB)	1				1
Business & Mktg Ed Graduate (CBMG)				10	10
Business & Mktg Ed Specialist (CBMS)				3	3
Career & Technical Education (CTCG)			20	38	58
Chemistry Education (CCHG)				1	1
Chemistry Ed Undergraduate (CCHB)		2			2
Clinical Mental Hlth Coun (CMHC)			6	54	60
Clinical Rehab Counseling (RRSG)			2	16	18
Collab Teach Sp Ed Graduate (RSCG)			1	9	10
Collab Teach Sp Ed Undergrad (RSCB)	3	8			11
Counseling Psychology (COPG)			7	24	31
Counselor Education (CEDG)			1	19	20
Eagles (EAGL)	18	8			26
Early Child Ed Graduate (CECG)			1	8	9
Early Child Ed Undergraduate (CECB)	1	92			93
Early/Elem Sp Ed, P-6 (RSDB)		10			10
Early/Elem Sp Ed, P-6 (RSDG)				2	2
Educational Psychology (EPGG)			4	20	24

Educational Res, Meas and Eval (ERME)				2	2
Elementary Ed Graduate (CEEG)				13	13
Elementary Ed Specialist (CEES)				1	1
Elementary Ed Undergraduate (CEEB)	1	105			106
Eng Lang Arts Ed Graduate (CEGG)			3	10	13
Eng Lang Arts Ed Undergraduate (CEGB)	3	12			15
English for Spkrs Other Lang (CESG)				5	5
Exercise Science Graduate (KESG)			19	16	35
Exercise Science Undergraduate (KESB)	229	399			628
Exercise, Performance & Health (EPHB)	51	52			103
Exercise, Performance & Health (KEPG)			4	2	6
Fitness Cond & Perform Option (KFCB)	1				1
French Ed Graduate (CFRG)			1	4	5
French Ed Specialist (CFRS)			1	1	2
Gen Social Sci Ed Graduate (CSTG)			5	7	12
Gen Social Sci Ed Undergrad (CSTB)	14	11			25
General Science Ed Graduate (CSIG)			3	3	6
General Science Ed Undergrad (CSIB)	2	5			7
German Education (CGRB)		1			1
History Ed Specialist (CHYS)				1	1
History Education (CHYG)			1		1
Instructional Leadership (INLD)			1	1	2
Intervention, Autism & Dev Dis (IADV)				1	1

Kinesiology (KNLG)			29	11	40
Mathematics Ed Graduate (CMAG)			4	12	16
Mathematics Ed Undergraduate (CMAB)	2	6			8
Music Ed Instru Specialist (CMIS)			9	2	11
Music Ed Instru/Voc Undergrad (CMCB)	17	15			32
Music Ed Instrumental Graduate (CMIG)			16	15	31
Music Ed Vocal Graduate (CMVG)			6	7	13
Music Ed Vocal Specialist (CMVS)			3	3	6
Physical Activity & Health (KPAB)	1				1
Physical Ed/Teach Ed Undergrad (KPEB)	9	4			13
Physical Ed/Teach Ed Graduate (KPEG)			3	2	5
Physics Education (CPHG)			1		1
Pre-Agriscience Education (PCAG)	6	9			15
Pre-Business & Mktg Education (PCBM)		3			3
Pre-Chemistry Education (PCCH)	2				2
Pre-Early Childhood Education (PCEC)		58			58
Pre-Early/Elem SpEd, P-6 (PRSD)	1	19			20
Pre-Elementary Education (PCEE)	6	142			148
Pre-English Lang Arts Educ (PCEG)	3	28			31
Pre-Mathematics Education (PCMA)	5	8			13
Pre-Music Ed Comb Instru/Vocal (PCMC)	20	26			46
Pre-Physical Education (PKPE)		4			4
Pre-Science Education, General (PCSI)	6	4			10
Pre-Social Science Education (PCST)	23	17			40

Pre-Special Ed Collab Teacher (PRSC)	1	23			24
Program Evaluation (PGEV)				2	2
Reading Education (CNRG)				10	10
Rehab & Disability Studies (RSRB)	11	104			115
Rehabilitation and Special Ed (RSSG)			1	12	13
School Counseling (CPSG)			1	21	22
Sp Ed Collab Tchr Specialist (RSCS)				2	2
Spanish Ed Graduate (CSNG)				7	7
Spanish Ed Specialist (CSNS)			1	3	4
Spanish Ed Undergraduate (CSNB)	1	2			3
Teaching Eng Sec/ Foreign Lang (TESF)				1	1
Undeclared Education (UNED)			1		1
Vocational Evaluation Forensic (VEFC)			1	11	12
Workforce Edu, Train & Develop (WDEV)			3	5	8
TOTAL EDUCATION	438	1180	245	609	2472

SAMUEL GINN COLLEGE OF ENGINEERING — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Aerospace Engineering (AERO)	339	85	76	16	516
Artificial Intelligence Eng (AIEN)			4		4
Automotive Mfg Systems (AMFS)			4		4
Biosystems Engineering - Bioprocess Eng (BPEN)	7	12			19
Biosystems Engineering (BSEN)	27	19	33	17	96
Chemical Engineering (CHEN)	153	129	65	30	377
Civil Engineering (CIVL)	272	88	93	48	501
Computer Engineering (CMPE)	69	16			85

Computer Sci & Software Engr (COMP)			156	42	198
Computer Science - Completer (CPSC)	122	49			171
Computer Science (CSCI)	319	56			375
Cyber Defense (CYBR)	1				1
Cybersecurity Engineering (CYBE)			16	2	18
Data Engineering (DENG)			1		1
Data Engineering (DSEN)			17	6	23
Earth System Science (ESSE)				1	1
Ecological Engineering Option (ECEN)	9	20			29
Electrical Engineering (ELEC)	209	32	95	21	357
Engineering Management - Mfg (EMMF)			11	3	14
Engineering Management - Prod Innov (EMPI)			14	7	21
Engineering Management - Systems (EMSY)			29	9	38
Biosystems Engineering - Forest (FOEN)		2			2
General Engineering (GENG)			22	6	28
Geotechnical Engineering (GEOT)			4	1	5
Industrial & Systems Eng (INSY)	238	121	78	42	479
Manufacturing Systems (MFGS)			8		8
Materials Engineering (MATL)	27	11	28	11	77
Mechanical Engineering (MECH)	652	112	129	18	911
Modeling and Data Analytics (MDAN)			5		5
Occupational Safety Ergonomics (OSFE)			4	2	6
Pavement Materials (PVMT)				1	1

Polymer & Fiber Engineering (PFEN)			2	3	5
Power Engineering (PWNG)			1		1
Pre-Aerospace Engineering (PAE)	223	56			279
Pre-Bioprocess Eng (PBPE)	3	5			8
Pre-Biosystems Engineering (PBSE)	27	19			46
Pre-Chemical Engineering (PCHE)	97	76			173
Pre-Civil Engineering (PCE)	177	60			237
Pre-Computer Eng (PCMP)	78	9			87
Pre-Computer Science (PCPS)	193	51			244
Pre-Ecological-Biosystems Eng (PECN)	4	14			18
Pre-Electrical Engineering (PEE)	123	11			134
Pre-Engineering (PN)	36	20			56
Pre-Forest-Biosystems Eng (PFOE)	3	2			5
Pre-Industrial Engineering (PIE)	76	40			116
Pre-Materials Engineering (PMTL)	15	5			20
Pre-Mechanical Engineering (PME)	489	86			575
Pre-Software Engineering (PSEN)	87	26			113
Pre-Software Engineering (PSWE)	2				2
Pre-Wireless Eng (PWIR)	1				1
Software Engineering (SENG)	158	38			196
Tribology (TRBL)			1		1
Undeclared-Engineering (UNEN)	2				2
Water Resources Engineering (WTRS)			1	1	2
Wireless Engineering (WREE)	7	1			8
TOTAL ENGINEERING	4247	1269	897	287	6700

COLLEGE OF FORESTRY, WILDLIFE AND ENVIRONMENT — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Applied Economics (APEF)			1		1
Earth System Science (ESSF)			6	6	12
Env Conservation & Management (ENVC)	3	6			9
Forest Busi & Investment (FBIN)			10		10
Forest Finance and Investment (FFIN)			6	2	8
Forestry (FORB)	59	5			64
Forestry, Graduate (FORG)			27	23	50
Geospatial and Env Informatics (GSEI)	18	5			23
Natural Resources Management (NATR)	26	15			41
Natural Resources (FOWG)			42	33	75
One Health (ONEH)				2	2
Parks & Recreation Management (PARK)	5	2			7
Pre-Forestry (PFOR)	37	2			39
Professional Forester (FOPF)			5		5
Restoration Ecology (RECL)			4	3	7
Sust Biomaterials Packaging (BIOP)	4	10			14
Wildlife Ecology & Management (WLDE)	62	80			142
Wildlife Enterprise Management (WLEM)	66	12			78
Wildlife Sci-Pre-Vet (WLPV)	11	51			62
Wildlife-Graduate (WLDG)			11	18	29
TOTAL FORESTRY, WILDLIFE AND ENVIRONMENT	291	188	112	87	678

GRADUATE SCHOOL - Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Auburn Global Master Acc 2Term (MAP2)			3	3	6
Exchange Student (EXCH)			1		1

Undeclared-Graduate School (UNGS)			5	18	23
TOTAL GRADUATE SCHOOL			9	21	30

COLLEGE OF HUMAN SCIENCES — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Apparel - Merchandising option (APME)	3	180			183
Apparel Mchd-Prod Des and Mngt (APDP)	14	79			93
Brewing Science and Operations (BRWO)			10	3	13
Brewing Sciences (BRWS)			2		2
Child Life (HDCH)		28			28
Child Life (HDCL)				18	18
Consumer and Design Sciences (CADS)			12	17	29
Culinary Science Option (CULI)	42	73			115
Development Practice (DVPR)			1	4	5
Early Child Development (HDED)		39			39
Event Management Option (EVMT)	11	203			214
Global Studies in Human Sciences (GSHS)	4	38			42
Hospitality Management (HOSP)			14	20	34
Hotel & Restaurant Mngt Option (HRMG)	43	63			106
Hum Dev/Fam-Marr and Fam Therapy (HDMT)			1	11	12
Human Development and Family Science (HDSC)	5	159	7	29	200
Human Dev Pre-Child Life (HCHX)	2	38			40
Interior Design (INDS)	5	172			177
Nutrition - Dietetics (NTDI)	3	45			48
Nutrition, Wellness Option (NTWE)	6	33			39
Nutrition (NTRI)			6	23	29

Nutrition, Pre-Dietetics (NTDX)	3	50			53
Nutrition & Food Science - Nutr Sci (NSPM)	5	62			67
Philanthropy and NonProfit Studies (PNPS)	3	23			26
Pre-Interior Design (INDX)	2	111			113
Undeclared HS (UNHS)	1	3			4
TOTAL HUMAN SCIENCES	152	1399	53	125	1729

INTERDEPARTMENTAL PROGRAMS — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Rural Sociology (RSOC)			3	1	4
Sociology (SOCY)				5	5
Transient (TRNS)	1				1
TOTAL INTERDEPARTMENT	1		3	6	10

COLLEGE OF LIBERAL ARTS — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Anthropology (ANTH)	10	31			41
Applied Behavior Analysis (ABAS)			2	7	9
Applied Economics (APEL)			8	10	18
Art History (ARTH)	2	9			11
Art - Liberal Arts (ATLA)	4	12			16
Audiology (AUDY)			2	39	41
Aviation Management (AVMN)	225	76			301
Clinical Psychology (CPSY)			4	26	30
Communication Studies (COMS)			1		1
Communication (COMM)	26	86	5	24	141
Community Planning (CMPL)			12	12	24
Economics, Liberal Arts (ECNL)	73	24			97
Elections Administration (EADM)			1	3	4

English-Technical Prof. Communication (ENGT)			1	9	10
English (ENGL)			15	28	43
English-Creative Writing (EGLC)	10	19			29
English-Literature (EGLL)	10	33			43
Explore Major, Intrnl Transfer (EXPT)	13	8			21
Explore Your Major (EXPL)	81	190			271
Film & Media Studies (FMDA)	3	4			7
Film & Film Studies, Film Opt (FILM)	37	17			54
Fine Arts (ARTF)	7	35			42
French (FLFR)		1			1
German (FLGR)	1	2			3
International Trade - German (FLGT)	8	1			9
Health Services Administration (HADM)	8	40			48
History (HIST)	68	27	23	17	135
Industrial and Org Psychology (IOMS)			20	46	66
Interdisciplinary Studies (IDSC)	4	1			5
International Studies (ISLA)	9	30			39
International Trade - French (FLFT)	1	1			2
Journalism - Sports Production Opt (JRSP)	32	16			48
Journalism (JRNL)	24	34			58
Law and Justice (LAWJ)	87	180			267
Music - Liberal Arts (MULA)	5	4			9
Music, Liberal Arts (MSLA)	48	25			73
Neuroscience (NSCI)	23	83			106
Non-Profit Org/Comm Governance (NPCG)			1		1
Philosophy (PHIL)	15	3			18
Political Science (POLI)	126	149			275
Pre-Communications (PCOM)	28	82			110

Pre-Film & Media Studies (PFMD)	2	3			5
Pre-Film/Media Stud, Film Opt (PFLM)	10	11			21
Pre-Health Services Administration (PHDM)	5	26			31
Pre-Journalism (PJRL)	16	33			49
Pre-Journalism - Sports Opt (PJRS)	34	32			66
Pre-Music, Liberal Arts (PMSC)		1			1
Pre-Public Relations (PPCR)	3	113			116
Pre-Social Work (PSWK)	5	35			40
Professional & Public Writing (EGLW)	6	33			39
Professional Flight (AVPF)	576	156			732
Psych Cognitive and Behavioral (CABS)			1	10	11
Psychology Org/ Industrial (IOPH)			6	12	18
Psychology (PSYC)	136	563			699
Public Admin and Public Policy (PADM)			16	17	33
Public Admin. & Public Policy (PUBP)			3	4	7
Public Administration (PUBA)	9	10	17	24	60
Public Relations Communication (PRCM)	7	126			133
Social Work (SOWO)	3	32	7	53	95
Sociology (SOCY)	28	32			60
Spanish (FLSP)	1	6	6	15	28
Spanish-International Trade (FLST)		2			2
Speech, Language, Hearing Sc (SLHH)		2			2
Speech, Hearing and Language (SLHS)	2	314	2	46	364
Technical Communication (TCOM)				2	2
Theatre - Liberal Arts (THLA)	9	20			29
Theatre (THEA)	7	34			41
Undeclared Liberal Arts (UNLA)	33	18			51

TOTAL LIBERAL ARTS	1880	2825	152	405	5262

COLLEGE OF NURSING — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Nurse Prim Care Practitioner (NPRC)			4	61	65
Nursing Science (NRSE)			1	11	12
Nursing Science (NURS)	45	489			534
Nursing (NSNG)				4	4
Nurse Educator (NEDU)				9	9
Pre-Nursing Science (PNUR)	60	594			654
TOTAL NURSING	105	1083	5	85	1278

PROVOST — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Auburn Global Academic (AAP)	13	6			19
Auburn Global Extended (EAP)	5				5
Dual Enrollment (DUAL)	276	508			784
Exchange Student (EXCH)	7	6			13
Path to the Plains (PATH)	142	101			243
TOTAL PROVOST	443	621			1064

HARRISON COLLEGE OF PHARMACY — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Drug & Biopharmaceutical Sci (DBPS)	4	6			10
Pharmaceutical Sciences - Health Outcomes Res & Policy Option (PYHO)			6	4	10
Pharmaceutical Sciences - Medicinal Chemistry Option (MDCH)			2	4	6
Pharmaceutical Sciences - Pharmaceutics Option (PYCE)			2	6	8

Pharmaceutical Sciences - Pharmacology Option (PYPH)			10	9	19
Pharmacy (PHAR)			144	344	488
TOTAL PHARMACY	4	6	164	367	541

COLLEGE OF SCIENCES AND MATHEMATICS — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Applied Discrete Mathematics (APDM)	9	1			10
Applied Math - Actuarial Science (ACTU)	27	24			51
Applied Mathematics (AMTH)	12	8	1	2	23
Biological Sci Pre-Prof (BIPR)			4	9	13
Biological Sciences (BIOL)			45	61	106
Biomedical Sciences (BMSC)	22	41			63
Biological Sciences (IBMS)	25	77			102
Biological Sciences (NBMS)	13	40			53
Biomedical Sciences, Pre-Dent (DBMS)	70	128			198
Biomedical Sciences, Pre-Med (MBMS)	295	409			704
Biomedical Sciences, Pre-Opt (OBMS)	7	11			18
Biomedical Sciences, Pre-Pharm (RBMS)	46	134			180
Biomedical Sciences, Pre-Phys Asst (ABMS)	12	194			206
Biomedical Sciences, Pre-Phys Tpy (TBMS)	11	30			41
Chemistry BA, Pre-Dent (DCHA)	3	1			4
Chemistry BA, Pre-Med (MCHA)	6	15			21
Chemistry BA, Pre-Opt (OCHA)		1			1
Chemistry (CHEM)	21	10	52	39	122
Chemistry, BA (CHMA)	4	25			29
Chemistry-Biochemistry (BCHM)	22	48			70

Conservation/ Biodiversity (CONS)	4	13			17
Data Science (DSCI)			1	1	2
Data Science (DSSM)			6	3	9
Earth System Science (ESSI)			14	15	29
Ecology/Evolution/ Behavior (ECEB)	5	20			25
Genetics (DGEN)		5			5
Genetics (GENE)	9	47			56
Genetics (MGEN)	9	32			41
Genetics (OGEN)		1			1
Genetics (VGEN)	1	6			7
Geography & Env Studies (GEST)	1		4	3	8
Geography (GEOG)	1	1			2
Geology (GEOL)	10	8	6	10	34
Geology, Earth Sys Science Opt (ESYS)		2			2
Integrative Biology (IBIO)	5	16			21
Integrative Biology,Dent (DIBO)	1	2			3
Integrative Biology, Phys Asst (AIBO)	1	9			10
Integrative Biology, Pre-Medi (MIBO)	6	13			19
Integrative Biology, Pre-Opt (OIBO)		2			2
Integrative Biology, Pre-Phys Tpy (TIBO)	2	6			8
Integrative Biology, Pre-Vet (VIBO)	11	59			70
Laboratory Science (ALBS)		2			2
Laboratory Science (LBSC)	3	9			12
Laboratory Science (MLBS)	2	13			15
Marine Biology (MARB)	24	51			75
Mathematics (MATH)	22	12	58	33	125
Medical Laboratory Science (MLSC)	4	24			28
Microbial Biology - Cellular/Molecular (MCCM)	6	19			25
Microbial Biology - Microbiology (MCMB)	11	16			27
Microbial Biology, Pre-Dent (DMCB)	2	4			6

Microbial Biology, Pre-Med (MMCB)	13	13			26
Microbial Biology, Pre-Opt (OMCB)	1				1
Microbial Biology, Pre-Phys Asst (AMCB)	2	10			12
Microbial Biology, Pre-Phys Tpy (TMCB)	4	3			7
Microbial Biology, Pre-Vet (VMCB)	8	19			27
Physics (PHYS)	38	5	58	9	110
Physics, Pre-Med (MPHY)	4	2			6
Physics, Pre-Phys Asst (APHY)	1				1
Statistics (STAT)			1	1	2
Undeclared-Sciences & Math (UNSM)	6	7			13
Undeclared-Sciences & Math, Pre-Phys Asst (AUSM)	1	8			9
Undeclared-Sciences & Math, Pre-Dent (DUSM)	6	8			14
Undeclared-Sciences & Math, Pre-Medi (MUSM)	20	21			41
Undeclared-Sciences & Math, Pre-Opt (OUSM)	1				1
Undeclared-Sciences & Math, Pre-Pharm (RUSM)	11	32			43
Undeclared-Sciences & Math, Pre-Phys Tpy (TUSM)	12	20			32
Undeclared-Sciences & Math, Pre-Vet (VUSM)	2	4			6
TOTAL SCIENCES & MATHEMATICS	875	1741	250	186	3052

COLLEGE OF VETERINARY MEDICINE — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Veterinary Biomedical Sciences (VBMS)			34	93	127
Public and One Health (PAOH)	12	15			27
Veterinary Medicine (VMED)			104	413	517

TOTAL VETERINARY MEDICINE	12	15	138	506	671

ALL UNIVERSITY — Fall 2024

Title	Undergrad Male	Undergrad Female	Graduate Male	Graduate Female	Total
Grand Total	13718	14189	2953	3285	34145

Enrollment by Alabama County — Fall 2024

County	Male	Female	Total
Autauga	113	125	238
Baldwin	554	605	1159
Barbour	33	39	72
Bibb	11	11	22
Blount	46	43	89
Bullock	1	6	7
Butler	17	25	42
Calhoun	97	100	197
Chambers	53	73	126
Cherokee	22	32	54
Chilton	37	54	91
Choctaw	3	4	7
Clarke	21	22	43
Clay	11	12	23
Cleburne	21	12	33
Coffee	115	125	240
Colbert	23	39	62
Conecuh	7	9	16
Coosa	7	11	18
Covington	85	81	166
Crenshaw	14	17	31
Cullman	84	88	172
Dale	57	45	102
Dallas	29	32	61
DeKalb	67	91	158
Elmore	191	172	363
Escambia	27	34	61
Etowah	102	103	205
Fayette	8	7	15
Franklin	13	7	21
Geneva	25	23	48
Greene	1	1	2
Hale	8	15	23
Henry	42	46	88
Houston	266	236	502
Jackson	45	51	96
Jefferson	1431	1394	2825

Lamar	4	2	6
Lauderdale	57	80	137
Lawrence	12	20	32
Lee	1325	1440	2765
Limestone	185	202	387
Lowndes	10	13	23
Macon	20	28	48
Madison	959	893	1852
Marengo	21	30	51
Marion	7	8	15
Marshall	101	101	202
Mobile	418	436	854
Monroe	25	31	56
Montgomery	449	411	860
Morgan	168	167	335
Perry	3	2	5
Pickens	6	4	10
Pike	31	47	78
Randolph	26	31	57
Russell	63	78	141
Saint Clair	89	104	193
Shelby	936	1003	1939
Sumter		1	1
Talladega	73	77	150
Tallapoosa	112	104	216
Tuscaloosa	77	119	196
Walker	20	39	59
Washington	7	9	16
Wilcox	7	14	21
Winston	8	11	19
Total	8906	9295	18201

Enrollment by U.S. State — Fall 2024

State	Male	Female	Total
Alabama	8906	9295	18201
Alaska	6	5	11
Arizona	56	57	113
Arkansas	49	47	96
California	208	207	415
Colorado	136	173	309
Connecticut	57	59	116
Delaware	10	18	28
District of Columbia	12	26	38
Florida	735	886	1621
Georgia	1968	1891	3859
Hawaii	5	7	12
Idaho	7	5	12
Illinois	198	216	414

Indiana	65	59	124
Iowa	15	21	36
Kansas	27	24	51
Kentucky	139	214	353
Louisiana	122	156	278
Maine	9	8	17
Maryland	127	142	269
Massachusetts	56	81	137
Michigan	49	52	101
Minnesota	41	40	81
Mississippi	104	144	248
Missouri	61	70	131
Montana	3	8	11
Nebraska	17	14	31
Nevada	10	18	28
New Hampshire	10	15	25
New Jersey	128	140	268
New Mexico	5	4	9
New York	98	110	208
North Carolina	337	396	733
North Dakota	5	4	9
Ohio	102	124	226
Oklahoma	19	29	48
Oregon	5	8	13
Pennsylvania	146	163	309
Rhode Island	6	8	14
South Carolina	133	213	346
South Dakota	2	2	4
Tennessee	530	633	1163
Texas	486	685	1171
Utah	25	18	43
Vermont	5	5	10
Virginia	208	227	435
Washington	28	23	51
West Virginia	16	8	24
Wisconsin	35	40	75
Wyoming	6	1	7
(blank)	18	8	26
TOTAL (All States)	15551	16807	32358

Enrollment by U.S. Territories and Possessions — Fall 2024

Territory	Male	Female	Total
Guam		1	1
Marshall Islands		1	1
Puerto Rico	3	4	7
U.S. Virgin Islands	1		1

U.S. Citizens Living Abroad	3	7	10
TOTAL	7	13	20

Enrollment by Foreign Country — Fall 2024

Country	Male	Female	Total
Afghanistan	1	1	2
Argentina	1	3	4
Armenia		1	1
Australia	1	3	4
Azerbaijan	2		2
Bahamas		1	1
Bangladesh	89	43	132
Belgium		1	1
Belize	1		1
Benin	1		1
Bolivia	1	1	2
Brazil	28	19	47
Bulgaria		2	2
Burkina Faso	2		2
Burma (Myanmar)	1	1	2
Cameroon	1	1	2
Canada	7	9	16
Chile	5	2	7
China	252	109	361
Colombia	16	12	28
Costa Rica	6	4	10
Côte d'Ivoire (Ivory Coast)	1	1	2
Democratic Republic of The Congo (Fmr: Zaire)	1	1	2
Denmark		1	1
Dominican Republic	1		1
Ecuador	7	8	15
Egypt	8	3	11
El Salvador	2	5	7
Ethiopia	1	1	2
Finland	1		1
France	2	5	7
Germany	12	4	16
Ghana	34	23	57
Greece	6	3	9
Guatemala	2	2	4
Guinea-Bissau	1		1
Guyana	1		1
Haiti	3	1	4
Honduras	5	9	14
Hong Kong	2		2
Hungary		1	1
India	137	81	218

Indonesia	4	7	11
Iran	48	39	87
Ireland	2		2
Israel		1	1
Italy	2	2	4
Jamaica	1	3	4
Japan	7		7
Jordan	13	8	21
Kazakhstan	3		3
Kenya	4	5	9
Kuwait	2	1	3
Kyrgyzstan	2	1	3
Latvia	1	1	2
Lebanon	3	2	5
Lesotho	1		1
Libya		1	1
Lithuania	1		1
Macao (Macau)	1		1
Malawi	1		1
Malaysia	4		4
Mexico	12	3	15
Moldova		1	1
Morocco		1	1
Mozambique		1	1
Nepal	48	28	76
New Zealand	1		1
Nicaragua	2		2
Nigeria	75	40	115
Oman	1		1
Other	2		2
Pakistan	31	8	39
Panama	4	2	6
Peru	4	2	6
Philippines	3	1	4
Poland	2	2	4
Portugal		1	1
Qatar		1	1
Republic of the Congo	1		1
Russia	5	4	9
Saudi Arabia	30	9	39
Serbia		1	1
Singapore	1	3	4
Slovakia		1	1
South Africa	4	5	9
South Korea (Republic of Korea)	49	22	71
Spain	5	14	19
Sri Lanka	10	7	17
Suriname		2	2

Switzerland		1	1
Syrian Arab Rep (Syria)	1		1
Taiwan	13	10	23
Tanzania	1		1
Thailand		1	1
Togo		1	1
Trinidad and Tobago	1	3	4
Turkey	5	7	12
Uganda	2		2
Ukraine	1	2	3
United Arab Emirates	2		2
United Kingdom	9	5	14
Uruguay	2		2
Uzbekistan	1	1	2
Venezuela	1	4	5
Vietnam	38	23	61
West Bank	1		1
Zambia	1	1	2
Zimbabwe	1	3	4
ZZ (obsol) Germany, Fed Rep W Germa	1		1
TOTAL	1113	654	1767

Financial Information

Auburn University's fees have remained somewhat lower than those charged by similar institutions in the Southeast and in other sections of the country. As institutional costs have risen, the Board of Trustees has authorized small increases in fees from time to time. Every effort is made, however, to hold fees and charges at a minimum.

The following fees and charges are in effect at this time. However, since the catalog must be published well in advance of the next school year, it is not always possible to anticipate changes. Thus, the fee schedule may have to be revised. Every effort will be made to publicize changes as far in advance as possible.

- Academic Common Market (p. 87)
- Alabama and Non-Alabama Student Policy (p. 88)
- Basic Charges (p. 91)
- Financial Aid and Scholarships (p. 92)
- Other Fees and Charges (p. 93)

In accordance with Public Law 115-407 Sec. 103:

Students utilizing VA education benefits shall not be charged a penalty, including assessment of late fees, denial of access to classes, libraries, or other institutional facilities, or be required to borrow additional funds because of the individual's inability to meet their financial obligations due to the delayed disbursement of a payment to be provided by the Department of Veterans Affairs.

Academic Common Market

The Academic Common Market is an agreement among participating Southern Regional Education Board states (Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia). According to the agreement, if one of these states does not offer a particular degree program in its state-supported universities, a resident of that state may enroll in that degree program at a university in one of the other states without having to pay out-of-state tuition. Each state specifies which programs offered at out-of-state universities it will allow its residents to attend as common market students.

To be eligible for consideration for the Common Market at Auburn, students must be accepted into a degree program that qualifies for academic common market status, classified as a junior or senior at Auburn, and have a 3.0 GPA for all college-level coursework attempted. Auburn students who enter as common market students and do not complete 12 hours per term, do not maintain a 3.0 cumulative GPA, or who do not remain in the originally approved program, lose the waiver of out-of-state tuition.

Since out-of-state residence is a requirement for being a common market student, students may not use the time spent as common market students to qualify them as residents of Alabama.

See the Academic Common Market (https://www.auburn.edu/academic/provost/academic-common-market/) website for more information. Applications for Fall Semester open April 1 and close May 31. Applications for Spring Semester open August 1 and close September 30.

Alabama and Non-Alabama Student Policy

Students enrolled prior to June 1, 1996, should consult with the Office of the Registrar for changes in residency status.

Policy for Students Enrolled for the First Time June 1, 1996, and Thereafter

For the purpose of assessing tuition and fees, applicants shall be classified as Alabama or non-Alabama students. Non-Alabama students are required to pay non-resident tuition.

An Alabama student is a person which shall be a citizen of the United States, or a permanent resident, and who shall have resided and had habitation, home and permanent abode in the state of Alabama for at least 12 consecutive months immediately preceding current registration. In applying this regulation, “applicant” shall mean a person applying for admission to the institution, if applicant is married or 19 years of age, and financially independent. Otherwise, it shall mean parents, parent or legal guardian of his/her person. If the parents are divorced, residence will be determined by the residency of the parent to whom the court has granted custody.

A person who establishes a guardianship for purpose of avoiding non-Alabama fees will be subject to non-resident tuition.

No person who moves to Alabama for the primary purpose of attending college shall be considered to have demonstrated intent to establish domicile in the state of Alabama and will generally not be considered eligible for classification as a resident student. Clear and convincing evidence to the contrary must be presented to overcome this presumption.

In determining Alabama student status for purposes of assessing fees, the burden of proof is on the applicant.

Additional Persons Eligible for Resident Tuition

1. Military personnel on active duty stationed in Alabama, their spouses and dependent children (as defined by Internal Revenue Codes), as well as military personnel whose State of Residence on their Leave and Earnings Statement (LES) is Alabama, who have continuously filed Alabama income tax returns for the duration of their service, and their spouses and dependent children.
2. Non-resident undergraduate students who are currently being awarded an academic, athletic, or other scholarship by Auburn University that is at least equal to the amount of the current tuition rate for Alabama students**,** provided that the scholarship is fully funded by a donor or other external source and non-resident graduate students appointed on qualifying assistantships of at least 1/4-time will be classified as a non-resident for tuition purposes, and the out-of-state portion of tuition will be waived, leaving the student obligated for the equivalent of resident tuition. Institutionally funded scholarships and externally awarded scholarships are excluded from this provision and do not carry with them a waiver of any portion of non-resident tuition costs.
3. Full-time employees of a state of Alabama agency or institution, their spouses and dependent children.
4. Spouse and dependent children of a non-resident, provided the nonresident has been employed in Alabama full-time for at least 12 consecutive months prior to registration, has filed an Alabama Income Tax Return for the tax year prior to the year in which the student is admitted, and did not claim a credit on the Alabama return for income taxes paid to another state.
5. Non-resident students with junior or senior standing selected for programs included in the Southern Regional Education Board Academic Common Market, provided the student does not change to another program not included, is enrolled in 12 hours per term and earns a 3.00 GPA each term. In such cases of change, reduction in course load or failure to meet the GPA, the student will be classified as a non-resident for tuition purposes and the out-of-state portion of tuition that had been waived previously, will no longer be waived. See section on Academic Common Market for application process.
6. Persons whose spouses by legal marriage are bona fide Alabama residents.
7. Spouses and dependent children of persons who establish domicile within the state of Alabama, provided that the person who establishes domicile is employed full-time in a permanent position in Alabama.

8. Students enrolled in the College of Veterinary Medicine professional DVM program admitted under contract with the Southern Regional Education Board.

Section 702, Veterans Access, Choice and Accountability Act.

The following individuals shall be charged a rate of tuition not to exceed the in-state rate for tuition and fee purposes in accordance with **Public Law 115-251 Sec. 301 & Public Law 117-68 Section 3679**:

- A veteran using educational assistance under either Chapter 30 (Montgomery GI Bill ®- Active Duty Program) or Chapter 33 (Post 9/11 GI Bill ®), of title 38, United States Code, who lives in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence).
- Anyone using transferred Post 9/11 GI Bill ® benefits (38 U.S.C 3319) who lives in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence).
- Anyone described above while he or she remains continuously enrolled) other than during regularly scheduled breaks between courses, semesters, or terms) at the same school. The person so described must have enrolled in the school prior to the expiration of the three-year period following discharge or release as described above and must be using educational benefits under either Chapter 30 or Chapter 33 of title 38, United States Code.
- Anyone using benefits under the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. 3311 (b))9)) who lives in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence).
- Anyone using transferred Post 9/11 GI Bill ® benefits (38 U.S.C. 3319) who lives in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence) and the transferor is a member of the uniformed service who is service on active duty.
- Anyone using educational assistance under Chapter 31, Vocational Rehabilitation & Employment (VR&E), effective for courses and terms beginning after March 1, 2019. A public institution of Higher Learning must charge the resident rate to Chapter 31 participants, as well as the other categories of individuals described above. When an institution charges these individuals more than the rate for residents, VA is required to disapprove programs of education sponsored by VA.
- The policy shall be read to be amended as necessary to be compliant with the requirements of 38 U.S.C. 3679 © as amended.
- Anyone described as a child or spouse of a service member and one of these descriptions listed is true of the service member (Chapter 35).
  - The service member died in the line of duty after September 10, 2001.
  - The service member is missing in action or was captured in the line of duty by a hostile force.
  - The service member is in the hospital or getting outpatient treatment for a service-connected permanent and total disability and is likely to be discharged for that disability. A service-connected permanent and total disability is a disability resulting from your service that doesn't go away.
- Anyone described as a child or spouse of a Veteran and one of these descriptions listed is true of the Veteran (Chapter 35).
  - The Veteran is permanently and totally disabled due to a service-connected disability.
  - The Veteran died while on active duty or because of a service-connected disability.

Section 1005 of the Isakson and Roe Veterans Health Care and Benefits Improvement Act of 2020 (Public Law 116-315). states that **effective 1 August 2021,** the requirement for covered individuals to enroll in a course at a public institution of higher learning within three years of being discharged to receive in-state tuition is removed.

Initial Determination of Eligibility

To be initially classified as eligible for resident tuition, students must demonstrate that they or their parent, guardian or spouse qualify for one of the eligibility categories prior to the first day of class. A signed statement is required that qualification for the eligibility category claimed has been met prior to registration.

Transfer Students

In the case of new transfer students, classification as a resident by the previous institution does not guarantee that status at Auburn University. Enrollment by a non-resident student at a college or university within the state of Alabama for more than 9 hours in any term during the period when the student is attempting to establish residency will normally exclude that student from consideration. That student will be considered to be in the state for the purpose of education.

Change in Eligibility for Resident Tuition

Students determined to be eligible for resident tuition will maintain that eligibility upon re-enrollment within 12 months of their most recent enrollment, unless there is evidence that the student subsequently has abandoned resident status (e.g., registering to vote in another state). Students failing to re-enroll within 12 months must establish eligibility upon re-enrollment.

Students initially classified as ineligible for resident tuition will retain that classification for tuition purposes until they provide clear and convincing evidence that they have established permanent domicile in Alabama. The burden of proof of change in eligibility rests on those requesting change. Evidence relevant to an initial determination of eligibility is also relevant to establishing a change in eligibility.

Non-resident students who carry an academic load considered normal (10 or more hours per term, undergraduate, or 7 hours or more hours per term, graduate) for students at Auburn University will be presumed to be in the state of Alabama primarily for the purpose of gaining an education and, thus, have not demonstrated the intent to establish a true domicile in Alabama. Clear and convincing proof may overcome this presumption, but again, the burden of proof rests on those requesting change in eligibility. Any change in resident tuition eligibility occurring during an academic term will not become effective until the registration for the succeeding term.

The following types of evidence may contain data to support the establishment of twelve 12-month residency in the state of Alabama. In all cases, the person must be at least 19 years of age or married, and financially independent. Otherwise, the person’s residency will be based on that of the parent or guardian.

1. Ownership of rental or residential property in the state of Alabama and continuous occupation thereof on an extended term of not less than twelve consecutive months.
2. Full-time permanent employment in the state of Alabama.
3. Possession of state of Alabama License(s) required to do business or practice a profession in Alabama.
4. Legal marriage to a bona fide Alabama resident.
5. Registration to vote in the state of Alabama.
6. Filing of Alabama resident income tax returns.
7. Holding a current Alabama driver's license.
8. Registration of vehicle in Alabama, and payment of property taxes, thereon.
9. Evidence of local banking activity within the state of Alabama for 12 consecutive months prior to making application for residency change.

The Office of the Registrar at Auburn University and the Office of the Registrar at AUM shall have the responsibility for determining whether a student shall be classified as an Alabama or non-Alabama student. The decision of the Office of the Registrar shall be subject to review by the Residency Committee (at Auburn) or the Chancellor (at AUM) or the designated representative of each, upon written request of the applicant.

Procedures for Appeal of Residency Decision

The following outlines the process by which students may seek review or appeal the initial decision of residency for tuition purposes.

1. Students must submit their residency review packet documents, referenced on https://residency.auburn.edu/, to the Residency Coordinator in the Office of the Registrar.
2. Should the submitted residency review be denied, students may submit to the Residency Coordinator a written request for appeal by the Residency Committee. This request should outline the circumstances that have changed since the initial residency decision.
3. Along with the written request, students should submit whatever evidence they feel is relevant to their appeal. Examples of the relevant evidence can be found in the Auburn University Residency Guidelines in this *Bulletin*.
4. The letter of request for appeal and the supporting evidence must be received no later than two business days before the committee meeting. The Residency Coordinator will prepare all materials for presentation to the committee regarding each individual appeal.
5. The committee will vote on the merits of each appeal as it relates to the written guidelines adopted by the state of Alabama and the Auburn University Board of Trustees.
6. Students will receive notification of the final decision.
7. All proceedings & associated documentation will be managed by the Office of the Registrar.

Basic Charges

The following is a schedule of the tuition structure effective Fall 2025. If you need more details, please call the Student Business & Account Services Office at (334) 844-4634.

Tuition and Student Services Fee

Basic Charges	Resident	Non-Resident
Credit Hour Tuition - Undergraduate to 12 hours* (1)	$473.00	$1,419.00
Credit Hour Tuition - Graduate/Professional to 9 hours* (1)	$630.00	$1,890.00
Student Services Fee (1)	$983.00	$983.00
Student Services Fee - GRA/GTA/GA	$825.00	$825.00
Student Services Fee - GRA/GTA (Summer)	$350.00	$350.00

* No additional charge for credit hours exceeding 12 (undergraduate)/9 (graduate)

Non-Credit/Specialty Fees

Basic Charges	Resident	Non-Resident
Auburn Abroad Fee (2)	$797.00	$797.00
Auditing Fee - Undergraduate per course (3)	$473.00	$1,419.00
Auditing Fee - Graduate/Professional per course (3)	$630.00	$1,890.00
Clearing for Graduation (4)	$450.00	$450.00
College of Veterinary Medicine Clinical Rotation Fee	$797.00	$797.00
Continuous Enrollment Fee - Graduate	$450.00	$450.00
International Student Fee	$130.00	$130.00
Music Fee (full-hour lessons) (5)	$246.00	$246.00
Music Fee (half-hour lessons) (5)	$163.00	$163.00

Professional Fees, Program Fees, Differential Tuition *

Basic Charges	Resident	Non-Resident
College of Architecture, Design, & Construction (per semester)	$2,160.00	$2,160.00
College of Business FR/SO (per semester)	$338.00	$338.00
College of Business FR/SO Summer (per semester)	$112.00	$112.00
College of Business JR/SR (per semester)	$676.00	$676.00
College of Business JR/SR Summer (per semester)	$197.00	$197.00
College of Business Graduate - per credit hour	$236.00	$236.00
College of Engineering Undergraduate FR (per semester)	$485.00	$485.00
College of Engineering Undergraduate SO/JR/SR (per semester)	$848.00	$848.00
College of Human Sciences - Interior Design (per semester)	$2,355.00	$2,355.00
College of Human Sciences - Hospitality Management (per semester)	$546.00	$546.00

College of Veterinary Medicine (per semester)	$9,542.00	$9,542.00
College of Education - Doctorate of Physical Therapy (per semester)	$1,250.00	$1,250.00
College of Education - Doctorate of Physical Therapy Summer (per semester)	$1,000.00	$1,000.00
Honors College (per semester)	$250.00	$250.00
College of Nursing - per clinical credit hour	$350.00	$350.00
College of Pharmacy (per semester)	$6,000.00	$6,000.00

* Professional fees, program fees, differential tuition are in addition to regular credit hour tuition

Graduate students' tuition and student services fee are waived, provided they are on a one-third time or greater appointment and are being paid according to the approved salary structure as a Graduate Research or Teaching Assistant. Their appointment date must be effective as of the eighth class day of the fall and spring semester or the fifth class day of summer semester. Professional and Program fees are not waived. Graduate students that have their tuition and student services fee waived pay the GRA/GTA/GA student services fee each semester.

1. The university tuition and student services fee are used to meet part of the cost of instruction, physical training and development, laboratory materials and supplies for student use, maintenance, operation and expansion of the physical plant, library and student activities. The Student Activities portion of the fee supports; Intercollegiate Athletics, Student Center Operations, Campus Recreation, and Student Activity Projects within Student Affairs. Student Activity Projects supported are: the Auburn Student Media Group, Black Student Union, International Student Organization, Leadership Programs, Service Programs, Student Governance, Student Organizations, and Student Programming. This fee includes $0.25 held in reserve to cover damage to university property by students. The student services fee is waived for full-time faculty and staff. All students except faculty and staff are eligible to participate in Student Activities.
2. Students participating in the Study Abroad/Exchange Program will pay the Auburn Abroad Fee, and any course work resulting in AU credit or grades will be assessed in accordance with the university fee structure.
3. Not charged to faculty and staff
4. A student who is a candidate for a degree in a term in which no credit hour work is taken at Auburn University is required to be cleared for graduation and pays the Clearing for Graduation fee. The Graduation fee is to be paid in addition to this fee.
5. This additional music fee is to be paid for each Performance Course of individual instruction. Instruction is available in either half-hour or hour lessons.

Estimated Cost of Attendance

For an estimated cost of attendance, please use the following link: https://www.auburn.edu/enrollment/financial-aid/cost/index.php (https://www.auburn.edu/enrollment/financial-aid/cost/)

Financial Aid and Scholarships

The Office of Financial Aid and Scholarships at Auburn University provides financial assistance to students who need aid to attend the university. Students seeking federal assistance are required to complete the Free Application for Federal Student Aid (FAFSA) (https://studentaid.gov/h/apply-for-aid/fafsa/) available each year beginning in October. Students should apply as early as possible to maximize eligibility because many funds are limited. Advisors are available each weekday from 7:45 a.m.–4:45 p.m. in 203 Martin Hall. Additional information including application links, instructions, and application priority dates are available on the Web at www.auburn.edu/finaid (http://www.auburn.edu/finaid/) and auburn.edu/scholarship (https://auburn.edu/scholarship/).

Federal aid includes grants, loans, and part-time employment.

Grants

Federal Pell Grants are available to eligible undergraduate students who demonstrate exceptional need. Federal Supplemental Educational Opportunity Grants are available, in limited number, to Pell eligible undergraduates with the greatest financial need. Alabama State Grants are available, in limited number, to Alabama residents who are Pell eligible undergraduates with the greatest financial need. Federal Teach Grants are available to undergraduate and graduate students enrolled in College of Education programs designated as high-need fields.

Loans

Federal Subsidized and Unsubsidized Loans provide long-term, low interest loans to students. Federal PLUS loans are available for eligible parent borrowers of dependent students, and Graduate PLUS Loans are available to eligible graduate students. Health Professions Loans are available, in limited number, for eligible students in Pharmacy and Veterinary Medicine.

Work

The Federal Work-Study Program provides part-time employment, in limited number, for students who demonstrate financial need.

Scholarships

Scholarships are awarded competitively based on various criteria, including but not limited to academic achievement, financial need, academic program, or geographic location as defined by city, county, or state of residence or high school or two-year institution attended. Students complete the scholarship application annually through the Auburn University Scholarship Opportunity Manager (AUSOM) (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.auburn.edu%2Fscholarship%2Fausom%2Findex.php&data=05%7C02%7Cckc0023%40auburn.edu%7Cc55613cacdee412e9e8f08dd573ccdf9%7Cccb6deedbd294b388979d72780f62d3b%7C0%7C0%7C638762640836840967%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=A%2F8ivV9X0%2B%2BQZMHyWyPcswEFvIrHChpjjeCccibfO7w%3D&reserved=0) at **auaccess.auburn.edu** for the following academic year. For additional information, visit www.auburn.edu/scholarship (https://www.auburn.edu/scholarship/).

Graduate Assistantships

Graduate students may be eligible for teaching and research assistantships and traineeships. Information is available from the department of the student's major field.

Other Fees and Charges

Undergraduate Dining Plan Charges

Default Plans**	Resident & Non-resident
First time first year (FTFY) Auburn Student	$1,530.00
Non-FTFY student living on main campus	$1020.00
Non-FTFY student living off campus	$425.00
**These are minimum dining plan levels charged each semester. Larger plans are available for purchase. Details may be found at auburn.edu/dining.	

Course Drop Fee

A $100.00 per class fee is charged for classes students drop between the 6th and 15th class day of the fall and spring semester. The charge is assessed for classes dropped between the 3rd and 10th class days for the full summer term; 3rd and 5th class days for the respective mini terms.

Late Payment Charges

All students, regardless of classification, must clear tuition, fees and other university obligations by the deadlines set by the university, or be liable for late payment charges. Late payment charges will be assessed following each due date at 1.5 percent of the unpaid balance.

Returned Check Charge	$25.00
Note: All checks accepted subject to collection.	

Fees Related to Graduation

Graduation Fee (each degree)	$40.00
Replacement Diploma Fee	$40.00
Thesis/Dissertation Fee	$50.00

Internship Courses

Students registering for an internship course only, and no other courses, will be assessed at the per credit hour rate and pay tuition. No student services fee will be assessed **provided that the student is not enrolled in any other courses and is taking an internship course only.**

Special Service Fees

Cooperative Education Program	$100.00
Cooperative Education/Graduate Distance Education ID Fee (athletic tickets)	$113.00
Cooperative Education Diploma Fee	$15.00

Proctoring Fees

Students taking online classes may have the option (as approved by the instructor) to take exams using a third-party proctoring service provided by non-Auburn vendors (e.g., ProctorU, Examity, an individual or a vendor within SmarterProctoring). Third-party proctors are external to Auburn University and require fees for proctoring services to be paid directly by the student taking the exam.

Resignations and Refunds

Students officially resigning prior to the start of a term will not be held liable for tuition and fees (other than non-refundable fees). Students resigning during the first 15 days of classes for fall/spring terms (10th class day for the full summer term or 5th class day for the respective mini terms) will be charged a $100 Resignation Fee.

The liability for tuition and fees will not be excused for resignations effective after the 15th class day of fall and spring semesters and after the 10th and 5th class days for summer full and mini semesters, respectively, except in cases of resignation caused by personal illness (physicians statement required), death or illness of an immediate family member (death certificate or physician's statement required) or call into military service (copy of activation orders required, excluding temporary training assignments). A pro-rata reduction will be made in cases of personal illness, death or illness of an immediate family member (parent, sibling, spouse, child or legal guardian) and a full reduction for military service activation. Students having made prior payment will be refunded the amount paid less their liability after the resignation. Students suspended for disciplinary reasons are not eligible for refunds or reductions in liability. Resigning students receiving refunds will first have their refunds applied to any outstanding obligations and to any scholarship, grant or loan which they had received for the term.

Students reducing course loads on or prior to the 15th day of classes of fall and spring semesters, the first 10 class days of the full summer term, or the first 5 class days of a mini session may be eligible for a partial refund or reduction in liability of tuition and fees. To be eligible, the adjustment must be completed on or before the 15th day of classes of fall and spring semesters, the first 10 class days of the full summer term, or the first 5 class days of a mini session. In such cases, tuition and fees will be reassessed based on the adjusted schedule.

Students who believe that extenuating circumstances warrant an exception to the refund policy must submit an appeal in writing to the Director, Office of Student Business & Account Services, Martin Hall. Acceptance or rejection of the appeal will be communicated within 10 business days.

Any Federal Title IV financial aid recipients who resign will be liable for any unearned funds received as determined by the Federal Return of Funds Policy (https://auburnpub.cfmnetwork.com/B.aspx?BookId=12294&PageId=460700). These amounts will be charged back to the student's university account and immediately due to the university.

Payment of University Obligations

University registration or other requests for class assignment create a liability for the payment of tuition and fees resulting from assigned classes. Students are expected to meet all financial obligations when they fall due. The university reserves the right to deny admission, dis-enroll, prevent participation in graduation and withhold transcripts, cap, gown and diploma, and pursue collection of debt of any student who fails to meet promptly their financial obligations to the university. It is each student's responsibility to be informed of

all payment due dates, deadlines, and other requirements by referring to official sources of university information such as this bulletin, office and departmental web sites, official calendar of events, announcements printed in the Plainsman, or that disseminated by other means from time to time.

Students owing charges for prior terms will not be allowed to register for future terms until all charges are paid. Students who fail to meet their financial obligations or fail to make satisfactory financial arrangements with the university, may be referred to a collection agency. Students that fail to pay any unpaid balance on their student account will be personally responsible for the debt, and agree to reimburse Auburn University the fees of any third party collection agency, which may be based on a percentage at a maximum of 40% of the debt (including principal and late fees prior to referral to such agency) and all costs and expenses including reasonable attorneys' fees, court costs, and any other charges necessary for the collection of the debt.

The Auburn University Billing and Receivable System will bill students the majority of their charges. Among the charges included within this system are those for tuition and fees, dining plan, housing and parking. Other charges will be included in the system as deemed appropriate. Any questions concerning a charge should be directed to the department responsible for that particular charge.

Statements will be processed at approximately monthly intervals corresponding to the university's semester schedule. A statement for tuition and fees will be billed and due prior to the beginning of each semester. Additional charges will be billed as incurred. All charges appearing on a billing statement must be cleared by the due date for that statement or late payment charges will be assessed. Late payment charges may be waived for tuition resulting from university registration and housing charges when financial aid is processed through the university and evidence of such aid is recorded on the statement.

Statements will be delivered via eBill (the university's electronic billing system). Students are notified through TigerMail when a new billing statement has been processed. Students may grant access to others to view their eBill statements and receive electronic statement notifications.

Checks

Checks given in payment of any university obligation are accepted subject to final collection. If the bank on which the check is drawn does not honor the demand for payment and returns the check unpaid, the student will pay a returned check fee of $25 and any applicable late payment charges. If payment is not cleared promptly, the student's registration may be canceled. The university has the right but not the obligation to redeposit any insufficient check without notice to the student or maker.

Veterans

All students utilizing a Federal VA Education benefit (Chapter 30, Chapter 33, Chapter 35, and Chapter 1606) are responsible for paying fees and charges on the same basis as other students. Students utilizing Chapter 31 (Veterans Readiness and Employment) and students receiving the Alabama GI Dependent Scholarship (ALGI) should make arrangements for their tuition, fees and books to be paid prior to their first payment due date. For questions about any of these benefits, please reach out to the Veterans Resource Center at veterans@auburn.edu.

Foreign Students Under Contract

A special administration management/program fee will be negotiated for foreign students who come to the university under a contractual arrangement that requires special administrative and programming arrangements beyond those of the regular academic program of the university.

Information Technology

The Office of Information Technology (OIT) located at 300 Lem Morrison Drive, offers computing and communication services to the university community and reports to the Chief Information Officer. OIT provides Auburn University with a reliable, secure information technology infrastructure and technical support that enables and encourages the effective use of information technology. Contact OIT via the IT Service Desk at (334) 844-4944, via email at itservicedesk@auburn.edu, online at https://auburn.service-now.com/it (https://auburn.service-now.com/it/) and follow us on X (@AuburnOIT (https://twitter.com/auburnoit/?lang=en)), Instagram (@auburnoit (https://www.instagram.com/auburnoit/?hl=en)), and Facebook (Auburn University OIT (https://www.facebook.com/auburnoit/)).

Connectivity

Auburn University's campus network is the Ethernet backbone linking computers and networks in all buildings to each other and Auburn University to the Internet. Auburn University is also a participant in the Internet2 initiative. A secure wireless network, AU WiFi, is available to Auburn students and employees in most public spaces on campus, in classrooms, and in the campus residence halls.

Computing Access

Each currently enrolled student has a username and password, which provides access to AU Access, an Auburn.edu email, network storage, OIT computing stations, Tiger Print, restricted online class materials, and other computing resources. Students have web access to the student information system via the My Academics tab in AU Access, where they can register for courses, view grades, and access additional student services. eBill provides online payment of University fees as well as account summaries. Students log into AU Access for registration, billing, and academic records. Many online resources are also accessible through mobile devices via the official Auburn University mobile app (https://www.auburn.edu/app (https://www.auburn.edu/app/)).

Computing stations and labs across campus are available for use by students and employees. OIT maintains several computing labs, most of which are available 24 hours a day. OIT computing labs have general-purpose software for database, spreadsheet, word processing, web browsing, email, and course-specific software.

Identity Management

Identity Management issues ID cards for all Auburn University affiliates and employees, assists in resolving username and password issues, and manages faculty access to appropriate resources. To request access for an ID for an affiliate, please use the Access Request Form (https://www.auburn.edu/administration/human_resources/employeeid/). For more information contact IDM at idm@auburn.edu or call (334) 844-4386.

Online Resources

Auburn University is committed to providing convenient and secure web applications to the University community. Student admissions, registration and records, campus directory services, administrative systems, email, and instructional and research tools are available to the Auburn University students and employees.

University colleges, schools, and departments maintain websites specific to their areas. The Auburn website includes online directory services, news, calendars, a campus map, and a search engine. AU Access, the campus portal, SharePoint and restricted webspace are provided for sensitive information. The Office of Information Technology website is located at https://auburn.service-now.com/it/ (https://auburn.service-now.com/it/?id=index). It serves as a central dissemination point for information about and assistance with computing, information technology, multimedia, and telecommunications at Auburn University.

Instructional Technology

Auburn University is dedicated to providing all faculty and students with effective technology to enhance teaching and improve learning. Canvas provides ways for faculty to manage course activities and content, and ways for students to interface with their course material, teachers, and each other. For more information on Canvas and other instructional technology support see: https://biggio.auburn.edu/programs/instructional-technology-programs (https://biggio.auburn.edu/programs/instructional-technology-programs/).

Web-based technologies are available for hybrid and online education programs and to enhance the online learning experience for all students. Several technology-enhanced classrooms are available on-campus, as are several special course-specific computer classrooms and general computer labs.

Telecommunications

OIT provides telephone, data network (wired and wireless), and cable TV services for all academic and administrative campus buildings, and wireless network to dormitories. Additional information on telecommunications services is available to AU students, including cellular service discounts.

Infrastructure Planning

OIT participates in all building committees for new buildings and major renovation projects. Through this process, OIT ensures that telecommunications, audio/visual, and networking needs are addressed and that these systems are properly designed. OIT meets regularly with the Facilities Division to coordinate necessary infrastructure improvements. In support of Auburn University’s mission, OIT is continually planning and upgrading its backbone copper, fiberoptic cabling infrastructure, and core network equipment to meet Auburn University's growing data and telecommunications needs.

Support

Training, documentation, and consulting are provided for Auburn University students and employees via orientations, seminars, workshops, publications, and the IT Service Desk. The IT Service Desk is available on University business days and Sundays

to answer questions and offer assistance on IT-related issues. Contact the IT Service Desk at (334) 844-4944, via email at itservicedesk@auburn.edu, or drop by the third floor of the RBD Library. Hours of operation can be found at https://auburn.service-now.com/it (https://auburn.service-now.com/it/).

The Office of Information Technology does not administer an academic program. Inquiries concerning computer curricula should be directed to the Samuel Ginn College of Engineering or the Raymond J. Harbert College of Business.

Policies

Auburn University's Information Technology policies are on the web at www.auburn.edu/oit/policies (https://auburn.service-now.com/it/?id=sc_cat_item&sys_id=b64d6ea9db155810fbade02b13961978). Email (username@auburn.edu) is an official means of communication at Auburn University. As such, students are responsible for checking their Auburn University issued email account in a timely fashion and on a regular basis.

Student Services

- Auburn University Bookstore (p. 97)
- Campus Dining (p. 97)
- Music, Theatre and Lectures (p. 101)
- Parking and Transit Services (p. 101)
- Student Affairs (p. 102)
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- Tiger Card/Tiger Club Accounts (p. 106)
- University Housing (p. 106)

Auburn University Bookstore

The Auburn University Bookstore, located in Haley Center, is a full-service college store dedicated to serving the Auburn campus community. The mission of the store is to support student success, promote the Auburn Spirit and provide a welcoming destination for all. The AU Bookstore offers:

- Textbook price comparison feature, competitive prices, online textbook reservations and shopping at https://www.aubookstore.com/.
- Option to rent or purchase new or used books, e-books in-store and online.
- All-Access Program — Digital course content delivered to the student account on Canvas before the 1st day of class then billed to the student e-bill after drop & add.
- Technology service and educational pricing on technology products.
- Apple Authorized Service Provider.
- Auburn gifts, apparel, novelties and alumni merchandise, including diploma frames.
- Graduation cap & gowns.
- Special order services for general books as well as school and office supplies.
- Bookstore gift cards, UPS & FedEx shipping service, postage stamps.
- Special events geared toward students offered throughout the school year.

Visit Study Essentials, a satellite bookstore in the RBD Library open extended hours daily. You'll find supplies for projects, test materials, calculators, headphones, snacks and beverages, and a small Auburn gift selection.

We give back! All revenue from the AU Bookstore is returned to Auburn University, making it a great way for students, faculty, staff and alumni to show their support for Auburn University.

Campus Dining

Tiger Dining

Your dining experience allows you to enjoy good food and connect with fellow students. The Tiger Dining team is dedicated to creating welcoming spaces where you may enjoy a variety of fresh, healthy, and delicious foods with superior service. Our diverse dining

venues are located throughout campus, enabling you to grab a quick bite between classes or relax and enjoy some downtime. We look forward to the opportunity to serve you.

Convenient, Flexible, Fresh Made, Budget-Friendly, Healthy & Sustainable

It's all about you. We've kept what's most important to you in mind by building in the convenience, flexibility, quality, value, and healthy options you deserve. We offer a variety of meal plans to meet your needs.

You're automatically enrolled in your default meal plan each semester, and you have until the 10th class day to change your meal plan via the GET mobile app.

Meal Plans

All students enrolled in at least one class on Auburn's main campus are assigned the default meal plan for their student type each semester. All meal plans contain dining dollars which may be used at any on-campus dining location, including athletics concessions, food trucks, snack and drink vending machines and the Hey Day Market. Many dining plans also have weekly or block meal swipes for convenience and value.

Weekly Meal Swipes

Weekly meals provide a reduced-price* entry into our three dining halls: the Village Tiger Zone, The Edge at Central Dining and the Wellness Kitchen, as well as Foy on The Fly. These plans include either 5 or 10 meals per week. Our buffet-style dining halls always offer a variety of foods allowing you to create a plate according to what you're craving. Early each Sunday morning, your 5 or 10 meals are loaded to your account to use as you wish at our dining halls. Make sure to use them all—unused meals expire after the dining halls close Saturday night. For your convenience, menus for each day and meal period are available online.

*Reduced price as compared to retail entry price.

Block Meal Swipes

With various healthy options and a lower cost per meal*, a block meal grants you entry to our three dining halls: Village Tiger Zone and The Edge at Central Dining and the Wellness Kitchen, as well as Foy on The Fly. Our buffet-style dining halls always offer a variety of foods, allowing you to create a plate according to what you're craving. Plans that include block meals come with either 25, 50, or 75 block meals, each including $425 dining dollars. Block meals may be used as you wish, but unused block meals expire at the end of each semester.

*Lower cost as compared to retail entry price.

Dining Dollars

Dining Dollars work like a debit card. They're accessible via your Tiger ID and are accepted at all campus dining locations, including food trucks, athletics concessions, snack and drink vending machines and the Hey Day Market. Running low? No problem! You may load additional funds to an Optional Dining account anytime during the semester. Unused dining dollars roll from the fall to spring semester and expire at the end of the summer term. Optional Dining funds never expire.

ORANGE PLANS:

All first-time, first-year Auburn students are automatically enrolled in the default orange plan for their first two semesters, regardless of classification or housing status. They may choose from three other orange meal plan options listed below:

Default Orange Plan is Weekly 5 with $450 Dining Dollars: Provides students with 5 meals per week to use at Village Tiger Zone, Wellness Kitchen or The Edge at Central dining halls and $450 Dining Dollars to spend at campus retail locations. Total cost $1,530

Weekly 10 with $500 Dining Dollars: Provides students with 10 meals per week to use at Village Tiger Zone, Wellness Kitchen or The Edge at Central dining halls and $500 Dining Dollars to spend at campus retail locations. Total cost $1,955

All Access with $150 Dining Dollars: Provides students unlimited access to Village Tiger Zone, Wellness Kitchen or The Edge at Central dining halls seven days/week and $150 Dining Dollars to spend at campus retail locations. Total cost $2,570

All Access with $425 Dining Dollars: Provides students unlimited access to Village Tiger Zone, Wellness Kitchen or The Edge at Central dining halls seven days/week and $425 Dining Dollars to spend at campus retail locations. Total cost $2,800

BLUE PLANS:

On Campus Students who are sophomores or higher or have completed two semesters in the orange plan may choose from any of the orange plans above as well as the two blue meal plans listed below:

Default Blue Plan is 50 Meals with $425 Dining Dollars: Provides students 50 meals per semester to use at Village Tiger Zone, Wellness Kitchen or The Edge at Central dining halls and $425 Dining Dollars to spend at any on-campus dining location. Total cost: $1,020

75 Meals with $425 Dining Dollars: Provides students 75 meals per semester to use at Village Tiger Zone, Wellness Kitchen or The Edge at Central dining halls and $425 Dining Dollars to spend at any on-campus dining location. Total cost: $1,315

WHITE PLANS:

Off-Campus Students who are sophomores or higher or have completed two semesters in the orange plan may choose from any of the orange or blue plans listed above as well as the meal plans listed below:

Default White Plan is $425 Dining Dollars: Provides students with lunch/snack/coffee money. $425 Dining Dollars to spend at any on-campus dining location. Total cost: $425

25 Meals with $425 Dining Dollars: Provides students 25 meals per semester to use at Village Tiger Zone, Wellness Kitchen or The Edge at Central dining halls and $425 Dining Dollars to spend at any on-campus dining location. Total cost: $735

$650 Dining Dollars: Provides students with lunch/snack/coffee money. $650 Dining Dollars to spend at any on-campus dining location. Total cost: $650

Dining Locations

Meal Swipe Locations (these locations also accept Dining Dollars):

- The Edge at Central Dining
- Village Tiger Zone
- Wellness Kitchen
- Foy on the Fly

Retail Locations (these locations accept Dining Dollars, Debit, Credit, Apple pay & Google pay):

Central Dining

- Legacy Market

Melton Student Center

- Blenz
- OG Chicken & Flametown Burgers
- Chick-fil-A
- Inked Taco
- Starbucks
- Toro Sushi
- War Eagle Supply Co.

The Village

- Chick-fil-A
- Tiger Zone Dining Hall
- Toro Sushi
- Village Blenz
- War Eagle Supply Co.

Foy Commons

- Chicken Salad Chick
- Panda Express
- Foy on the Fly

RBD Library

- Panera
- AUto Eats Fresh Food Vending
- Costa Coffee

Lowder Business Building

- Starbucks

Horton Hardgrave Hall

- The Exchange

Brown-Kopel Engineering Student Achievement Center

- Café 25

Haley Center

- Einstein Brothers Bagels

South Donahue

- War Eagle Supply Co.

Dudley Hall

- Drawing Board Café

College of Nursing

- War Eagle Supply Co.

Tiger Dining Food Trucks

- Amsterdam Café
- Amsterdam Taco
- The Tea
- NYC Gyro
- Philly Connection

Trucks Open on Rotation:

- Rollin’ Pepperoni
- Let’s Shake On It
- Holloway BBQ

(local food truck partners - updated regularly)

AUto Eats (Fresh Food Vending) Locations:

- RBD Library
- College of Forestry, Wildlife and Environment
- Boyd Residence Hall
- Sasnett Residence Hall
- Dudley Hall

Locations subject to change

Stay Connected

Hungry? Want to know where to go on campus? Our mobile-friendly website, auburn.edu/dining provides up-to-date locations and hours.

Follow us on Instagram: @AUTigerDining

Don’t have much time? The free Grubhub app allows you to order your food, pay with your dining funds, and pick up your order when it’s ready.

- Website: https://campusdining.auburn.edu
- Telephone: (334) 844-8504
- Location: 282 Thach Concourse, Foy Hall, Suite 105

Music, Theatre and Lectures

Classical concerts, touring productions by prominent theatre, music, and dance companies and ensembles, lectures by political figures, news commentators, specialists and prominent scholars, touring and resident exhibitions at the university’s art museum and galleries, and a major motion picture series are among the special events featured each year at the university. Many of these activities are free.

The Auburn University Department of Music features a wide variety of ensembles including Chamber Choir, Gospel Choir, Singers, Men’s Chorus, Women’s Chorus, Marching Band, Concert Band, and Symphonic Band, the Symphony Orchestra, Opera Workshop and other specialized ensembles which offer opportunities for students who want to perform in musical groups. Faculty, guest artists, many ensembles, and students present concerts throughout the academic year for university personnel and the community.

Auburn University Theatre produces a full season of exciting plays and musicals both on the main stage of the University Theatre and in the Telfair Peet Theatre Black Box. Auditions and participation in theatre productions are open to the entire university community. Admission to all AU Theatre productions is free to every Auburn student with a valid AU ID. The department is also home to one of the oldest student organizations on the Auburn campus, The Auburn University Players. Auburn University Theatre provides a great opportunity to participate in and appreciate the performing arts.

Student Media produces broadcasts and publications for Auburn students and provides them with opportunities to participate in the creation and dissemination of the university literary magazine, yearbook, newspaper, radio station, broadcast news, and entertainment programming.

Parking and Transit Services

Our mission at Parking and Transit Services is to enhance transportation to and within Auburn University’s campus by promoting and providing alternate modes of transportation thereby creating a more sustainable campus while maximizing the utilization of available parking spaces.

Parking Services

Vehicle(s) Registration

Students who park a vehicle on campus must register their vehicle(s) as established in the Auburn University Parking and Traffic Regulations. Any vehicle not properly registered on, or after, the first day of class for the fall semester will be in violation of the established regulations and therefore is liable to receiving a citation.

Vehicle, motorcycle, and bicycle registration is valid for one year beginning the first day of the fall semester until the day before the first day of the following semester. While registration begins in July, Parking Services will contact students via their TigerMail with specific times and dates depending upon their classification status (freshman, sophomore, junior, etc.). Registration is completed via AU Access by selecting the “My Campus” tab however, for a step-by-step guide please visit: aub.ie/ParkingReg (https://aub.ie/ParkingReg/).

Parking Enforcement

Campus parking is identified by zones that correspond with specific parking lots/decks/areas designated on campus. For a comprehensive campus zone map, visit: aub.ie/ZoneMap (https://aub.ie/ZoneMap/).

All zones are enforced Monday–Friday from 7 a.m. until 5:30 p.m. throughout the year as long as the University is officially open or unless denoted otherwise. Residential zones (RW, RH, RD, and RX) are enforced 24 hours a day, seven days a week.

Any student found in violation of the established University Parking and Traffic Regulations will receive either a citation, wheel lock, and/or tow. The student will be notified via their TigerMail if they are registered. After 10 days, all charges and fees will be transferred

to their student e-Bill account if they have not been paid. For detailed information about wheel-locks, tows, and how to retrieve your vehicle visit: aub.ie/LockAndTow (https://aub.ie/LockAndTow/).

Transit Services

All transit services are covered in tuition payments therefore we encourage students to utilize the transit daily as a sustainable way to access campus and the City of Auburn. During the fall and spring semesters, Tiger Transit operates twenty-four routes simultaneously from 7 a.m.–8 p.m. and 7 a.m.–5 p.m. during the summer.

- Track all twenty-four routes in real-time by downloading our bus tracking app at: aub.ie/whereisthebus (https://aub.ie/whereisthebus/).
- To view the full bus stop listing on-campus and within the City of Auburn, visit: aub.ie/RouteList (https://aub.ie/RouteList/).

Student Affairs

The mission of Student Affairs is to cultivate a healthy and supportive campus environment that engages students, advances learning, encourages leadership and prepares students for future success. Student Affairs is comprised of the following departments, programs and services that support students both inside and outside the classroom.

Auburn Cares

Auburn Cares works with students to aid them in the successful navigation of challenging personal life issues, critical incidents, hardships, and emergencies that may impede a student's success and retention at Auburn University. Staff serve as a support, liaison, or resource to students and families during times of student distress, need, or emergency. In addition, the Auburn Cares office oversees the medical withdrawal process, operates the Campus Food Pantry to assist students struggling with food insecurity, and supports survivors of sexual assault and power-based violence through the Safe Harbor program.

- Website: aucares.auburn.edu (https://aucares.auburn.edu/)
- Telephone: (334) 844-1305
- Location: Melton Student Center, suite 1206

Greek Life

Greek Life is an advocate and resource for the Greek community and provides our students with opportunities for personal growth and development. More than 9,000 Auburn students call one of our fraternities or sororities home. Students involved in Greek Life have an average GPA of 3.41, consistently producing higher GPA averages above the non-Greek Life students. 83% of students in Greek Life graduate in 4-years, which is a testament to the additional academic support students receive in their fraternities and sororities. Auburn fraternities and sororities offer students various experiences, including service projects, philanthropic efforts, leadership development, and social engagement. Membership in the Greek community connects students to alumni/ae from across the nation and in every professional industry and area. All fraternities and sororities were founded on core values and beliefs centered on improving their members' lives. Greek Life provides student services in leadership development, event management, training and education, recruitment and growth, policy enforcement services, and professional development. Greek Life assists organizations in managing the on and off-campus fraternity houses, the Panhellenic sorority chapter rooms in campus housing facilities, the NPHC Legacy Plaza, and the NPHC chapter room on campus.

Greek Life oversees 55 nationally affiliated fraternities and sororities that comprise three governing councils: the Interfraternity Council (IFC), the National Pan-Hellenic Council (NPHC), and the Panhellenic Council (Panhellenic).

Interfraternity Council (IFC): (https://greeklife.auburn.edu/interfraternity-council/) The IFC comprises 27 fraternities that emphasize personal and fraternal responsibility, leadership, scholastic achievement, civic engagement, and brotherhood.

National Pan-Hellenic Council (NPHC): (https://greeklife.auburn.edu/national-pan-hellenic-council/) The NPHC comprises four sororities and four fraternities that focus on rich tradition, community service, scholarship, culture, community, and social action.

Panhellenic Council (Panhellenic): (https://greeklife.auburn.edu/panhellenic/) The Panhellenic Council comprises 18 sororities that foster a spirit of friendship and harmony through academic excellence, social responsibility, leadership, service and sisterhood.

- Website: greeklife.auburn.edu (https://greeklife.auburn.edu/)
- Telephone: (334) 844-4600
- Location: Student Center, Suite 1330

Student Involvement

Getting involved with a student organization is a great way to meet others with similar interests, and it also serves as an experiential learning opportunity beyond the classroom to build career skills that employers seek. To make the most of the Auburn student experience, students are encouraged to join two organizations: one for fun to build community and one that aligns with their academic major or career interest. Student Involvement is home to more than 500 student organizations, all of which can be found on the digital home for getting involved: AUinvolve (https://auburn.campuslabs.com/engage/). Students trying to figure out how to get involved are encouraged to use a group of students called the Involvement Ambassadors, (https://involve.auburn.edu/organizations/involvement-ambassadors/) who work at the front of the Student Involvement office on the 3rd floor of the Melton Student Center every day. The Involvement Ambassadors are available to serve as a resource for any student seeking assistance, and they provide one-on-one consultations with students to help them find organizations to join.

Student Involvement consists of six portfolios of organizations: Leadership Programs, Service Programs, Student Governance, Student Media, Student Organizations, and Student Programming.

LEAD Auburn (https://involve.auburn.edu/leadership/) is a leadership program aimed at helping Auburn students develop the skills to lead on campus, in the community, and in their future career fields. There are eight-week leadership cohorts as part of the Certified Student Leadership Program, special events like etiquette dinners, experiential learning trips to learn about leadership from professionals around Alabama, and other activities that help students grow their leadership skills.

Service Programs (https://involve.auburn.edu/service/) provide opportunities for students to serve the local community. IMPACT (https://involve.auburn.edu/service/impact/) provides weekly service opportunities around the Auburn/Opelika community, week-long service trips during university breaks, and other service days throughout the year. The Beat Bama Food Drive (https://involve.auburn.edu/service/beat-bama-food-drive/) competes against other SEC schools by collecting donations for the East Alabama Food Bank and for the on-campus food pantry to help alleviate food insecurity. The AU Dream Makers (https://involve.auburn.edu/service/) volunteer and raise money for the East Alabama Medical Center to enhance resources for families who rely on the support of the NICU and other pediatric units for their children.

Student Governance (https://involve.auburn.edu/governance/) is home to the Black Student Union (BSU) (https://involve.auburn.edu/governance/black-student-union/), International Student Organization (ISO) (https://involve.auburn.edu/governance/international-student-organization/), and Student Government Association (SGA) (https://sga.auburn.edu/). Each of these organizations seeks to enhance the Auburn experience by representing students' needs to university administrators, putting on a wide variety of events, and more. BSU General Assembly meetings are open to everyone on Monday nights at 5:00 pm. ISO Social Hours are open to everyone wanting to try food from different cultures on Friday afternoons at 4:00 pm. SGA Senate meetings are open to everyone on Monday nights at 7:30 pm, and students can share their feedback and concerns with SGA anytime using a platform called Auburn Answers (https://cws.auburn.edu/auburnanswers/).

Student Media (https://involve.auburn.edu/media/) includes five student-run organizations that provide opportunities for students to advance their career preparation and display their creative skills. The Auburn Plainsman (https://www.theplainsman.com/) is the student-run, online news source and periodic news magazine. First published in 1894, The Plainsman is the most decorated, non-daily college newspaper in the country. The Plainsman carries a digital-first strategy to publish news to their website daily while printing several issues yearly. Eagle Eye TV (https://www.eagleeyeauburn.com/) is Auburn's award-winning television station that produces live news and sports shows, as well as live streams of various campus events. WEGL 91.1 FM (https://www.weglfm.com/) is an award-winning, non-commercial radio station that provides a wide range of music and information for the Auburn community. WEGL also DJs campus events and provides play-by-play to some Auburn Athletics events. The Glomerata (https://www.glomerata.com/) is Auburn University's yearbook, distributed each April. The *Auburn Circle* is a literary and arts magazine that serves as a forum for artists, writers, photographers and designers to showcase their work a few times yearly.

Student Organizations (https://involve.auburn.edu/organizations/) is home to approximately 500 additional student-run organizations on campus, all of which can be found on AUinvolve (https://auburn.campuslabs.com/engage/organizations/). These student organizations help students build community with others who share similar interests, whether preparing for a specific career field, sharing a passion for something, or sharing cultural backgrounds. Students can also start new organizations when they don't find the type of organization they're looking for.

Student Programming (https://involve.auburn.edu/programming/)is home to the University Program Council (UPC) (https://involve.auburn.edu/programming/university-program-council/). UPC is a student-run programming board that works to bring various events to campus for students to enjoy throughout the year. Some of the most popular events include concerts, stadium movies, carnivals, and more. UPC events provide a variety of opportunities to meet new people and have fun. For the first eight weeks of each

fall semester, UPC coordinates The First 56 (https://involve.auburn.edu/programming/the-first-56/), which consists of 56 days of events to help students make new friends, discover campus resources, and develop healthy habits inside and outside the classroom.

- Website: https://involve.auburn.edu (https://involve.auburn.edu/)
- Telephone: (334) 844-4788
- Location: Melton Student Center 3rd Floor, Suite 3130

Harold D. Melton Student Center

The Auburn University Melton Student Center is the Auburn Family's home away from home. Some of the services available in the 184,000-square-foot center include the James E. Foy Information Desk, a City of Auburn police substation, Tiger Transit, Amazon lockers, ATMs, food venues, a game room, television and study lounges, and email kiosks. The Melton Student Center also offers a variety of meeting rooms, a ballroom, event spaces, and outdoor spaces that serve students, departments, and the general public.

- Website: studentcenter.auburn.edu (https://studentcenter.auburn.edu/)
- Telephone: (334) 844-1300
- Location: Melton Student Center, Suite 3231
- James E. Foy Information Desk
  - (334) 844-4244 Location: 2nd floor

Parent & Family Programs

Parent & Family Programs is the campus link for all Auburn University parents and families. The office facilitates communication between the University and families, provides opportunities for families to be actively involved in the life of the University, sponsors programs for families to attend and provides services to meet the critical needs of Auburn parents and families.

- Website: parentandfamily.auburn.edu (https://parentandfamily.auburn.edu/)
- Telephone: (334) 844-1493
- Location: Student Center, Suite 3231

Student Conduct

Student Conduct is responsible for addressing non-academic violations of university policy through the Code of Student Conduct. Student Conduct provides a fair, impartial, and educational conduct process for students and student organizations. Student Conduct is also responsible for processing student conduct records verification requests**.**

- Website: conduct.auburn.edu (https://conduct.auburn.edu/)
- Telephone: (334) 844-1305
- Location: Melton Student Center, Suite 1206

Student Health Services

Auburn University Medical Clinic

The Auburn University Medical Clinic provides a full range of primary, preventative, and urgent medical care services for Auburn students, faculty, staff, visitors, and members of the surrounding community. Services are provided on an appointment basis, but walk-ins will be evaluated and given appointments or seen immediately based on the urgency of their condition. Care is provided by our team of fully licensed and Board-Certified/Eligible Physicians (MD, DO), Certified Registered Nurse Practitioners (CRNP) and Certified Physician Assistants (PA-C), and supporting staff. Services are provided on a fee-for-service basis with on-site billing.

Available Services

- Primary and Urgent Care
- Allergy Services
- Immunizations and Vaccines
- Laboratory and X-ray
- Massage Therapy
- Mental Health
- Pharmacy

- Sports Medicine
- Women's Health

Contact Information

- Telephone: (334) 844-4416
- Website: auburn.edu/medical (https://cws.auburn.edu/aumc/)
- Location: 400 Lem Morrison Drive

Student Insurance

The Student Government Association sponsors an Accident and Sickness Insurance Plan, which is available to registered undergraduate and graduate students, spouses and dependents. An insurance plan or its equivalent is required for all international students and recommended for all students.

- Telephone: (334) 844-4416
- Website: aub.ie/StudentInsurance (https://studentaffairs.auburn.edu/student-health-insurance/)

Student Counseling and Psychological Services

The mission of Student Counseling and Psychological Services is to provide comprehensive preventative and clinical mental health services to enhance the psychological well-being of individual students, as well as the broader campus culture. Student Counseling and Psychological Services provides brief individual therapy, unlimited group therapy, psychiatric services, and after-hours and weekend emergency coverage to address the emotional, developmental, and mental health-related concerns of students. Educational and academic-related programs, skill-building workshops, and outreach presentations are offered to the campus community. Services are professional and confidential. All services are provided for no charge except for Executive Functions Screening assessment. Students needing long-term therapy, or 24-hour crisis management are provided appropriate community referrals.

- Telephone: (334) 844-5123
- Website: https://scps.auburn.edu/

Recreation and Wellness

Recreation and Wellness offers a variety of programs and services designed to promote an active and healthy lifestyle. Programs include outdoor recreation, intramural and club sports, group fitness, personal training, and Olympic/powerlifting. Students have access to a variety of fitness equipment, a dedicated lifting space, a resort-style leisure/activity pool, two fifty-foot climbing towers, six basketball courts, two multi-activity courts, a one-third mile corkscrew track, and an outdoor rental center and bike shop.

Along with promoting and encouraging physical health, Recreation and Wellness provides prevention and wellness education programs to enhance the well-being of Auburn students and the Auburn University campus community. Programs include individual substance use intervention services through the TESI and SUIT programs, nutrition services and registered dietitians, support for establishing and maintaining healthy relationships, the Be Well Hut, and the “Be the Difference” bystander intervention program.

- Telephone: (334) 844-0023
- Website: https://www.recwellness.auburn.edu/
- Location: Recreation and Wellness Center

James E. Martin Aquatics Center

This facility provides two swimming pools for use by Health and Human Performance classes, intercollegiate athletics, intramural and club sports, students, faculty, staff, and community members. Programs and events are planned and staffed to provide a healthy and safe aquatic environment.

- Telephone: (334) 844-4182
- Website: https://aquatics.auburn.edu/

Special Clinics

The Speech and Hearing Clinic of the Department of Speech, Language, and Hearing Sciences, primarily a teaching facility, provides service for students with speech, hearing or language problems. These services may involve both diagnoses and treatment of problems.

- Telephone: (334) 844-9600
- Website: https://www.cla.auburn.edu/speechandhearingclinic/

Tiger ID/Tiger Club Accounts

The Tiger ID is the official form of identification for every Auburn University Student. It is used to check out books at the university libraries, gain access to buildings or labs, gain entry to university related events, and may be required for other campus functions. A Tiger Club Account provides a convenient means of making purchases on campus and at selected off-campus locations using the student's Tiger ID. This account can be used at bookstores, dining facilities, vending locations, grocery stores, and other student services.

To make purchases at selected off-campus locations using the AU Tiger ID, an AU student first must deposit funds into an established Tiger Club Account. Purchases will be debited from the available funds in the student's account. Cash withdrawals are not permitted, and balance refunds may be made only on a closed account. Refunds will be transferred to the Office of Student Financial Services and applied to any debt owed Auburn University. The Office of Student Financial Services will refund any remaining balance to the student.

Deposits into a Tiger Club Account must be made electronically at www.auburn.edu/tigercard (https://www.auburn.edu/administration/tigercard/). Students may view Itemized statements for recent transactions online.

Additional information regarding the Tiger ID/Tiger Club Accounts may be obtained by contacting the Tiger ID Office.

- Telephone: (334) 844-4507
- Website: https://www.auburn.edu/tigercard/
- Location: Melton Student Center

University Housing

Auburn University Housing

Auburn University Housing (AUH) offers on-campus housing accommodations for undergraduate students in seven residential communities consisting of a total of 24 residence halls. Additionally, Auburn University Housing also offers returning residents the opportunity to live at 160 Ross, 191 College, The Union, and South Donahue. The University does not offer on-campus housing accommodations for graduate students. All residence halls offer a variety of amenities and are within walking distance to classes, dining locations, recreational areas, laundry facilities, mailrooms and the library.

Residence halls in the Hill and Quad communities are suite style: two students share a room that is connected by a bathroom to another room shared by two students. The Village community residence halls are primarily configured in four-bedroom, two-bath units: four students each have their own bedroom and share a bathroom with the roommate on their side of the suite. The Village also features a kitchenette and common space shared by all students in each unit. South Donahue Hall features two bedroom units, two bedroom shared units (two students per bedroom) as well as a few one and four bedroom units. All units in South Donahue share a common area and kitchenette. Housing for students with disabilities is available in all residential areas.

Apartment units at 160 Ross, 191 College and The Union come fully furnished and can range from two bedroom to six-bedroom units. Additionally, these complexes offer a variety of amenities including a state-of-the-art fitness center, direct tiger transit route to campus, study lounges, and an outdoor community area with a pool and hot tub.

University Housing hosts several special interest communities across campus. Honors College members can request to live with other members in Honors College halls in the Quad and Village. Residential Learning Communities based on similar interests or academics are in the Quad and Village. Panhellenic sororities can live on their sorority specific hall located in the Village. For more details on special interest communities, floor plans, rental rates, and amenities, please visit the University Housing website at universityhousing.auburn.edu (https://universityhousing.auburn.edu/).

Each residence hall is staffed by undergraduate students, graduate students, and professional staff members who oversee the daily operations of the residence hall and foster communities that are engaging, supportive and inclusive. Undergraduate Resident

Assistants (RAs) provide social and educational programs for residents that are designed to engage students, advance learning, encourage leadership and prepare students for future success. RAs are directly supervised by our Graduate Area Coordinators (GACs). All hall staff members are trained and supervised by full-time Residence Life professional staff members. AUH staff also ensure resident compliance with any department, university, and community rules and regulations.

Admission to Auburn University does not automatically include a room reservation, and first-year students are not guaranteed housing. Priority for housing requests is based upon the date the housing application is received. A $100 non-refundable application fee is required with the housing application. A $200 non-refundable pre-payment is required for students that select a bed during the room selection process in March. are required with the housing application.

- Telephone: (334) 844-4580
- Website: https://universityhousing.auburn.edu/
- Location: Talon Hall

Off-Campus Housing

Auburn University Housing has partnered with Off Campus Partners to provide housing resources to students looking to live within close proximity to campus in a student apartment. Students can go to offcampushousing.auburn.edu to browse and view apartments, condos, townhouses and homes that are available to rent in the greater Auburn-Opelika community. Users can also use the off-campus housing site to find a roommate, ride share or buy and sell furniture and textbooks.

- Website: https://offcampushousing.auburn.edu/
- Telephone: (334) 844-4580
- Location: Talon Hall

Instruction, Research, and Outreach

Instruction

Auburn University is committed to excellence in teaching at both the undergraduate and the graduate level. This commitment has long been reflected in the diversity of course offerings and in the variety of instructional approaches that are offered. Increasingly, electronic technology is providing instructors with innovative and creative teaching strategies. The high academic aptitude of the university's incoming students also makes accelerated learning possible.

The liberal arts and sciences—introduced in the university's nationally recognized Core Curriculum—are the heart of Auburn's undergraduate programs. They lay the foundation not only for advanced study and career preparation but also for the development of a more responsible citizenry through students' personal and intellectual growth. The Core Curriculum provides students with a common set of experiences, develops their powers of analysis and communication, and encourages their understanding of human culture and the natural world. Auburn has won recognition for its high academic quality.

Auburn offers baccalaureate degrees in more than 130 areas across the spectrum of disciplines and provides the state's only publicly supported programs in many fields, including several in agriculture, architecture, building science, forestry, pharmacy, and veterinary medicine. Particularly strong baccalaureate programs can be found in the Colleges of Business, Education, Engineering, Liberal Arts, and Sciences and Mathematics. For many years, Reserve Officers Training Corps (ROTC) programs at Auburn have also been nationally prominent in providing leadership for the military.

While Auburn has long been widely recognized for the quality and diversity of its undergraduate and first-professional programs, more recently expanding research accomplishments have broadened the scope and raised the prominence of the university's graduate programs. Today, Auburn supports a comprehensive graduate school, providing master's level programs in more than 64 areas and awarding the doctorate in more than 40 fields. In many fields it offers the state's only doctoral program. For many years the university has enjoyed strong graduate programs in agriculture, the biological and physical sciences, education, engineering, forestry, the human sciences, mathematics, pharmacy and veterinary medicine. More recently, excellent graduate programs have also emerged in business, the liberal arts and the social sciences. The university anticipates expanded research activity and graduate instruction, especially in agriculture and the biological sciences, in engineering and the physical sciences, in veterinary and pharmacal sciences, as well as in business and education.

Research

Research is the means through which new knowledge is created and new information is developed. As such, research at Auburn University is an essential link in its three-pronged mission of instruction, research and outreach. Auburn is a Carnegie R1 research

institution, a rating designated by the Carnegie Classification of Institutions of Higher Education and reserved for doctoral universities with the highest levels of research activity. Successes among the varied research activities within each of our 12 academic colleges continue to bolster Auburn's reputation among the nation's top universities.

Auburn's role as a land-grant university emphasizes research in agriculture, natural resources, the life sciences, engineering and the physical sciences. Strong and expanding research programs exist in agriculture; architecture, design and construction; business; education; engineering; forestry, wildlife and environment; human sciences; the liberal arts; nursing; pharmacy; science and mathematics; and veterinary medicine.

Whether in the laboratory, the field, or in the classroom, Auburn University's research endeavors are diverse, comprehensive, and collaborative, focusing on developing solutions to major problems that confront humankind and on expanding the base of knowledge and technologies available to improve our quality of life. Additionally, major efforts to increase the protection and commercialization of intellectual properties are central to Auburn's continual drive for improvements in its research mission.

These efforts mesh to create a research environment that enhances the state's economic, cultural, social and intellectual development and, at the same time, undergirds the university's undergraduate, graduate, professional and outreach programs.

In support of these efforts, the Auburn University Huntsville Research Center interfaces with agencies and industries in order to increase research funding, raise our national profile, as well as bring new ideas and products to government, industries and consumers. A high-tech economic engine for Alabama, Huntsville executes billions of dollars in federal contracts yearly. Increasingly, these contracts require the collaboration of a broad array of disciplines. The Auburn University Huntsville Research Center enables North Alabama business, industry, and government to access the capabilities of one of the Southeast's major research institutions.

Lastly, the Auburn Research and Technology Foundation (ARTF) and the Auburn Research Park were developed to further integrate research and the business community to complement the economic development and research initiatives of the university. In addition to facilitating the commercialization of university technologies and industry-university partnerships, the research park offers employment opportunities for Auburn's students and graduates, as well as a thriving business incubator.

Outreach

As a land-grant institution, Auburn University has a mission of outreach—engaging its expertise beyond campus to improve quality of life across Alabama, nationally, and even internationally. More importantly, outreach provides opportunities to establish mutually beneficial partnerships between Auburn University and the communities that it serves. Through outreach and extension programs, citizens benefit from greater access to Auburn's high quality educational resources. Community interaction benefits the university as well, providing valuable insights and information for teaching and research, and enhancing the institution's relevance to the broader society. Auburn University is recognized by the Carnegie Foundation's "Community Engaged Institution" designation for the quality and scope of its outreach programming.

Outreach and extension work commonly includes three major areas of activity—lifelong learning, expert assistance, and civic engagement. Auburn University's lifelong learning programs offer individuals of all ages opportunities for professional continuing education as well as skills development and personal enrichment. The university provides an array of expert assistance and consultation services to improve operations for business, education, healthcare, government, and a variety of public and private organizations. Finally, civic engagement projects help bond Auburn University and communities in a variety of public service activities. Much of Auburn's engagement focuses on strategic objectives for enhancing individual learning, expanding community economic development and improving public health and wellness.

University faculty members are engaged significantly in the institution's outreach initiatives. Auburn students have a role in the outreach mission too, and there are many innovative ways for students and their faculty mentors to engage in service activities locally, regionally, and even internationally. The Office of the Vice President for University Outreach provides administrative leadership and support for outreach work campus wide. Units comprising University Outreach include the Center for Educational Outreach and Engagement, the Government and Economic Development Institute, Encyclopedia of Alabama, Office of Faculty Engagement, Office of Professional and Continuing Education, Office of Public Service, Osher Lifelong Learning Institute, and the Outreach-Global initiative. University Outreach is also home to the AUBURNSERVES (https://www.auburnserves.com/) initiative, a collaboration of Auburn's faculty, academic units, campus organizations, and community partners in the development of new service learning, experiential education and engagement opportunities for students.

There are more than 75 outreach units and program initiatives within the university's schools and colleges. Some of these include the Caroline Marshall Draughon Center for the Arts and Humanities in Liberal Arts, the Auburn Technical Assistance Center in Business, the Truman Pierce Institute in Education, Engineering Continuing Education, and the Rural Studio and Urban Studio programs in

Architecture. Auburn University also serves as the headquarters for Alabama's Cooperative Extension System, which serves all 67 Alabama counties with educational programs and services provided by faculty specialists and local agents.

From this base of organizational and faculty resources, Auburn hosts a diverse range of outreach activities. Annually, the university produces hundreds of conferences, non-credit courses and training programs, with registrations averaging more than 40,000. Many of these programs are approved to offer continuing education units (CEUs) and other certifications of completion. Auburn conducts hundreds of technical assistance projects annually for industrial and governmental clients across the state, representing millions of dollars in direct impact from improved processes, cost savings, and investments. Auburn supports roughly 100 outreach facilities and research sites throughout Alabama, giving the university a statewide community presence greater than any other educational institution. This makes Auburn's outreach resources highly accessible to citizens.

Lists of professional programs are available at the www.auburn.edu/outreach/opce (https://www.auburn.edu/outreach/opce/) website. A comprehensive directory of Auburn's outreach resources and contacts is available at www.auburn.edu/outreach (https://www.auburn.edu/outreach/).

Policies

The following policies apply to both undergraduate and graduate students:

- Academic Policies, Information, and Requirements (p. 110)
- Non-Academic Policies (p. 154)

The following policies apply only to the graduate students:

- Graduate School Policies (p. 155)

The following policies apply only to the undergraduate students:

- Appeals of Dismissal (p. 167)
- Appeals of Suspension (p. 168)

Academic Policies, Information, and Requirements

The following policies apply to both undergraduate and graduate students unless otherwise noted.

- Academic Advising (p. 110)
- Academic Programs and Curricula (p. 111)
- Academic Standing (p. 116)
- Accommodation Policy for Students with Disabilities (p. 117)
- Bachelor's Degree Requirements (p. 117)
- Class Attendance and Examinations (p. 117)
- Core Curriculum and General Education Outcomes (p. 119)
- Course Numbering (p. 129)
- Dean's List and Graduation Honors (p. 129)
- Early Alert Grades (p. 130)
- Enrollment (p. 130)
- Grade Adjustment (p. 131)
- Grades (p. 132)
- Policies and Procedures for Admissions (p. 134)
- Policies and Procedures for Enrollment Capacity (p. 140)
- Policies on Directed Studies (p. 141)
- Repeat of Courses (p. 141)
- Satisfactory Progress (p. 141)
- Special Academic Opportunities (p. 142)
- Statement on the Importance of Writing at Auburn University (p. 149)
- Student Records (p. 149)
- Substantive Change (p. 152)
- Undergraduate Transfer Credit Policy (p. 152)
- Withdrawal Policy (p. 153)

Academic Advising

Academic advising consists of an ongoing conversation between advisor and student. It centers on the discussion of academic matters, career plans, professional goals, internship possibilities, additional educational opportunities, and other related topics. In this conversation, the advisor serves as a guide and mentor, drawing upon other campus resources for assistance with this responsibility. One important aspect of this conversation is the planning of an academic program and the keeping of accurate records of the student’s progress towards completion of that program.

Students are strongly encouraged to meet with an academic advisor in their chosen college or school prior to registration for the next academic term. In some colleges, schools and departments, such meetings are required. Contact information for the academic

advisors in each college or school may be found through the Academic Advising (https://www.auburn.edu/academic/provost/academic-advising/) page, which also provides additional information and links to resources that may help students derive the most benefit from their academic advising experience at Auburn University.

Academic Programs and Curricula

- Second Baccalaureate and/or Concurrent Degrees (p. 112)
- Double Major (p. 113)
- Accelerated Bachelor's/Master's Degree Plan (p. 113)
- Percentage of Coursework Earned at Auburn University (p. 114)
- Undergraduate Online Learning (p. 114)
- Credit For Military Science and Physical Education (p. 114)
- Change of Major or Curriculum (p. 114)
- Admission into Capped Majors (p. 114)
- Curriculum Model Change (p. 114)
- Academic Program Assessment (p. 115)

An **academic program** is an organized plan of study which, when successfully completed, is recognized by the awarding of a degree. It includes all courses and related activities required by the university and those required by a school, college, department or interdisciplinary program. **At Auburn University, the minimum number of semester hours in an undergraduate academic program is 120, including 41-2 semester hours of the Core Curriculum.** The academic program must include the University Core Curriculum and the major. It may also include a school or college core curriculum, a minor, and supporting course work. For undergraduates, the academic program is the most general term describing the formal course of their baccalaureate education. Students not completing an approved academic program do not qualify for baccalaureate degrees. Students who are completing an academic program may take courses in addition to those required by it, including a minor or free electives beyond those required for graduation by their academic programs.

An undergraduate program option is a formal variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. Some academic programs are structured only in the form of several formal program options. A program option is designated on the transcript. Other variants, which may carry the name of "track," "concentration," "emphasis," or similar terms, will not be designated on the transcript, but must meet the same minimal requirements for overlap as formal options. At Auburn University, all formal program options, like all academic programs, must include the Core Curriculum. Moreover, a formal program option must preserve the integrity of the academic program of which it is a variant by requiring at least half of the specific course work required by the program above and beyond the Core Curriculum. (In majors that are largely "menu-driven," with few specific course requirements, the menus of courses must contain sufficient overlap that a student in one option is not excluded from having half or more courses in common with students in any other option in that degree program.) All academic programs and designated variations (whether called options, tracks, concentrations, or any other name) must be approved by the Alabama Commission on Higher Education (ACHE).

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must: 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of "track," "concentration," "emphasis," or similar terms, are not designated on the transcript; however, all academic programs and designated variations (whether called "options," "tracks," "concentrations," "emphases" or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

A **curriculum model** is the schematic organization of an academic program that is listed in this *Bulletin*. **A curriculum model is outlined for all undergraduate academic programs and program options and must be represented in the *Auburn University Bulletin***.

A **major** is usually the largest part of an academic program which differentiates it from other programs. The term designates that portion of the program which consists of a specified group of courses offered by a particular academic department or interdepartmental program. The major may include lower-division courses and always includes specified upper-division courses or choices among courses offered by the department or interdepartmental program. The major may include course work from other departments. The major does not include other components of the academic program: the Core Curriculum, a school or college curriculum (if any), a

required second major (if any), a required minor (if any), supporting course work (if any), or free electives. **At Auburn University, all majors must represent substantial academic concentration in a well-defined discipline or interdisciplinary field. The minimum number of hours required for an undergraduate major is 30 hours of course work in the discipline or in a closely allied field. Of these hours, a minimum of 20 must be taken in upper-division (numbered 3000 or above) courses in the major. Departments must have the consent of other departments before requiring their courses in a major.**

A **minor** is an organized sequence or cluster of courses, including both lower- and upper-division courses, offered by a department or interdepartmental program. It is more restricted in scope than the major but may also have a somewhat different focus and objective that make it appropriate for students whose principal concentration is in another discipline. Not all departments or interdepartmental programs offer a minor. At Auburn University, the term minor designates those sequences or clusters of courses that have been formally proposed as minors by departments or interdepartmental programs and approved by the University Senate Curriculum Committee. The minimum number of semester hours in a minor is 15. Of these, six hours may be lower-division courses. The remaining semester hours in the minor (a minimum of nine hours) must be courses numbered 3000 or above. At least nine semester hours required for the minor must be completed at Auburn University. Courses a student has taken in fulfillment of the university Core Curriculum, the school/college core curriculum (if any) or the courses designated as “in the major” (e.g., counting toward the GPA “in the major”) may not be used to fulfill a minor. Elective courses (not in the major) and required supporting courses (e.g., required courses in the academic program that are not used to fulfill the university Core Curriculum or the school/college core and which are not counted toward the GPA in the major) may be used toward a minor. Some academic programs may require students to earn a minor. Students whose academic programs do not require a minor are free to earn one, though in such cases they should recognize that fulfilling the requirements for a minor may delay their graduation. No academic program is required to allow for a minor in its curriculum model. Students must follow announced university procedures and deadlines for declaring a minor. In addition, students may not be awarded a minor after the degree for the major has been awarded. **No course taken under the S/U option may be counted toward a minor. Students must earn a minimum overall grade average of C (2.0) on all course work in the minor. Individual colleges, schools and departments may have higher grade-point requirements.**

The phrase ”supporting course work“ designates courses that are required for the completion of a specific academic program but not included in the University Core Curriculum, the major, the school or college core curriculum (if any), the minor (if required), and free electives. At Auburn University, academic programs may require courses that are not specific to the major but support the general education and preparation of students in that program. Because these courses are usually outside the department of the major area of study, departments must have approval of the departments offering the courses they designate as required supporting course work.

An **undergraduate certificate** consists of 12-21 hours of courses in an integrated structure that demonstrates competency in specific skills or knowledge designed to enhance the professional preparation of Auburn students. Completion of the certificate appears on the official Auburn University transcript. At least 50% of the credits should be at the 3000 level or higher. The offering academic unit may choose to count towards the undergraduate certificate credits taken as part of Auburn University’s general education requirements, an academic minor, or major. Academic units may specify a set of required courses or a combination of required courses and electives in the design of certificate programs. No more than 50% of course credits required for a certificate may be obtained through transfer credit. A minimum 50% of the course credits for a certificate must not have been used towards any other certificate at Auburn. Courses applied to the requirements of an undergraduate certificate program may follow either standard or S-U grading (as appropriate), but at least 50% of courses counted toward the certificate must follow standard grading and the student must have completed all courses with a minimum overall Grade Point Average of C (2.0) or better. Individual colleges, schools, departments or academic units may have higher requirements.

Second Baccalaureate and/or Concurrent Degrees

To earn a second baccalaureate degree, a student must complete all the additional requirements for the second degree (including course work in the major fields, college/school core requirements and courses in support of a major). At least 30 semester hours of the second degree must be unique to the second degree and may not be used as major, supporting or core courses for the first degree. In addition, the total number of hours to complete both degrees must total at least 30 additional semester hours. If 30 unique hours or 30 additional hours cannot be identified, the student is not eligible to receive a second baccalaureate degree. Students who are completing a second degree must comply with all the same grade-point requirements and residency requirements as other students. Students may elect to pursue and to receive the two degrees simultaneously if college and departmental requirements can be met simultaneously. A student completing a degree within the Samuel Ginn College of Engineering who wishes to complete a second degree in a major outside of that college must complete the additional social science and humanities requirements of the university core curriculum. All students should consult with their advisor concerning eligibility for a second degree, and if eligible, complete appropriate paperwork to declare the second degree. It is recommended that students declare the second degree prior to the beginning of the senior year. The student must meet with the prospective academic advisor in each college associated with their degrees to ensure proper enrollment in the UNIV 4AA0 graduation course for each college along with a review of degree requirements. Students completing a second or two

degrees concurrently receive a diploma for each degree. The transcript will list each degree and each major. Eligibility for graduation with academic honors for the second baccalaureate degree requires a minimum of 60 semester hours above the requirements for the first baccalaureate degree. Students earning the second baccalaureate degree must earn the minimum overall grade average required for the honors distinction on the 60 additional hours for the second degree and must be achieved on Auburn University courses. Honors calculations for the second baccalaureate degree follow the same procedures as graduation honors for the first degree (see Graduation Honors).

Students who completed a first baccalaureate degree at an institution other than Auburn University and subsequently pursue a second degree at Auburn University are not required to fulfill Auburn University's Core Curriculum. However, they may be required to take some classes listed as fulfilling the Auburn University Core Curriculum if these classes are pre-requisites to major classes.

Double Major

To earn a double major, a student must complete all requirements for one degree program, all the major courses in a second major (courses bolded in the curriculum model), and other requirements for the second major such as grade-point requirements. College/school cores or other supporting coursework associated with the second major are not required unless they serve as course prerequisites for second major courses.

At least 20 hours in the second major must be unique and not courses that have been used as major, supporting, or core courses in the degree program. If at least 20 hours of unique courses do not exist between the second major and the major, supporting, and core courses in the degree program, a double major is not possible.

To declare a double major, the student initiates the process by meeting with an academic advisor in the college of his/her current degree program. The advisor, in conjunction with the advisor in the second major, will determine if a least 20 hours of unique courses as noted above exist and, if so, provide instructions for declaring a double major. The student is responsible for ensuring that the appropriate process is completed, approved by the appropriate college(s), and submitted to the Registrar's Office prior to the senior year.

The student who completes the requirements for a double major is awarded one degree, e.g., BS or BA. The degree is determined by the degree program declared on the submitted form. If the second major is embedded in a degree program that leads to the same degree as the declared degree program, both majors will appear on the diploma and on the transcript. If the second major is embedded in a degree program that leads to a degree that is different from the declared degree program, the declared degree program dictates which degree and which baccalaureate major will appear on the diploma; the declared degree and both majors will appear on the transcript.

If a student changes his/her decision to pursue a double major, it is his/her responsibility to notify the Office of the Registrar and the dean's office of his/her college(s). Additional majors, beyond a double major, are allowed if the student can complete all the requirements outlined above, including 20 unique hours for any additional major not used as major, supporting, or core courses in the degree program or any of the other majors. A double major or additional majors may not be awarded after the degree for the first major has been granted.

Accelerated Bachelor's/Master's Degree Plan

The Accelerated Bachelor's/Master's Degree Program allows Auburn students in some academic programs to count up to nine approved hours in a 30-35 hour master's program or twelve approved hours in a 36 hour or greater master's program toward both a bachelor's and a master's degrees in the same program area. These hours must be at the graduate level.

Admission Criteria

To be considered for admission, students must have at least 45 hours of credit, with at least 24 hours completed at Auburn University, and must have a cumulative GPA of 3.4 or higher on all coursework completed at Auburn. Individual graduate programs may set higher standards or require additional criteria for admission to the accelerated degree program.

Students must earn the bachelor's degree and meet departmental admission criteria to be fully admitted into the graduate program.

Admission Procedures

Students must work with a graduate advisor in the degree-granting department to complete an "Accelerated Bachelor's/Master's Degree Program Application," including:

1. a list of the courses that count toward both the undergraduate and graduate degree and,
2. the projected dates for the completion of the bachelor's and master's degrees.

Students in the Honors College remain eligible to graduate with Honors while participating and should consult with an Honors advisor.

Performance Expectations

Students earning a B or higher in a graduate course can apply the course credit toward the undergraduate and graduate degree (if admitted to the graduate program). A passing grade less than a B cannot count towards the graduate degree but may count toward the undergraduate degree if allowed by the degree program.

Percentage of Coursework Earned at Auburn University

See Undergraduate Transfer Credit Policy (p. 152)

Undergraduate Online Learning

Campus-Based Students

All regularly admitted campus-based students are eligible to enroll in online course sections that are not part of Auburn Online programs. A campus-based student may not exceed the maximum class hour load by adding an online course.

Auburn Online Programs

All Auburn Online students must apply and meet Auburn University's minimum admission requirements. Auburn Online students will be permitted to register for Auburn Online program courses only. Admission requirements for Auburn Online programs are available at https://www.auburn.edu/online/.

Information on all available online courses may be obtained from Auburn Online: Online1@auburn.edu.

Credit For Military Science and Physical Education

A student may be allowed a maximum of 6 credits in military science courses toward graduation. All undergraduate curriculum models must accommodate these 6 credits in military science either through elective hours or substitutions. In addition, students may count additional hours of military science credits toward graduation if their curriculum model provides for additional free elective hours. A student may be allowed four credits of physical education activity courses toward graduation. A student who has served on active duty in the Armed Forces may receive physical education credits as follows: for less than six months of service, no credit; for six months to less than a year, two hours of credit for Physical Education; for one year or more in the service, three hours of credit. Application for credit for military experience should be submitted to the Office of the Registrar.

Auburn University awards academic credit for courses that are part of an enrolled student's military training or service, provided that the military training credits accepted are at the collegiate level and have resulted in learning outcomes comparable to those students would achieve through the Auburn University's own instruction. In determining the academic credit to be awarded, Auburn University uses as a guideline the standards and recommendations of the *Guide to the Evaluation of Educational Experiences in the Armed Services* published by the American Council on Education.

Change of Major or Curriculum

Students must have their dean's approval to change to another major within the same college or school. To change colleges or schools within the university, students must complete a Change of Major Form (https://www.auburn.edu/administration/registrar/documents/Curriculum_Change_Form.pdf).

Admission into Capped Majors

Applicants (from on and off campus) to certain high-demand majors must meet specific requirements for admission to the major.

Students pursuing admission into a high demand major should contact the school or college advising office for details on the criteria for admission and the application process.

List of capped majors (p. 115)

Curriculum Model Change

When the university changes a curriculum model, students in the altered curriculum may be required to complete the subjects and hours placed above the level to which they have progressed. They will not, however, be required to complete additional subjects

placed in the curriculum below the level they have achieved. Courses shifted from one class level to another are exempt from this latter provision. Students' deans will determine the revised subject requirements, and the registrar will determine the revised total hour and grade-point requirements. In no case for students who are continuously enrolled, however, will the changed curriculum compel them to accumulate additional hours and grade points to graduate. In other words, students must complete the university core requirements in place during the term that they first enroll, and in general they must complete the school, college or major requirements in place when they declare a major. Undergraduate students who have not been enrolled at Auburn University for a period of five years or more and who are returning to the same curriculum may be subject to different university, college, school or departmental requirements than those which existed at the time of their initial entry, as well as those which existed at the program level when continuous enrollment ceased.

Academic Program Assessment

Auburn University is committed to fostering the academic achievement and personal development of its students. To carry out that commitment, the university continuously gathers information about the effectiveness of its academic programs, about the progress of its students toward educational and personal goals, and about the achievements and perspectives of its alumni. This information is used to monitor program effectiveness, to recognize educational trends and opportunities, and to develop a sound, factual basis for academic planning.

Each Auburn student is expected to participate in the university's assessment efforts. Academic programs use various means to gather assessment information, including portfolios, performances, achievement tests, comprehensive examinations, surveys, interviews, focus groups, evaluation forms, and other methods. While enrolled, a typical student can expect to take part in one or more of these assessment activities. The total time spent on assessment activities is not likely to exceed 15 hours over the course of four years of enrollment. Participation in these activities may be a completion requirement for some degree programs.

Capped Majors

College	Major	Bulletin Link
Architecture, Design, and Construction	Architecture (Foundation Unit)	Curriculum (p. 327)
Architecture, Design, and Construction	Architecture (Summer Design)	Curriculum (p. 329)
Architecture, Design, and Construction	Building Science	Curriculum (p. 314)
Architecture, Design, and Construction	Graphic Design	Curriculum (p. 305)
Architecture, Design, and Construction	Industrial Design	Curriculum (p. 307)
Architecture, Design, and Construction	Interior Architecture (Foundation Unit)	Curriculum (p. 333)
Architecture, Design, and Construction	Interior Architecture (Summer Design)	Curriculum (p. 336)
Education	Elementary Education	Curriculum (p. 494)
Human Sciences	Interior Design	Curriculum (p. 800)
Human Sciences	Nutrition (Dietectics Option)	Curriculum (p. 838)
Nursing	Nursing	Curriculum (p. 1173)
Liberal Arts	Communication	Curriculum (p. 1005)
Liberal Arts	Health Services Administration	Curriculum (p. 1086)
Liberal Arts	Journalism	Curriculum (p. 1009)
Liberal Arts	Journalism - Sports Production Option	Curriculum (p. 1011)
Liberal Arts	Media Studies	Curriculum (p. 1006)
Liberal Arts	Media Studies - Film Option	Curriculum (p. 1008)
Liberal Arts	Music – Instrumental Track	Curriculum (p. 1063)
Liberal Arts	Music – Piano Track	Curriculum (p. 1057)
Liberal Arts	Music – Voice Track	Curriculum (p. 1065)
Liberal Arts	Public Relations	Curriculum (p. 1013)
Liberal Arts	Social Work	Curriculum (p. 1111)
Liberal Arts	Theatre - Design/Technology	Curriculum (p. 1129)
Liberal Arts	Theatre - Management	Curriculum (p. 1130)
Liberal Arts	Theatre - Music Theatre	Curriculum (p. 1131)
Liberal Arts	Theatre - Performance	Curriculum (p. 1133)

Academic Standing

Good Standing

Students with a cumulative GPA of 2.0 or greater in their Auburn coursework at the end of any term will be placed in (or remain in) Good Standing status.

Academic Warning

Academic Warning status is imposed at the end of any term for which the student's cumulative GPA on Auburn course work is below 2.0.

Academic Suspension

Any student who is on Academic Warning status will be placed on Academic Suspension if both of the following conditions apply: (1) the term GPA is below 2.2 and (2) the cumulative GPA on Auburn course work is below that required for the designated number of hours earned as follows:

Hours Earned	Required Minimum Auburn Cumulative GPA
0-30.999	1.50
31-60.999	1.80
61-90.999	1.90
91 or more	1.97

All students, whether beginning freshmen or transfers, are not subject to suspension until they have received one semester warning (i.e. students cannot go directly from Good Standing status to an academic suspension in a single semester).

Terms of Suspension

A student who incurs a First Academic Suspension may not enroll in the university for a minimum of one semester. Summer term does not count as a semester for terms of suspension. A student may not take coursework at Auburn University or at another institution of higher education during the period of suspension and apply the credit to an Auburn University degree. A student returning from academic suspension will be on Academic Warning status. A student who incurs a Second Academic Suspension may not enroll in the university for a minimum of two semesters. A student who has incurred two academic suspensions will be placed on Last Warning. A student on Last Warning who does not achieve at least a 2.2 in the current academic term or reach the overall GPA target listed above will be dismissed from the university. A student on suspension may not take coursework at Auburn University or any other institution of higher education, either during summer term or during the other semesters of suspension, and apply the credit to an Auburn University degree. Under some extraordinary circumstances, a student who has been dismissed from Auburn University may be readmitted at a future date. In these cases, no coursework taken elsewhere during the period of dismissal can be applied toward an Auburn University degree.

James Harrison College of Pharmacy

A student enrolled in the James Harrison College of Pharmacy who is placed on academic suspension and who wishes to re-enter the college must, in addition to complying with other university readmission requirements, be approved for readmission by the Pharmacy Admissions Committee and, when applicable, by the university's Admissions Committee.

College of Veterinary Medicine

Any student who earns less than a 2.25 GPA for any term will be placed on academic probation. A student who fails to earn a 2.25 GPA for any two terms in the same academic or calendar year may be dropped from the College of Veterinary Medicine for scholastic deficiency. In addition, a student who does not have an overall average of 2.25 for an academic year or who does not have a veterinary overall average of 2.25 for an academic year or who does not have a veterinary college cumulative average of 2.25 at the end of any academic year may be required to withdraw from the College of Veterinary Medicine.

A student who makes a grade of F in any course may be dropped from the College of Veterinary Medicine until such time as the course is offered again. Such students may be required to repeat certain other courses in the curriculum for the term in which a grade of F was earned.

Students who are dropped under the above provisions are eligible for admission to other curricula provided they meet the general scholastic requirements for continuance in the university. Scholastic penalties incurred during enrollment in the College of Veterinary Medicine will become part of the student's record.

Accommodation Policy for Students with Disabilities

Auburn University is committed to providing its students with an accessible campus and equitable learning environment. If you have a disability that requires academic accommodations, access to assistive technology training, or support services, contact the Office of Accessibility for additional information: 1228 Haley Center; 334-844-2096 (Voice/TT) or visit the Office of Accessibility website at accessibility.auburn.edu (https://accessibility.auburn.edu/).

Bachelor's Degree Requirements

To earn the bachelor's degree from Auburn University, students must complete the requirements of the university's Core Curriculum, and they must choose a major curriculum and complete its requirements and those of the college or school with at least a 2.0 average across all Auburn courses attempted, at least a 2.0 average across all courses credited to the degree program, and at least a 2.0 average across all courses credited to the major. These requirements are university requirements. Individual colleges, schools and departments may have higher requirements. Credits required for graduation are at least 120 hours. The student's academic dean clears subject and non-course requirements in the curriculum; the registrar, together with the academic dean's office, clears total hours and GPA requirements. A list of specific courses identified as major courses in each curriculum is available in the appropriate academic dean's office. Limitations on the amount of transfer credit that can be applied to degrees and majors can be found in the Undergraduate Transfer Credit Policy.

Graduation

Clearing for Graduation

Seniors must register for the UNIV 4AA0 — Achieve the Creed graduation course (administrative course—non-graded) in the term in which graduation is to occur. Enrollment in this course provides Auburn University with a list of expected degree candidates so that all administrative work can be processed in plenty of time for graduation. It also allows the graduating student access to the SCORE general education assessment program and the Diploma Application.

Students who are nearing graduation should meet with their academic advisor in their dean's office to arrange for a graduation check about a year before their expected graduation. In general, deferred grades (IN, NR, PE) from a previous term of courses to be used toward degree requirements must be cleared by mid-semester of the student's graduation term.

Students must be enrolled at Auburn University in the term in which degree requirements are completed. The undergraduate student who is registered for no credit hours at Auburn University in the term of graduation will be registered for the UNDG 4900 — Clearing for Undergraduate Graduation course (administrative course—non-graded, no coursework). Enrollment in this course is due to the staff and/or the facilities of the university being used for graduation administrative work, the clearing of deferred grades, and/or when a student is completing graduation coursework requirements at an institution other than Auburn University. Graduate students should refer to the "Registration and Graduation Requirements" section under the Graduate School portion of this Bulletin.

A graduation fee is payable to the Office of Student Business & Account Services at the beginning of the term of graduation. If a student is in default on any payment (tuition, medical clinic, parking, library, etc.) due to the university, the diploma and academic record (transcript) will not be issued until the matter is cleared. Students are responsible for notifying the Office of the Registrar when such matters are resolved in order to receive their diploma.

Degrees are conferred each term. Commencement exercises are held after fall, spring, and summer terms. Diplomas are mailed to the graduates after degrees are awarded, about 6 to 8 weeks after graduation. Transcripts are ordered online.

Class Attendance and Examinations

Policy on Class Attendance

Students are expected to attend all their scheduled classes. College work requires regular class attendance as well as careful preparation. Specific policies regarding class attendance are the prerogative of individual faculty members. Faculty shall inform each class in writing at the beginning of the course regarding the effect of absences on the determination of grades.

The student is expected to carry out all assigned work and to take examinations at the class period designated by the instructor. Failure to carry out these assignments or to take examinations at the designated times may result in an appropriate reduction in grade, except as provided in paragraph 4 below.

Instructors shall determine the policy regarding grading which they feel is best for the course. This policy shall be presented to the class, in writing, at the beginning of the term and will govern the actions of the instructor in the course.

Arrangement to make up missed major examinations (e.g., hour exams, midterm exams) due to properly authorized excused absences shall be initiated by the student as soon as possible but no later than one week from the end of the period of the excused absence. Normally, a make- up exam shall occur within one week from the time that the student initiates arrangements for it. Instructors are encouraged to refrain from giving make-up examinations during the last three days prior to the first day of final examinations. The format of make-up exams and opportunities for students to make up work other than major examinations are at the discretion of the instructor whose make-up policies should be stated in writing at the beginning of the term. Instructors are expected to excuse absences for:

1. Illness of the student or serious illness of a member of the student's immediate family. The instructor may request appropriate verification.
2. The death of a member of the student's immediate family. The instructor may request appropriate verification.
3. Trips for members of the student organizations sponsored by an academic unit, trips for university classes, and trips for participation in intercollegiate athletic events. When feasible, the student must notify the instructor prior to such absences, but in no case more than one week after the absence. Instructors may request formal notification from appropriate university personnel to document the student's participation in such trips.
4. Religious holidays. Students are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays.
5. Subpoena for court appearance.
6. Military Orders
7. Any other reason the instructor deems appropriate.

Additional Class Attendance Stipulations

- If the instructor does not appear within 20 minutes after the designated class hour, it may be assumed the class is canceled.
- It is university policy that all classes will meet as scheduled on the last day before and the first day after holiday periods designated by the university.
- Unresolved problems regarding class attendance or procedures should be referred to the University Student Academic Grievance Committee.

Examinations

Examinations During the Semester

In face-to-face and online synchronous classes, announced tests in undergraduate courses will be administered during a regularly scheduled meeting of the course. Exceptions to this practice may arise in specialized courses requiring performance or oral tests, and in multiple-sectioned laboratory classes requiring practical laboratory tests. Faculty having sound reasons for scheduling tests at times other than regularly scheduled meeting times are to obtain approval from the department head prior to the beginning of the term and are to present these changes in the syllabus at the beginning of the term. Rescheduled exams are not to interfere with other scheduled academic activities of the students involved, and an appropriate reduction in regularly scheduled class time is to be given to compensate for the rescheduled exam period.

Online classes using an asynchronous approach are exempt from the requirement to administer exams during regularly scheduled course times provided exams are scheduled in writing on the syllabus and students are offered an exam window of at least 24 hours of during which the exam is available. This exam window should be long enough to align with the expectations of the asynchronous format and to allow students to complete an exam without having to miss their other academic activities. Examination periods should end in time for final grades to be submitted by the university's grading deadline.

Policies on make-up exams can be found in the Class Attendance Policy.

Final Examinations

A final examination is a common means of evaluation in undergraduate courses but other means such as performance tests, term papers, research projects or other forms of evaluation appropriate to the objectives of the course may be used. Faculty should present the forms of evaluation to be used and the means of determining final grades in the syllabus.

Final examinations are to be given as scheduled in the term examination schedule. Final examinations in courses carrying fewer than three hours of credit may be given on the last class day or at the time designated in the examination schedule. Final examinations in

laboratory courses should be administered during the last laboratory period. Exceptions to giving a final examination at the scheduled time require prior approval by the provost. Rescheduled examinations must not interfere with scheduled academic activities of the students involved.

Auburn University students are provided the conditional right to take no more than two (2) final examinations in a single calendar day. Students with three or more final examinations scheduled on one calendar day should contact instructors on or before midsemester to request rescheduling, so that no more than two final examinations fall on any calendar day. Any Auburn student unable to get any instructor(s) to voluntarily move the exam(s) will present this situation to the Associate Dean of the student's major college and, after verification, that Associate Dean will contact the Associate Dean of the faculty member(s) scheduled for the middle exam period(s) of the student's scheduled finals to arrange to reschedule the exam(s). After midsemester, requests to move an exam can be made by complying with the same procedure but are not guaranteed to be approved.

Student Academic Grievance Policy

The Student Academic Grievance Policy (https://auburnpub.cfmnetwork.com/B.aspx?BookId=12373&PageId=461564&Search=Student%20Academic%20Grievance) is designed to resolve academic grievances of students which result from actions of faculty or administrators.

Core Curriculum and General Education Outcomes

The purpose of the Auburn University Core Curriculum is to foster the knowledge, skills, and perspectives that are hallmarks of an Auburn graduate. By completing courses that represent a range of disciplines students begin to acquire an educated appreciation of the natural world, of human life, and of the interactions between them. In particular, students complete the subject area distribution requirements identified below, which meet the requirements established by the Alabama General Studies Committee.

The specific courses each student completes in order to fulfill Auburn University's core curriculum requirements will depend upon the particular major in which the student is enrolled. Students should consult their curriculum models and discuss their options with their academic advisor. All Auburn students are required to complete a six semester credit hour sequence in either History or Literature as part of their requirements. Courses ending in "7" are Honors courses.

English Composition: 6 hours required

The Importance of Writing at Auburn University

A key element of Auburn's instructional mission is the emphasis on written communication, which is supported through the university's general education courses and advanced through a robust Writing Across the Curriculum program. These efforts underscore the mechanics of formal writing, such as grammar and sentence structure, and engage students in an extensive process that translates ideas, insights, or interpretations into refined prose. Through the Writing Across the Curriculum program, every academic major maintains a comprehensive writing plan that supports student development across various occasions and audiences and provides opportunities for reflection, feedback, and assessment. By demonstrating the ability to logically present and explain a concept or idea to an audience, students understand and appreciate the role of writing as an integral part of learning.

Code	Title	Hours
ENGL 1100/	English Composition I	3
or ENGL 1107	Honors Writing Seminar I	
ENGL 1120	English Composition II	3
or ENGL 1127	Honors Writing Seminar II	
Total Hours		**6**

Humanities: 12 total hours required (*Note: Students enrolled in the Samuel Ginn College of Engineering are required to complete 9 hours of Humanities.)*

Literature (at least 3 hours)

Code	Title	Hours
Select at least one of the following:		3-6
ENGL 2200/2207	World Literature before 1600	
ENGL 2210/2217	World Literature after 1600	
ENGL 2230	British Lit before 1789	
ENGL 2240	British Lit after 1789	

ENGL 2250	American Lit before 1865
ENGL 2260	American Lit II after 1865
ENGL 2270	AfAm Lit Before 1900
ENGL 2280	AfAm Lit After 1900

Fine Arts (at least 3 hours)

Students must complete at least one fine arts course from this list.

Code	Title	Hours
Select one of the following:		3
ARCH 2600	Art Of Arch Place And Culture	
ARTS 1510	Looking at Art: App to Interpr	
ARTS 1610	Introduction to Art History	
ENGL 2000	Intro to Creative Writing	
ENVD 2040	Design, Invention and Society	
INDD 1120	Indust Des In Modern Society	
MUSI 2730/2737	Appreciation Of Music	
MUSI 2740/2747	Survey of Popular Music	
MUSI 2750	Music and Science	
MDIA 2350	Introduction To Film Studies	
THEA 2010/2017	Introduction To Theatre	
THEA 2020	Aesthetics of Acting	

Other Humanities Choices

In addition to the Literature and Fine Arts courses listed above, students may select courses from this list to complete the required 12 hours in Humanities.

Code	Title	Hours
COMM 1000	Public Speaking	3
FLGC 1150	Global Fluency	3
HONR 1017	Honors Tech and Culture II	3
PHIL 1010/1017	Introduction To Logic	3
PHIL 1020/1027	Introduction To Ethics	3
PHIL 1030/1037	Ethics And The Health Sciences	3
PHIL 1040	Business Ethics	3
PHIL 1050	Intro to Political Philosophy	3
PHIL 1060	Philosophy East and West	3
PHIL 1070	Art, Value, and Society	3
PHIL 1080	Introd Philosophy Religion	3
PHIL 1090	Philosophy of Race and Gender	3
PHIL 1100	Introduction To Philosophy	3
PHIL 1110	Ethics and Science	3
PHIL 1120	Intro. Environmental Ethics	3
PHIL 1130	Minds and Machines	3
RELG 1040	Intro to Western Religions	3
RELG 1050	Intro to Eastern Religions	3
UNIV 2710/HONR 2717	The Human Odyssey I	3

Science and Mathematics: 11-12 hours required

Mathematics (3-4 hours)

Students must complete at least one mathematics course from this list. For additional information on Math requirements, see bottom of page.

Code	Title	Hours
Select one of the following:		3-4
MATH 1100	Finite Math and Applications	
MATH 1120	Precalculus Algebra	
MATH 1130	Precalculus Trigonometry	
MATH 1150	Precalc Algebra And Trig	
MATH 1610/1617	Calculus I	
MATH 1680	Calculus With Business Apps I	

Science sequence (8 hours)

Students must complete a sequence from this list.

Code	Title	Hours
Select one of the following Series:		8
Series A		
BIOL 1000 & BIOL 1001	Intro To Biology and Intro To Biology Laboratory	
BIOL 1010 & BIOL 1011	A Survey Of Life and A Survey Of Life Laboratory	
Series B		
BIOL 1020 & BIOL 1021	Principles Of Biology and Principles Of Biology Lab	
BIOL 1030 & BIOL 1031	Organismal Biology and Organismal Biology Laboratory	
Series C		
CHEM 1010 & CHEM 1011	Survey Of Chemistry I and Survey Of Chemistry I Lab	
CHEM 1020 & CHEM 1021	Survey Of Chemistry II and Survey Of Chemistry II Lab	
Series D		
CHEM 1030 & CHEM 1031	Fundamentals Chemistry I and Fund Of Chemistry I Lab	
CHEM 1040 & CHEM 1041	Fundamental Chemistry II and Fund Of Chemistry II Lab	
Series E		
Select one of the following:		
CHEM 1110 & CHEM 1111	Gen Chem For Scientists I and General Chemistry I Lab	
CHEM 1117 & CHEM 1118	Honors General Chemistry I and Honors General Chemistry I Lab	
And select one of the following:		
CHEM 1120 & CHEM 1121	Gen Chem for Scientists II and General Chemistry II Lab	
CHEM 1127 & CHEM 1128	Honors General Chemistry II and Hon General Chemistry II Lab	
Series F		
GEOL 1100	Dynamic Earth	

GEOL 1110/1117	Earth and Life Through Time
Series G	
PHYS 1500	General Physics I
PHYS 1510	General Physics II
Series H	
PHYS 1600/1607	Engineering Physics I
PHYS 1610/1617	Engineering Physics II [1]
Series I	
CSES 1010	Soils and Life
CSES 1020	Crops and Life
Series J	
SCMH 1010/1017	Concepts Of Science
BIOL 1010 & BIOL 1011	A Survey Of Life and A Survey Of Life Laboratory
Series K	
SCMH 1010/1017	Concepts Of Science
CHEM 1010 & CHEM 1011	Survey Of Chemistry I and Survey Of Chemistry I Lab
Series L	
SCMH 1010/1017	Concepts Of Science
GEOL 1100	Dynamic Earth
Series M	
SCMH 1010/1017	Concepts Of Science
PHYS 1000	Foundations Of Physics
Series N	
SCMH 1010/1017	Concepts Of Science
PHYS 1150	Astronomy
Series O	
GEOG 1020	Global Systems Weather/Climate
GEOG 1030	Global Systems Land/Water
Series P	
FOWS 1020 & FOWS 1021	Science of Nature I and Science of Nature I Laboratory
FOWS 1030 & FOWS 1031	Science of Nature II and Science of Nature II Lab
Series Q	
FOWS 1040 & FOWS 1041	Climate Science I and Climate Science I - Laboratory
FOWS 1050 & FOWS 1051	Climate Science II and Climate Science II - Lab
Series R	
SCMH 1010/1017	Concepts Of Science
GEOG 1020	Global Systems Weather/Climate
Series S	
SCMH 1010/1017	Concepts Of Science
PHYS 1400	Physics for Aviators
Series T	
ENVI 1030	ENVI and Life
SCMH 1010/1017	Concepts Of Science

Series U	
ENVI 1030	ENVI and Life
GEOL 1100	Dynamic Earth

1. A student who completes PHYS 1600/07, may be permitted to complete the Physics sequence with PHYS 1510 in some majors. A student should consult his or her academic advisor for more information.

Social Sciences: 12 hours total required *(Note: Students enrolled in the Samuel Ginn College of Engineering are required to complete 9 hours of Social Science.)*

History (at least 3 hours)

Code	Title	Hours
Select one of the following:		3
HIST 1010/1017	World History I	
HIST 1020/1027	World History II	
HIST 1210/1217	Technology And Civilization I	
HIST 1220/1227	Technology And Civilization II	

Other Social Sciences (at least 3 hours)

In addition to the history courses listed above, students can select hours in other Social Science courses listed below to total 12.

Code	Title	Hours
AAAS 2000	Intro African American Studies	3
AGEC 1000	Global Issues	3
ANTH 1000/1007	Anthropology: Culture and Adap	3
COUN 2000	Living & Comm in Div Society	3
ECON 2020/2027	Prin Of Microeconomics	3
ECON 2030/2037	Prin Of Macroeconomics	3
GEOG 1010/1017	Global Geography	3
GEOG 2010	Human Geography	3
GSHS 2000	Global Studies Human Sciences	3
HONR 1007	Honors Tech and Culture I	3
NATR 2050	People & the Environment	3
POLI 1050/1057	Global Politics and Issues	3
POLI 1090/1097	Amer Gov In Multicul World	3
PSYC 2010/2017	Intro To Psychology	3
SOCY 1000/1007	Sociology Global Perspective	3
SOCY 1100	Race and Ethnicity	3
SOWO 2000	Introduction To Social Work	3
SUST 2000/2007	Introduction to Sustainability	3
UNIV 2720/HONR 2727	The Human Odyssey II	3
WMST 2100	Intro Women's & Gender Studies	3

General Education Student Learning Outcomes

In addition to introducing students to broad areas of knowledge, the General Education program also emphasizes foundational skills they will build upon throughout their undergraduate education. In order to become lifelong learners and use their education to solve practical problems, by the time of graduation, students will be able to effectively:

Locate, evaluate, and use information (SL-A)

Code	Title	Hours
ENGL 1120	English Composition II	3
or ENGL 1127	Honors Writing Seminar II	

FOWS 1020 & FOWS 1021	Science of Nature I and Science of Nature I Laboratory	4
FOWS 1030 & FOWS 1031	Science of Nature II and Science of Nature II Lab	4

Read and think critically (SL-B)

Code	Title	Hours
ENGL 2200/2207	World Literature before 1600	3
ENGL 2210/2217	World Literature after 1600	3
ENGL 2230	British Lit before 1789	3
ENGL 2240	British Lit after 1789	3
ENGL 2250	American Lit before 1865	3
ENGL 2260	American Lit II after 1865	3
ENGL 2270	AfAm Lit Before 1900	3
ENGL 2280	AfAm Lit After 1900	3
HONR 1007	Honors Tech and Culture I	3
HONR 1017	Honors Tech and Culture II	3
HONR 2717	Honors Human Odyssey 1	3
PHIL 1010/1017	Introduction To Logic	3
PHIL 1020/1027	Introduction To Ethics	3
PHIL 1030/1037	Ethics And The Health Sciences	3
PHIL 1040	Business Ethics	3
PHIL 1050	Intro to Political Philosophy	3
PHIL 1060	Philosophy East and West	3
PHIL 1070	Art, Value, and Society	3
PHIL 1080	Introd Philosophy Religion	3
PHIL 1090	Philosophy of Race and Gender	3
PHIL 1100	Introduction To Philosophy	3
PHIL 1110	Ethics and Science	3
PHIL 1120	Intro. Environmental Ethics	3
PHIL 1130	Minds and Machines	3

Apply mathematical methods (SL-C)

Code	Title	Hours
MATH 1100	Finite Math and Applications	3
MATH 1120	Precalculus Algebra	3
MATH 1130	Precalculus Trigonometry	3
MATH 1150	Precalc Algebra And Trig	4
MATH 1610/1617	Calculus I	4
MATH 1680	Calculus With Business Apps I	4

Write and revise for a variety of purposes (SL-D)

Code	Title	Hours
ENGL 1100/1107	English Composition I	3
ENGL 1120/1127	English Composition II	3

Create and deliver oral presentations (SL-E)

Code	Title	Hours
COMM 1000/1007	Public Speaking	3

Analyze their own society and its relationship to the larger global context (SL-F)

Code	Title	Hours
AGEC 1000	Global Issues	3
ECON 2020/2027	Prin Of Microeconomics	3
ECON 2030/2037	Prin Of Macroeconomics	3
GEOG 2010	Human Geography	3
HIST 1010/1017	World History I	3
HIST 1020/1027	World History II	3
HIST 1210/1217	Technology And Civilization I	3
HIST 1220/1227	Technology And Civilization II	3
HONR 1007	Honors Tech and Culture I	3
HONR 1017	Honors Tech and Culture II	3
NATR 2050	People & the Environment	3
POLI 1050/1057	Global Politics and Issues	3
POLI 1090/1097	Amer Gov In Multicul World	3
RELG 1040	Intro to Western Religions	3
RELG 1050	Intro to Eastern Religions	3
SUST 2000/2007	Introduction to Sustainability	3
UNIV 2710/HONR 2717	The Human Odyssey I	3
UNIV 2720/HONR 2727	The Human Odyssey II	3

Interact in intercultural situations (SL-G)

Code	Title	Hours
AAAS 2000	Intro African American Studies	3
ANTH 1000/1007	Anthropology: Culture and Adap	3
COUN 2000	Living & Comm in Div Society	3
FLGC 1150	Global Fluency	3
GEOG 1010/1017	Global Geography	3
GSHS 2000	Global Studies Human Sciences	3
HIST 1010/1017	World History I	3
HIST 1020/1027	World History II	3
HIST 1210/1217	Technology And Civilization I	3
HIST 1220/1227	Technology And Civilization II	3
PSYC 2010/2017	Intro To Psychology	3
RELG 1040	Intro to Western Religions	3
RELG 1050	Intro to Eastern Religions	3
SOCY 1000/1007	Sociology Global Perspective	3
SOCY 1100	Race and Ethnicity	3
SOWO 2000	Introduction To Social Work	3
UNIV 2710/HONR 2717	The Human Odyssey I	3
UNIV 2720/HONR 2727	The Human Odyssey II	3
WMST 2100	Intro Women's & Gender Studies	3

Apply scientific principles (SL-H)

Code	Title	Hours
BIOL 1000	Intro To Biology	3
BIOL 1001	Intro To Biology Laboratory	1
BIOL 1010	A Survey Of Life	3
BIOL 1011	A Survey Of Life Laboratory	1

BIOL 1020/1027	Principles Of Biology	3
BIOL 1021	Principles Of Biology Lab	1
BIOL 1030/1037	Organismal Biology	3
BIOL 1031	Organismal Biology Laboratory	1
CHEM 1010 & CHEM 1011	Survey Of Chemistry I and Survey Of Chemistry I Lab	4
CHEM 1020 & CHEM 1021	Survey Of Chemistry II and Survey Of Chemistry II Lab	4
CHEM 1030 & CHEM 1031	Fundamentals Chemistry I and Fund Of Chemistry I Lab	4
CHEM 1040 & CHEM 1041	Fundamental Chemistry II and Fund Of Chemistry II Lab	4
CHEM 1110 & CHEM 1111	Gen Chem For Scientists I and General Chemistry I Lab	4
CHEM 1117 & CHEM 1118	Honors General Chemistry I and Honors General Chemistry I Lab	4
CHEM 1120 & CHEM 1121	Gen Chem for Scientists II and General Chemistry II Lab	4
CHEM 1127 & CHEM 1128	Honors General Chemistry II and Hon General Chemistry II Lab	4
CSES 1010	Soils and Life	4
CSES 1020	Crops and Life	4
ENVI 1030	ENVI and Life	4
FOWS 1020 & FOWS 1021	Science of Nature I and Science of Nature I Laboratory	4
FOWS 1030 & FOWS 1031	Science of Nature II and Science of Nature II Lab	4
FOWS 1040 & FOWS 1041	Climate Science I and Climate Science I - Laboratory	4
FOWS 1050 & FOWS 1051	Climate Science II and Climate Science II - Lab	4
GEOG 1020	Global Systems Weather/Climate	4
GEOG 1030	Global Systems Land/Water	4
GEOL 1100/1107	Dynamic Earth	4
GEOL 1110/1117	Earth and Life Through Time	4
PHYS 1000 & PHYS 1001	Foundations Of Physics and Found Phys Lab	5
PHYS 1150	Astronomy	4
PHYS 1400	Physics for Aviators	4
PHYS 1500	General Physics I	4
PHYS 1510	General Physics II	4
PHYS 1600/1607	Engineering Physics I	4
PHYS 1610/1617	Engineering Physics II	4
SCMH 1010/1017	Concepts Of Science	4

Analyze and value creative artistic endeavors (SL-I)

Code	Title	Hours
ARCH 2600	Art Of Arch Place And Culture	3
ARTS 1510	Looking at Art: App to Interpr	3
ARTS 1610	Introduction to Art History	3
ENGL 2000	Intro to Creative Writing	3

ENGL 2200/2207	World Literature before 1600	3
ENGL 2210/2217	World Literature after 1600	3
ENGL 2230	British Lit before 1789	3
ENGL 2240	British Lit after 1789	3
ENGL 2250	American Lit before 1865	3
ENGL 2260	American Lit II after 1865	3
ENGL 2270	AfAm Lit Before 1900	3
ENGL 2280	AfAm Lit After 1900	3
ENVD 2040	Design, Invention and Society	3
INDD 1120	Indust Des In Modern Society	3
MUSI 2730/2737	Appreciation Of Music	3
MUSI 2740	Survey of Popular Music	3
MUSI 2750	Music and Science	3
MDIA 2350	Introduction To Film Studies	3
THEA 2010/2017	Introduction To Theatre	3
THEA 2020	Aesthetics of Acting	3

English Composition Requirements

Students who enroll at Auburn University as freshmen and students who transfer from another institution into Auburn must meet Auburn's six semester hour English composition requirement. Requirements are based on when the student first began collegiate study and whether the student's English composition courses were taken at Auburn University. If a student's particular situation is not covered in the explanations below, or if a student has questions about his or her status, then the student should contact the Director of Composition by calling the Department of English at (334) 844-4620 or via e-mail at english@auburn.edu. Additional information on the importance of writing across the curricula can be found here (p. 149).

Students beginning collegiate study at Auburn as freshmen in Fall 2000 or later must complete English Composition I and II (ENGL 1100 and ENGL 1120) or the Honors equivalents (ENGL 1107 and ENGL 1127) with a grade of C or better in each course. The grades of C or better are required by the Articulation and General Studies Committee agreement. Students who earn a grade of D or F in a composition course at Auburn must repeat that course. Students may repeat the course at another institution, unless they wish to use the grade adjustment policy to exclude the grade of D or F. Students must complete the composition sequence to be eligible to take Core Literature courses.

Transfer students beginning collegiate study at another institution in Summer 1998 or later must meet Auburn's composition requirement. They may do so in one of two ways: (1) take English Composition I and II at another institution, provided these courses are comparable in scope and coverage to ENGL 1100–ENGL 1120 and there is no duplication of hours, and earn a grade of C or better in each, or (2) take ENGL 1100–ENGL 1120 (or ENGL 1107–ENGL 1127) at Auburn and earn a grade of C or better in each.

Transfer students who have earned a grade of C or better in English Composition I, and earned three semester hours or five quarter hours at another institution will be required to take ENGL 1120 (or ENGL 1127) at Auburn. Students may also fulfill the requirement for ENGL 1120 by taking an English Composition II course at another institution, provided the course is similar in scope and coverage to ENGL 1120 and they earn a grade of C or better.

Transfer students who have been exempted on the basis of standardized test scores from English Composition I carrying five quarter hours or three semester hours at another institution, and who have earned a grade of C or better in a subsequent English composition course at the same institution carrying the same amount of credit, will have fulfilled Auburn's composition requirement. Transfer students who have been exempted with credit will have both the exemption credit and course credit accepted at Auburn. Transfer students who have been exempted without credit, and who have earned a grade of C or better in a subsequent English composition course at the same institution, will be given the course credit and, in addition, will be awarded sufficient advanced standing credit to fulfill Auburn's English composition requirement.

Transfer students who have been exempted from English Composition I at another institution but have had no subsequent English composition course there or have not earned a grade of C or better in the subsequent course must still complete Auburn's six semester hour freshman composition requirement. However, if they meet any of Auburn's criteria for exemption from ENGL 1100, they will receive three semester hours of credit for ENGL 1100 at Auburn and will be required to take ENGL 1120 (or ENGL 1123

or ENGL 1127) at Auburn. Additionally, if they meet any of Auburn's criteria for exemption from ENGL 1120, they will receive three semester hours of credit for ENGL 1120.

All transfer students should confer with their major academic advisor concerning the composition requirement as soon as possible after enrolling at Auburn.

Students who enter an undergraduate program at Auburn after receiving a bachelor's degree from an accredited institution are exempt from meeting the composition requirement.

All students may be eligible to exempt ENGL 1100 and/or ENGL 1120 with credit on the basis of their score in one of the following standardized tests: the English portion of the ACT; the reading score of the SAT; the International Baccalaureate English A1 exam; or the CEEB Advanced Placement Exam in English. Note that CLEP test scores are not eligible for exemption. The exemption scores for each test are reviewed each year and are available in the Auburn University Advanced Placement Program, which is distributed by the Office of the Registrar (https://www.auburn.edu/administration/registrar/student.php).

Literature Requirements

Students beginning college work in Fall 2011 or after must take at least one Core literature course. They may take a second course in the same literature to complete a sequence. Completion of the freshman composition requirement is a pre-requisite for all literature courses.

All Auburn students beginning college work before Fall 2011 must fulfill the Core Curriculum literature requirements by taking one of four sequences:

Code	Title	Hours
ENGL 2200/2207	World Literature before 1600	3
ENGL 2210/2217	World Literature after 1600	
ENGL 2230	British Lit before 1789	3
ENGL 2240	British Lit after 1789	
ENGL 2250	American Lit before 1865	3
ENGL 2260	American Lit II after 1865	
ENGL 2270	AfAm Lit Before 1900	3
ENGL 2280	AfAm Lit After 1900	

Literature courses taken at other institutions may fulfill the Core literature requirement with the following provisions:

1. Students may transfer as equivalents of the Core literature requirement only sophomore-level literature survey courses covering a broad historical period.
2. Students transferring a single literature course may receive credit for ENGL 2200 only if it is the first course in a World Literature sequence and includes literature of the ancient world. Any survey of modern literature (beginning at any time after 1600 and extending to the present), whether world literature or a national literature, will transfer as credit for ENGL 2210.
3. Freshman literature courses and literature courses based on genres (poetry, the short story, the novel), themes, or narrowly defined historical periods will not fulfill the Core literature requirements but are eligible for transfer as electives.

Students or advisors with special questions about placement or credit for the Core literature requirements may contact the director of core literature through the Department of English at (334) 844-4620 or via e-mail at english@auburn.edu.

History Requirements

One of the purposes of the university's Core Curriculum is to give students an understanding of their culture and its backgrounds. Course sequences designed especially for this purpose are those in World History and Technology and Civilization. Native students beginning college work before Fall 2011 must earn six hours of credit in one of these sequences. Students beginning college work in Fall 2011 or after must have at least one Core history course and a complete Core sequence in either literature or history.

Credit in history earned at another institution may be allowed on transfer as shown below in meeting this particular requirement:

1. If transfer students have three hours in the first course of a broad, introductory two-course sequence in world history or western civilization or technology and civilization or U.S. history they must complete a history sequence, by taking HIST 1020/HIST 1027 (for World History and Western Civilization), HIST 1220/HIST 1227 (for Tech. and Viv.) or HIST 2020 (for U.S. History).

A transfer student who has taken the last course in a similar two-course sequence would take HIST 1010/HIST 1017 or HIST 1210/HIST 1217 or HIST 2010 to complete a sequence.

2. Students entering an undergraduate program at Auburn, after earning bachelors' degrees from other accredited universities, may be exempted from the history requirements unless their curricula specify otherwise.

Math Requirement

Upon recommendation from the Office of Accessibility (based on a thorough review including medical documentation, student interviews, past history, etc.), the Chair of the Core Curriculum and General Education Committee may approve MATH 1000 as satisfying the core curriculum math requirement. Such approval does not remove or satisfy any specific MATH requirements or prerequisites in the student's major. Any adjustments to major-specific MATH requirements are at the discretion of the unit offering the major.

Oral Communication Requirement

All Auburn University bachelor's degree programs provide components to ensure competence in oral communication skills. Program information documenting oral communication components is maintained in the Office of the Provost/Vice President for Academic Affairs. Appropriate accommodations will be made to enable individuals with disabilities to satisfy this requirement.

Course Numbering

The subject name (subject area) together with the course number constitutes the official designation for the course for purposes of registration and official records. The specific course title appears following the course number. The figures in parentheses denote the number of hours of semester credit for the course. Following the credit hours are listed contact hours, the estimate of the actual hours per week a student should expect to be in class. If none are listed, the course will meet each week the number of hours that equals the number of course credit hours. Next appear the pre-requisites (required courses to be taken prior to) and co-requisites (required courses to be taken simultaneously with), if applicable.

Courses are numbered according to the following system:

- 1XXX — Undergraduate courses primarily for freshmen
- 2XXX — Undergraduate courses primarily for sophomores
- 3XXX — Undergraduate courses primarily for juniors
- 4XXX — Undergraduate courses primarily for seniors
- 5XXX — Courses (1) for professional students in Architecture, Design and Construction, and (2) undergraduate courses taught in conjunction with graduate courses
- 6XXX — Graduate courses that are paired with parallel 5000-level course
- 7XXX — Graduate courses. Not available to undergraduates
- 8XXX — Graduate courses. Not available to undergraduates
- 9XXX — Graduate courses exclusively in the professional practice doctoral degree programs (Pharmacy and Veterinary Medicine). Certain courses at this level may be designated by the department and approved by the Graduate Council for graduate credit.
- XXX1 — Undergraduate laboratory courses
- XXX3 — Undergraduate online courses (Discontinued use in 2021)
- XXX6 — Graduate online courses (Discontinued use in 2021)
- XXX7 — Undergraduate courses carrying Honors College credit

For more information on course numbering, please consult Guidelines for Course Numbering (http://auburn.edu/academic/provost/curriculum-management/_assets/pdf/Course-Numbering-Guidelines.pdf).

Dean's List and Graduation Honors

Dean's List

The name of eligible students who meet certain scholastic requirements at the conclusion of a given semester are placed on a list prepared for the dean of the student's college. This honor is also noted in the student's permanent record.

To meet Auburn University's requirements for inclusion on the dean's list, the student must be enrolled for 12 credit hours exclusive of any S-U option courses, pass all courses attempted for the semester, have no D or XD grades that term, and earn a GPA of at least

3.75 (on the 4.00 system). All grades, including those excluded by the grade adjustment/course repeat policy, are used for determining academic honors. The special requirements, applied in addition to the university regulations, are listed as follows:

- College of Architecture, Design and Construction: 3.75 average; only if an S-U graded course is required in the student's curriculum may it be included in the 12-hour minimum total.
- College of Nursing: 3.75 average, only if S-U graded courses are required in the student's curriculum may they be included in the 12 hour minimum total if and only an S grade is earned in these courses.

Graduation Honors

The grade average for graduation honors must be achieved on Auburn University course work. At least 60 hours in residence at Auburn University are required for graduation honors. all grades, including those excluded by the grade adjustment/course repeat policy, are used for determining academic honors. Grades of S or U and non-credit courses are not used in the calculations. Students earning a second baccalaureate degree must earn the minimum overall grade average required for honor distinction on the additional hours completed for the second degree. Those additional hours must total at least 60 credit hours.

Undergraduate students with a minimum overall grade average of 3.40 are graduated cum laude; a 3.60 magna cum laude; and a 3.80 summa cum laude. This distinction of high academic achievement is placed on the student's diploma and on his or her permanent record.

Students meeting all of the requirements of the Auburn University Honors College graduate as either an Honors Scholar or University Honors Scholar. Students should refer to the Honors College (p. 142) section of this Bulletin for the requirements of the Honors College graduation distinctions.

Early Alert Grades

In order to facilitate the adjustment of students to the rigors of Auburn University coursework, faculty teaching core courses must record in Banner an early alert grade (https://auburnpub.cfmnetwork.com/B.aspx?BookId=12617&PageId=462137) for all students enrolled in those classes one week prior to midterm. This process will permit students to seek tutoring or take other action before the drop deadline.

Enrollment

Registration and Scheduling

Every student who makes use of the instructional staff and facilities of the university must register and pay fees. This rule also applies to students who are clearing incomplete grades, clearing for graduation, or working on graduate theses. The university calendar (p. 52) lists the dates for registration and late registration/schedule adjustment. Students are urged, and depending on the curriculum may be required, to seek guidance from their advisers before attempting to register for classes, and they are urged to register during their assigned registration period. Students should register for courses during the term preceding the term they plan to attend. **When registering, the student is responsible for observing course pre-requisites or co-requisites.** Any waiver of these requirements must be approved by the department head or, in some cases, the dean. Waiver of the junior standing pre-requisite for courses that may be taken for graduate credit must have the Graduate School dean's approval. The dean may reduce a student's class load. **Students may register for classes via the web through the 5th university class day in Spring and Fall semesters, and through the 2nd university class day during full Summer term. Students may register for classes after the close of student web registration only with the approval of the college, school or department offering the course. No student without a course schedule will be allowed to register after the 15th day of classes during Fall or Spring or after the 10th day of classes in the full Summer term without the approval of the provost.**

Permission To Register

All students must have a username and a password prior to participating in registration, late registration or schedule adjustment. All registration holds must be cleared prior to the start of registration to avoid delays in registration.

Undergraduate Transient Students

See Undergraduate Transfer Credit Policy (p. 152)

Classification

Year	Completed Hours
Sophomore	completed 30 hours and is in the 31st to 60th credit hour
Junior	completed 60 hours and is in the 61st to 90th credit hour
Senior	completed 90 hours and is in the 91st hour or higher

The codes for identifying the classification of students are as follows: FR, Freshman; SO, Sophomore; JR, Junior; SR, Senior; 5YR, fifth year; UND, undergraduate non-degree students; UPR, undergraduate provisional; MST, master's; EDS, educational specialist; EDD, doctor of education; PHD, doctor of philosophy; GPR, graduate provisional; GND, graduate non-degree; P1, first-year professional; P2, second-year professional; P3, third-year professional; and P4, fourth-year professional.

A student with a baccalaureate degree who undertakes a program for a second bachelor’s degree will be classified as an undergraduate.

Undergraduate Course Load Policy

An undergraduate must enroll for 12 or more hours during a semester or summer term to be considered full-time for athletic, financial aid, loan and insurance purposes. The maximum load for students in undergraduate curricula is 18 hours during the semester, 7 semester hours during the 5-week session, and 14 hours during the 10-week session or any combination of summer sessions.

The maximum load may be exceeded under the following circumstances:

On approval of the student's dean, students may schedule overloads not to exceed 22 hours during the semester or 17 hours during the summer terms or 9 hours during a 5-week session. To be eligible for an overload, students must have passed all work attempted and earned a GPA of 2.5 or higher during their last semester at Auburn University in which they carried 15 or more hours (10 or more in their last summer). In determining whether to approve an overload exceeding these hour limits, the student’s academic dean will consider the student’s academic history, including grades and the number of courses taken in the past. Deans (or their designees) must seek approval from the provost’s designee for overloads greater than the limit of 22 hours during the semester or 17 hours during the summer terms or 9 hours during a 5-week session.

International Students are required to be enrolled as full-time students during the academic year and are subject to special full-time enrollment regulations. They may NOT drop below the full-time course loads without prior written authorization from the Office of International Programs. Dropping below full course loads without prior Office of International Programs (OIP) approval can subject international students to termination of their immigration status therefore international students and academic advisors must check with OIP PRIOR TO modifying full-time course loads for international students.

Undergraduate Grade Adjustment Policy (GAP)

All regularly admitted undergraduate students, who were enrolled during Fall 2000 or after, may delete GPA computation and credit for a maximum of three (3) grades of D or F (including FA, WF or U) associated with their undergraduate degree program from the computation of their cumulative GPA. Deletion of grade computations and credit is not available to professional students in pharmacy and veterinary medicine. Grades and credit considered as transfer credit, courses earned in a previously awarded baccalaureate degree, or grades that have been assigned as a result of an academic honesty decision are excluded from this policy.

This policy does not offer exemption from academic requirements for Auburn University degrees; adjustment only applies to grade computation in individual courses.

All core and major requirements must be met for graduation. Students should be aware that D or F/FA/WF/U grades in required courses may be deleted from the computation of the cumulative GPA prior to a repeat, but if required for the degree, the course must be repeated at Auburn University before graduation.

Where a specific course is required for the core or a major, that course must be repeated to replace the adjusted grade. Courses covered by this policy and needed to meet core area requirements or elective courses within a major may, subject to the approval of the academic dean, be replaced by any course accepted for that requirement, where applicable. All courses for which a grade is awarded at Auburn University will remain on the transcript. Students may submit a written request for grade adjustment to their academic dean’s office at any time prior to graduation. Once a request for adjustment of a grade has been granted and that has been removed from the calculation of the cumulative GPA, the grade and credit cannot be restored.

Students should follow guidelines for the repeat of courses in which grades of A, B, or C have been awarded (See the following section on Other Policies on Repeat of Courses). However, all grades will be used for determining all academic honors.

All Auburn University transcripts will include two institutional GPAs: a semester GPA, and a cumulative GPA. The transcript will carry an appropriate notation that the cumulative GPA may not include grades for all courses attempted.

Note that a student may not GAP a course in a degree program once that program is complete and the degree awarded.

Note that gapped grades will be seen by graduate schools and professional programs and they may use un#gapped GPAs in the selection process.

Grades

Grade Definitions

Final passing grades are A, superior; B, good; C, acceptable; D, passing; and S, satisfactory. Final failing grades are F, failure; FA, failure for excessive absences; U, unsatisfactory; and WF, officially dropped with permission of the student's dean but failing at time of withdrawal and is calculated into the GPA (For the definition of W, see the following section on Grade Assignment for Class Withdrawal.).

A TD, thesis and dissertation research credit, is assigned to courses 7990 Research and Thesis and 8990 Research and Dissertation.

A grade of IP (In Progress) is used by professional programs, specifically Pharmacy, Veterinary Medicine, and any other degree program designated as a "professional program" by the university, where completion of courses within that program may extend beyond the end of a regular term. Students who are making progress toward completion of their work but have not completed all course requirements may receive the IP grade. The IP grade is not calculated in the GPA until the grade is cleared. An IP grade must become a grade of A, B, C, or D within one year from the end of the term the IP grade was awarded or the IP grade will become an F.

Grades of SA and SN may be assigned in certain specialized classes in which progress to the next level of a program depends on performance in the class. In such cases, a grade of SA in a particular course may be required for advancement. A grade of SN will give the student appropriate earned credit but will not allow the student to advance in that program.

An NR (no grade reported) is assigned systematically when the instructor does not assign a letter grade. Grades of NR should be cleared as soon as the faculty member can submit final grades on the Incomplete Grade Memorandum of Understanding Form to the Office of the Registrar; in any case, grades of NR should be cleared by no later than four weeks from the final grade deadline of the previous semester.

Faculty Policy on Assigning Grades of Incomplete

1. Student (or appropriate representative) must contact the faculty member through Auburn email or in writing prior to the submission of final course grades to request a grade of Incomplete (IN) due to documented reason (illness/death in family/etc.).

2. If a student does not request an IN, the faculty member should grade the student based upon the percentage of course work completed to date and using a zero (0) for any exams/assignments not completed.

3. To be eligible for a grade of IN, the student must have completed (and have passed) more than half of all class assignments for the semester.

4. The faculty member must fill#out the Incomplete Grade Memorandum of Understanding Form through the workflow process, indicating the:

- Reason for the IN
- Percent of course work currently completed at the time of submission and the grade average on that work,
- Detailed information about the additional work needed to complete the course,
- Timeline to complete the work (6 months maximum; preferably sooner), and
- Grade the student should be assigned if the additional work is NOT completed by the deadline set for the completion of the work; the missing work is calculated as a zero (0).

5. Grades of Incomplete automatically become the grade identified by the faculty member, if not cleared within 6 months.

6. If the faculty member assigning a grade of IN leaves Auburn University, the department head should make a reasonable attempt to contact the former faculty member and then assign a grade based upon the work presented by the student and the information provided

thru workflow on the Incomplete Grade—Memorandum of Understanding form. This information will be in extender under the student's number.

7. Once an IN has been changed to another grade it may not be changed, in the future, to a different grade without approval of the provost.

8. Documentation of class work must be maintained by the student. The Incomplete Grade—Memorandum of Understanding workflow can be accessed in extender. For faculty members who submit the IN grade forms to the Office of the Registrar prior to course grades being rolled to academic history, the IN will be reflected on the electronic grade roster; faculty will be unable to change that grade on the electronic grade roster.

9. Faculty members should NOT enter a grade on the banner course roster for those students who are to be assigned the IN grade but leave the grade blank. Once the IN grade form is received by the Office of the Registrar through workflow, the IN will be entered on the student record.

10. When the student has completed the outstanding work, it is the responsibility of the faculty member to initiate the change of grade workflow.

Faculty Policy on Grade Changes

- All grades (except IN, IP, and NR) are final when submitted to the Office of the Registrar by the instructor.
- Once submitted, a final grade may be changed only by the request of the instructor, with the approval of the department head and dean, by means of a workflow submitted to the Office of the Registrar.
- Changes to final grades must be submitted within six months of completion of the course.
- Any grade changes submitted outside of this timeframe **must also** be approved by the provost.
- A grade of F and additional penalties may be assigned for academic dishonesty, as prescribed in the Student Academic Honesty Code (https://www.auburn.edu/academic/provost/academic-honesty/) (1202.1.1).
- Deferred grades (IN, IP, and NR), whether submitted by the instructor (IN) or assigned systematically (IP and NR) are to be cleared by the instructor as soon as possible and no later than the time period specified in the Faculty Policy on Assigning Grades of Incomplete (p. 132) or the Grade Definitions (p.) specific to these deferred grades.

Grade Assignment For Class Withdrawals

A student who withdraws from a course prior to the 15th class day during a semester (or the fifth class day of summer term) will have no grade assignment; however, from the 15th class day during a semester (or the fifth class day of summer term) through the withdrawal deadline published in the academic calendar a W (Withdrawn Passing) grade will be recorded for the course. A course may be dropped with a W after mid-semester only under unusual conditions and only with permission from the student's dean. When approval for dropping the course under such circumstances is granted, a W may be assigned only when the instructor indicates that the student is clearly passing the course. Otherwise, a grade of WF (Withdrawn Failing) is assigned. All failing grades are calculated into GPA as grades of F.

Grade Average and Quality Point Computation

A 4.0 grade scale is used. An A equals 4.0; B, 3.0; C, 2.0; D, 1.0; and F equals 0.0. Only course work attempted at Auburn University is used in determining the grade report average and continuation-in-residence requirements. S and U grades do not enter into grade-point computations.

S-U Grading

Grades of S (Satisfactory) and U (Unsatisfactory) may be assigned only to courses approved to be graded S-U, and courses elected under the S-U option.

A junior or senior with a minimum overall grade average of 2.5 on at least 20 hours of credit earned at Auburn may elect any course to be graded on the S-U option, except for courses required in the Core Curriculum or for required courses as defined by the student's curriculum. A total of 12 credits may be earned at the rate of one course per term. Students will receive credit toward a degree for these courses, provided credit is normally accepted in their curricula for these courses.

An unclassified student may schedule one or more courses on the S-U option with the approval of the dean. Courses completed on the S-U choice by unclassified students may not be applied later to degree requirements should the student become a degree candidate.

A graduate student may enroll in undergraduate courses, except for 6000-level courses taken for graduate credit, under the S-U option on the major professor's recommendation.

Students are not permitted to change from S-U grading to conventional grading or vice versa after the fifteenth-class day of the fall and spring terms or the fifth class day of any summer term.

Grade Reports

Grade information may be obtained via AU Access at the Auburn University homepage, https://www.auburn.edu/.

Policies and Procedures for Admissions

Auburn University is an equal-opportunity educational institution, and as a matter of policy, does not discriminate in its admissions policy on the basis of race, color, sex, religion, disability, sexual orientation, age, or national origin. Preference is given to the admission of Alabama residents at the undergraduate level; in considering applications to professional schools or programs with restrictive admissions policies, the length of residency in the state will be a factor.

Applications for resident and non-resident students are accepted for all curricula; however, the number of students and academic credentials of the applicants accepted for admission are determined by the availability of facilities and faculty.

Application Forms

Applicants are required to submit their application electronically using the document available on the Auburn University website at https://www.auburn.edu/admissions/attention-applicants.php. Application to the Graduate School, the College of Veterinary Medicine, or the James Harrison College of Pharmacy must be made to those schools.

Process for Application

Individuals may apply for undergraduate admission early fall. Because of the large number of applications, credentials should be submitted as early as possible. In all cases, complete credentials along with the medical examination report must be filed at least three weeks before the term's opening. **The university reserves the right to establish earlier deadlines should circumstances warrant. Prospective students who are offered admission to the university must maintain a level of academic achievement comparable to that in the record used for admission evaluation. Otherwise, the university reserves the right to rescind the offer of admission.**

Application Fee

A $50 processing fee (international application processing fee is $60), payable by check, money order or credit card, must accompany all admission applications and is neither refundable nor applicable to other fees. Responses on the application forms and on related materials must be complete and accurate; entrance may be denied or registration canceled as a result of false or misleading statements.

Applicants may receive provisional acceptance after they submit the application form and current academic documents. However, they must complete and return a medical examination report form provided by the university at least three weeks before the term's opening. The university may require additional medical examinations and may refuse admission to individuals whose health records indicate their health or the university community might be adversely affected by their attendance. All applicants must certify they have registered with the Selective Service Board or they are not required by law to register.

Applicants may be asked to supply evidence of good character. The university may deny admission to those whose presence is deemed detrimental to the institution or its students.

Admission of Freshmen

Favorable consideration for admission will be given to accredited secondary school graduates whose college standardized test scores, high school grades, and other factors give promise of the greatest level of success in college courses.

Secondary school students planning to apply for admission to AU should emphasize the following high school courses: English, mathematics, social studies, sciences, and foreign languages.

High School Curriculum Requirements

Course	# of Years
English	4 years
Mathematics	3 years
Algebra I and Algebra II	2 years
Geometry, Trigonometry, Calculus or Analysis	1 year
Science	2 years
Biology	1 year
Physical Science	1 year
Social Studies	3 years

Recommended: one additional science, one additional social studies, and one foreign language.

Applicants can present scores from either the American College Test (ACT) or the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board. Scores must be received from the testing agency directly and will not be accepted on the high school transcript. Scores on both the ACT and SAT tests may be used as a partial basis for admission, for placement in English, chemistry, and mathematics, and for awarding university scholarships and loans. Applicants whose native language is not English are required to demonstrate proficiency in English.

Applicants of mature age who are not high school graduates may be considered for admission if their educational attainments are shown through testing to be equivalent to those of a high school graduate. The tests used include the USAFI General Educational Development Test, the American College Test, and/or other tests required by the Admissions Committee. The Committee will consider applicants from non-accredited high schools on an individual basis.

Early Admission

Early admission is for students who have met all the high school graduation requirements, have graduated early (typically following eleventh grade or mid-senior year), received a high school diploma, and wish to begin their college career early.

Dual Enrollment

Dual enrollment is for those seeking dual (simultaneous) enrollment at Auburn University and their high school. If attending Auburn University as a dual enrolled student, the student must also submit a regular freshman admission application following the completion of their junior year of high school.

For more information on dual enrollment visit, https://www.auburn.edu/academic/provost/pathways/auburn-first/ (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.auburn.edu%2Facademic%2Fprovost%2Fpathways%2Fauburn-first%2F&data=05%7C01%7Ckcc0019%40auburn.edu%7C6d3a72f9ad824e7a8f9108dbf1da4bde%7Cccb6deedbd294b388979d72780f62d3b%7C0%7C0%7C638369692098985784%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=UVrnZM38Sq9T3JCTuF3YkNDWXoQ7SLHfLldxz6VtdIk%3D&reserved=0) or contact aufirst@auburn.edu.

Admission of Transfer Students

Admission of transfer students to the University is contingent on availability of space.

Auburn University considers transfer applicants in three categories:

1. **Traditional Transfer:** Transfer applicants with 24 or more semester hours of post-high school college credit (in addition to any AP/IB credit) must have completed at least 6 semester hours of courses that meet Auburn University core requirements. These applicants must have earned a cumulative 2.5 GPA in all college coursework and be eligible to re-enter the last institution attended. Remedial, technical, or vocational courses are excluded from the hours and GPA calculation.
2. **Freshman Transfer:** Transfer applicants with at least 12 but fewer than 24 semester hours of post-high school college credit (in addition to any AP/IB credit) must have been eligible for admission based on their high school record upon graduation and must have completed at least 3 semester hours of courses that meet Auburn University core requirements. These applicants must have earned a cumulative 2.5 GPA in all college coursework and be eligible to re-enter the last institution attended. Remedial, technical, or vocational courses are excluded from the hours and GPA calculation.

3. **Gateway Transfer:** Transfer applicants who complete a university-approved gateway program are admitted based on completion of all requirements of the approved gateway and a minimum of a 2.75 cumulative GPA in all coursework applicable to the gateway.

Some programs may have higher standards for admission than the university at large. If so, students transferring into those programs must meet the higher standards. These higher standards apply to transfer applications from both new and continuing students.

Transfer applicants who do not meet the requirements above may be further evaluated using a holistic review considering factors such as levels and trends in academic achievement, performance in coursework related to intended major, and extenuating circumstances that may have affected students' academic performance.

Transfer Credit

See Undergraduate Transfer Credit Policy (p. 152)

Transferring from Auburn University Montgomery (AUM)

Undergraduates enrolled at either of Auburn's campuses may take classes at either campus, if they are in good standing and have approval by the home campus. Those credits can count toward their graduation requirements. This policy does not supersede departmental requirements related to the minimum number of credits to be earned in the major at the home campus. During such terms when students take classes at the other campus, they are classified as transient students. Students must complete an admission application as a transient student; however, the application fee will be waived. To become a degree-seeking student on either campus, however, students must meet minimum transfer requirements.

For further admission information, prospective students may contact: Office of Undergraduate Admissions, The Quad Center, Auburn, AL 36849, admissions@auburn.edu.

Admission of Undergraduate Transient Students (Non-degree candidates enrolling for one term)

A student in good standing at an accredited college may be admitted to the university as a transient student when faculty and facilities are available. Generally, space availability is limited for the fall semester.

To be eligible for consideration, an applicant must submit an application, an acceptable medical report, and a letter of good standing bearing the signature of the dean or registrar of the college in which the applicant is currently enrolled.

Permission to enroll is granted for one term only; a transient student who wishes to re-enroll must submit a new application. Transient status does not constitute admission or matriculation as a degree candidate. The transient is, however, subject to the same fees and regulations as a regular student except for the continuation-in-residence requirements.

For further admission information, prospective students may contact: Office of Undergraduate Admissions, The Quad Center, Auburn, AL 36849, admissions@auburn.edu.

Admission of Unclassified Students

Admission to most undergraduate programs as an Unclassified Student may be granted on the basis of the bachelor's degree from an accredited college. Unclassified students must submit the same admissions credentials and meet the same GPA requirement as transfer applicants.

For further admission information, prospective students may contact: Office of Undergraduate Admissions, The Quad Center, Auburn, AL 36849, admissions@auburn.edu.

Admission of International Students

Auburn University's core mission is education. In this spirit, the University welcomes qualified international students to apply for admission to the university. All international students with an outstanding academic background and an ability to communicate in English are encouraged to apply.

Students who are proficient in English skills may apply for admission directly to the university or apply through Auburn Global. Students with less English proficiency may apply to Auburn Global and will be supported in the enhancement of their language skills in their first year, regardless of selected university major or degree. English proficiency is determined by satisfactory results on the Test of English as a Foreign Language (TOEFL), offered by the Educational Testing Service, Box 899, Princeton, N.J., 08540, U.S.A. For direct entry to the university, the student must also submit satisfactory results on the Scholastic Aptitude Test (SAT) or the American College

Testing exam (ACT). International students should send all of their academic credentials to a professional credentials evaluation agency for evaluation, and when possible the evaluation should include a course by course evaluation with GPA.

All first-year international students, regardless of their English language proficiency level, can participate in the programs and services offered by Auburn Global as part of the International Accelerator Program (IAP). These personalized and supportive services include academic support, mentoring, social events, and participation in Auburn University and community events. The Auburn Global customized suite of services is designed to engage international students in the domestic culture and sets the foundation for a successful collegiate experience. All international students are strongly encouraged to register for Auburn Global's programs and services.

Please note, when applying directly to the university there is a $60 processing fee payable by check, money order or credit card. This fee is non-refundable and cannot be applied to other fees. It is important that all materials submitted to the university or to Auburn Global are complete and accurate. Incomplete applications cannot be processed and those with inaccurate information may be subject to cancellation.

Applicants who present satisfactory academic credentials, test results, and evidence that they have sufficient funds to meet their college expenses will be sent an acceptance letter and the form I-20 (the authorization for a student visa). All students are required to purchase the university student insurance plan or provide evidence of equivalent coverage. This health insurance may be purchased upon arrival in the U.S.

Detailed information can be found at the: Office of International Programs, 228 Foy Hall, Auburn University, Auburn, AL 36849, intledu@auburn.edu.

For further admission information, prospective students may contact: Office of Undergraduate Admissions, The Quad Center. Auburn, AL 36849, USA, admissions@auburn.edu.

For detailed information about the International Accelerator Program, prospective students may contact: Auburn Global Admissions, 332 Foy Hall, Auburn University, Auburn, AL 36849.1-888-575-2469; admissions@auburnglobal.org.

International Accelerator Program (IAP)

The International Accelerator Program (IAP) at Auburn Global is a freshman year of study for international students. It eases the transition from high school in another country to U.S. higher education by combining credit-bearing courses from the first year of your degree with additional support services, teaching tailored to your academic and language level, and cultural experiences, helping to ensure your future success. There are three flexible Accelerator routes to choose from, depending on your qualifications and personal preferences: the Integrated Accelerator, the Academic Accelerator, and the Extended Accelerator. For more information on the program and routes to enter, see http://www.auburnglobal.org/about-the-iap/. Students in the Accelerator Program are enrolled in a minimum of 18 clock hours in Fall and Spring semesters, and 14 clock hours in summer.

IAP students take a core curriculum * and choose one of three academic tracks:

1. Humanities
2. STEM (Science, Technology, Engineering, and Mathematics)
3. Business

	Term 1	Term 2	Term 3
Support	GLOB 0100: American University Life	GLOB 1010: Academic Performance	GLOB 1030: Academic Performance II
English: Academic and Extended Accelerator	English for Academic Purposes (EAP)	English Composition & Oral Proficiency for International Students	Public Speaking
English: Integrated Accelerator		English Composition	Public Speaking
General Education Courses	Auburn in the World: Industry and Society	Principles of Microeconomics	Global Geography
General Education Courses	Auburn in the World Lab	Introduction to Film	World History

General Education Courses	College Algebra: Calculus 1	College Algebra: Calculus 2	Learning Tracks: 1. Humanities: Introduction to Psychology 2. STEM: Fundamentals of Chemistry 2 3. Business: Principles of Macroeconomics
Credits/Hours	EAP 18	AAP 20 IAP 17	AAP 18 IAP 16

*This is a sample curriculum and may be subject to change.

Admission of Auditors

Auditing of courses is restricted, but when faculty and facilities are available, individuals who do not seek admission for course credit may audit a lecture course or the lecture portion of a course upon approval of the dean and the head of the department. A formal application must be filed. Auditors must register and pay appropriate fees. Although listed on class rolls, auditors are not required to take part in classroom discussion, tests, examinations or reports, and they receive no grade or credit. However, students who attend the audited course rarely or never will have non-attendance of the course indicated on their records.

A student enrolled in other courses for credit will be granted permission to audit a course only on the approval of the dean and the head of the department of the course involved.

Students may not change from audit to credit after classes begin, but may change from credit to audit within the first four weeks of classes (seven class days during any summer session). No refund of fees will be made except for changes made during the first three weeks of classes in accordance with university policy.

For further admission information, prospective students may contact: Office of *Undergraduate Admissions,* The Quad Center, Auburn, AL 36849, admissions@auburn.edu.

Enrollment Deposit

All applicants who meet the university admission requirements and are offered provisional admission are required to pay a $250 non-refundable deposit to confirm the offer of admission. Deposits for the summer or fall semesters are due by May 1, and deposits for the spring semester are due by December 1. However, it is suggested students deposit as early as possible. Enrollment deposits for transfer, auditor, unclassified and transient applicants are due by June 1 for summer semester, fall semester is due by August 1, and spring semester are due by December 1. Students will receive housing information and orientation registration materials following submission of the deposit.

Advanced Standing and Credit

Prospective students are advised to check the website of the Office of the Registrar for specific information on placement and credit at https://www.auburn.edu/administration/registrar/.

Entering students with superior preparation or with special competence in a specific area may qualify for advanced placement or credit. Placement or credit may be granted on the basis of Advanced Placement Examinations of the College Board, International Baccalaureate scores, scores on college ability or achievement tests, departmental proficiency examinations, and other evidences of experience and competence.

Students enrolled at Auburn may apply to an academic department for a Departmental Proficiency Test if they have demonstrated a reasonable basis of experience or study in the subject area. If they score a satisfactory grade on the examination, they will be eligible for placement in an advanced course and for credit in the subject. Students who have previously enrolled for the subject at Auburn are not eligible for this test in the same subject.

The amount of advanced placement credit granted in each subject area is determined by the recommendation of the academic teaching department with the approval of the student's academic dean and the provost or designee.

Students transferring to Auburn who have received advanced placement credits from another institution may be awarded these credits insofar as Auburn's requirements for awarding such credits are met. Advanced placement credits may not be substituted for residency requirement.

Admission to Graduate Standing

Admission to graduate standing is granted only by the university's Graduate School. A $60 ($70 international) application fee is required. Applicants must hold a bachelor's degree from an accredited U.S. institution or provide proof of equivalent training from a

recognized academic institution outside the United States. Departments make admissions decisions based on the compatibility of the applicant's goals with departmental resources, the availability of spaces for new students, and a holistic evaluation of the applicant's potential for success in the program. Other considerations might typically include standardized test scores, grades and/or GPAs, letters of recommendation, writing samples, research or applied experience, and interviews.

For further admission information, prospective students may contact: The Graduate School, Hargis Hall, Auburn, AL 36849, gradadm@auburn.edu.

Readmission

Students who have previously attended Auburn and who wish to re-enter must secure permission to register from the Office of the Registrar if they have not been enrolled at AU during the preceding 12 months or if they have been academically ineligible to be enrolled. Undergraduate students who have not been enrolled at Auburn University for a period of five years or more and who are returning to the same curriculum may be subject to different university, college, school, or departmental requirements than those which existed at the time of their initial entry, as well as those which existed at the program level when continuous enrollment ceased. The university, college, school, or department reserves the right to review a former student's completed work, and if deemed appropriate, require any readmitted student to meet graduation requirements as listed in the catalog in effect at the time of re-entry. In addition, each college/school may have more specific requirements for readmitted students. An official transcript from each institution attended must be furnished to the Office of the Registrar. Students who have been away from the university for more than one year must re-establish their right to residency. For further information, students may contact: Office of the Registrar, Langdon Hall, Auburn, AL36849. https://www.auburn.edu/administration/registrar/.

Orientation

To help entering freshmen adjust to the first semester at the university, including scheduling of courses, Auburn provides a summer orientation program, Camp War Eagle. Freshmen entering summer or fall semester attend sessions on campus during the summer prior to entrance. In these sessions, students meet faculty members, administrators, and student leaders, and plan with their advisors a schedule of their first semester of college work. New transfer students (and freshmen who enter in the January term) should plan to attend one of the regularly scheduled Successfully Orienting Students (SOS) sessions held prior to the beginning of each term. At these programs, new students will have the opportunity to meet with an advisor and plan their schedules for the upcoming term. Other new students may meet with advisors during the regular registration period at the beginning of the term in which they plan to enroll. For further information, students may contact the First Year Experience, 189 Foy Hall, Auburn, AL 36849, fyedesk@auburn.edu.

Admissions Appeal

Admission to Auburn University is competitive, and the competitiveness each year depends on the number of applications received, the academic qualifications of the applicants, our evaluation of each applicant's credentials and the number of space available. The admissions process is competitive and academically selective, so all applicants cannot be granted admission. The review process includes comprehensive admissions review and each applicant is given personal consideration. No single criterion guarantees admission to the university and our comprehensive review is based on several factors. The strongest consideration in the decision is given to student's academic preparation.

Disagreement with an admissions decision, alone, is not a valid reason for an appeal. Applicants with new and compelling information that were denied undergraduate admission to Auburn University may submit an appeal.

Appeals are reviewed by the Undergraduate Admissions Appeal Committee, a decision-making committee for undergraduate applicants denied admission to the university. The Committee is appointed by and responsible to the Vice President for Enrollment for a three-year appointment.

The Undergraduate Admissions Appeal Committee meets each semester to establish deadlines for appeals and reviews appeals that include a letter from the applicant explaining the reasons for the appeal, updated high school and/or college dual enrollment transcript(s) and two supporting letters of recommendation speaking to the applicant's readiness for academic life at Auburn University. All decisions rendered by the committee are final.

For more information visit https://aub.ie/admissionsappeal (https://aub.ie/admissionsappeal/).

Applicant Criminal Background or Misconduct Review Process

All applicants for admission to Auburn University are required to disclose on the admission application prior criminal conduct and prior educational misconduct. The University reviews all applications in which a student discloses misconduct at an educational institution

and/or in which a student discloses prior criminal conduct to determine whether the admission of the applicant is in the best interest of the University. Affirmative disclosures do not result in automatic denial of admission.

Incomplete Information

Applicants who fail to give complete and accurate responses to the conduct section of the admission application may be subject to denial of admission, or if already admitted, may be subject to rescission of admission.

On-Going Duty to Disclose

The duty to disclose preadmission misconduct at an educational institution and criminal conduct is an ongoing one. Therefore, students have a continuing duty to report such conduct to the Office of Undergraduate Admissions, University Registrar or the Graduate School, as applicable, until they have accepted their offer of admission to the university. Applicants who fail to disclose and provide a complete and accurate response may be subject to revocation of admission by the Office of Undergraduate Admissions, University Registrar, or the Graduate School.

Procedure

New and returning applications for admission to Auburn University indicating a record of previous misconduct at an educational institution or criminal conduct will be reviewed on a case-by-case basis by the University's Disclosure Review Committee.

Applicants will be required to provide additional information to the University for consideration. This information may include but is not limited to, a personal statement, copies of criminal disposition records, background checks and screenings, and educational and disciplinary records. Applicants may also be asked to provide information releases. All information requested from the applicant must be received by the University at least 45 days in advance of the first day of the semester. Where the requested information is furnished after 45 days in advance of the first day of the semester by or on behalf of an applicant, an applicant may request a term change so that his or her application will be considered for the following semester.

The designated office will provide the supplemental information to the Disclosure Review Committee. Only applicants who meet all other admissions criteria are reviewed by the Committee. The University shall make a determination within 45 days of the receipt of all requested information.

The University has the right to deny admission to any applicant who refuses to provide pertinent information and/or to provide access to pertinent information.

Imposition of Restrictions or Requirements

The University may determine that an applicant may be admitted with certain conditions, assuming they are academically qualified for admission. Such restrictions or requirements may include, but are not limited to, placing an applicant on disciplinary probation, restricting the applicant from certain areas of campus, prohibiting the applicant from living in university housing, prohibiting the applicant from participating in certain activities, requiring the applicant to participate in periodic counseling, or requiring the applicant to meet periodically with University personnel.

Denial of Admission

The University may deny an applicant admission if, upon review of all available information, it is determined that denial of admission or re-admission of the applicant is in the best interest of the University.

Policies and Procedures for Enrollment Capacity

Policy and Procedures for Establishing or Changing the Enrollment Cap of an Undergraduate Major

Based on its land-grant traditions of service and access, according to its mission statement Auburn University will provide students broad access to the institution's educational resources. Therefore, as a basic principle, students should be allowed access to the majors of their choice. However, significant constraints in educational resources, as well as particular competencies students need beyond university minimums, may necessitate the establishment of enrollment restrictions for specific majors.

Major enrollment restrictions may take one of two forms – additional admission standards or enrollment caps. Additional admission standards address the minimum competencies a student must possess to be successful in the major. Enrollment caps address the maximum number of qualified students a program can accommodate without endangering the quality of instruction offered. Setting an enrollment cap differs from establishing additional admission standards in that admission standards focus on required qualifications for entry whereas enrollment caps focus on filling a limited number of seats from among all students qualified for the program.

All proposals for establishing, changing, or discontinuing a major enrollment restriction must be initiated in the unit responsible for the major, reviewed and approved by the college in which the major resides, and forwarded to the Office of the Provost for consideration by the Enrollment Restriction Oversight Committee. The Committee is comprised of the Provost or designee (Chair), Senior VP for Student Affairs or designee, Vice President of Enrollment Management or designee, Chair of the University Senate, Chair of Academic Standards, and Representative from the SGA. The Committee will review proposals to assure that they satisfy the criteria of this policy and will send its recommendations to the Provost and Vice President for Academic Affairs, who will make the final approval decision. Approved restrictions shall be published in the Bulletin.

All proposals for major enrollment restrictions must have adequate academic justification. Procedures for submission of proposals can be found on the Office of the Provost website.

Policies on Credit for Directed Studies

Credit for Directed Studies

The university policy on directed studies was approved effective August 2006. Auburn University offers directed studies courses, also referred to as special problems courses, directed readings or independent studies, in accordance with this established policy.

Directed studies courses allow in-depth study of a particular subject by a student who is well into her or his major and, in extraordinary circumstances, accommodate scheduling issues when no other remedy is available.

Directed studies courses should not normally be used as replacements for required courses or as a solution to routine scheduling problems.

Eligibility—To be eligible to take a directed studies course a student must be at junior level or above, and the course must be taken for credit toward the student’s major or minor; exceptions may be approved as follows:

- Exceptions concerning junior standing or higher, or concerning credit toward the student’s major or minor, must be approved by the instructor and the offering department head/chair (or dean, if the instructor serves as department head/ chair or associate dean), and by the dean of the college in which student is enrolled, if different from the offering college.
- A student must have the approval of her/his dean and the provost to take more than 9 hours of directed readings coursework for credit over the course of her/his degree program.
- The Provost's Guidelines on Directed Studies provides guidance the necessary approval process for the offering of directed studies courses for credit: https://www.auburn.edu/academic/provost/policies-guidelines/#guidelines.

Repeat of Courses

No student may repeat a course for credit in which the student has previously earned a grade of A, B, or C without written permission from the student’s academic dean. Courses specifically designated as repeatable in the Auburn University Bulletin are exempt from this regulation. Students may repeat courses, only once, in which they earn a grade of D or F without written permission from the student’s academic dean. Grades and hours for both attempts will be included in the calculation of the GPA unless the Grade Adjustment Policy has been invoked for the first attempt. If the grade adjustment policy is not invoked in the case of the repeat of a D grade, then the course credit hours may count only once toward graduation unless the course is designated as repeatable.

Satisfactory Progress

Student Athletes

In addition to meeting the general academic requirements of the university, student athletes must meet all academic requirements, including those relating to satisfactory progress toward a degree, set forth in the legislation of the Southeastern Conference (SEC) and of the National Collegiate Athletic Association (NCAA).

Student Financial Aid Recipients

In addition to meeting the general academic requirements of the university, applicants for student financial aid funds must maintain Satisfactory Academic Progress to receive, or to continue to receive, assistance through federal, state, and institutional student aid programs. Descriptions of these Satisfactory Academic Progress requirements for distinct classifications of Auburn students are available from the Office of Student Financial Aid.

Veterans

All students who are eligible and receiving Federal VA Education Benefits (Chapters 30, 31, 33, 35, 1606, 1607), in addition to meeting the general academic requirements set forth by the university, must maintain Satisfactory Academic Progress (SAP) as approved by the State Approving Agency of the State of Alabama, Department of Education. If the students who are utilizing one of the benefits listed above does not meet SAP, his/her enrollment will be terminated with the VA. For theses specific standards, please refer to the Satisfactory Academic Progress section of this bulletin.

Special Academic Opportunities

- Cooperative Education (Co-op) Program (p. 142)
- The Honors College (p. 142)
- International Academic Opportunities (p. 146)
- National Honor Recognition (p. 148)
- Professional and Continuing Education Non-credit Programs and Certificates (p. 148)
- Service Learning & Student Engagement (p. 148)

Cooperative Education (Co-op) Program

The Cooperative Education (Co-op) Program provides opportunities for students to alternate semesters of academic study with full-time, career-related, paid work experience in industry, business, and government agencies.

Coordination of study and work combines theory and practice. As a result, students find increased meaning in and motivation for their studies. This experience helps to develop a sense of responsibility, judgment, and maturity. Students also benefit financially, since they are paid for their work.

In four-year undergraduate curricula, the Cooperative Education Program is sometimes a five-year plan. A student must complete at least two semesters of the freshman year with an above-average scholastic record before being placed with an employer. Cooperative Education is offered in all curricula of the College of Agriculture; Architecture, Design and Construction; Business; Engineering; Liberal Arts; Sciences and Mathematics and in all curricula of the College of Forestry, Wildlife and Environment.

A graduate Co-op Program can be arranged for certain students in masters and doctoral programs where employers can provide professional work experiences directly related to the student's specialized field of study.

For additional information, contact: Cooperative Education (Co-op) Program, Office of Career Development and Corporate Relations, 1133 Brown-Kopel, Auburn, AL, 36849-5123. Telephone: (334) 844-5410. Website: https://eng.auburn.edu/cdcr/co-op/index (https://eng.auburn.edu/cdcr/co-op/index/).

Honors College

The Honors College at Auburn University offers a select cohort of high-ability students a unique academic experience designed to provide many of the advantages of a small college in addition to the myriad opportunities available at a large and diverse research university. Because of their academic potential, Honors College students have access to a more academically challenging set of courses and programs. Due to their rigorous Honors-level courses, access to graduate courses, specialized advising, and regular exposure to diverse social and co-curricular programs, Honors College students have closer connections to faculty and with other students, providing a sense of community and identity within the larger university context.

Eligibility

Students may gain admission to the Honors College as an entering freshman based on ACT/SAT scores (29 or SAT equivalent targeted minimum), high school GPA (3.85 minimum), an application essay, and a record of leadership and service. Students already enrolled at Auburn having a 3.4 cumulative, unadjusted GPA may also be considered for admission.

Curriculum

The Honors curriculum provides Honors College students the opportunity for challenging scholarly courses across the university and within their disciplines, culminating in a sustained, in-depth experience in their major fields of study.

The four Honors College graduation distinctions, *University Honors Scholar, University Honors Research Scholar, Honors Scholar,* and *Honors Research Scholar*, are conferred at the time of graduation and printed on students' diplomas and transcripts.

University Honors Scholar

To earn the designation University Honors Scholar, students are required to complete a minimum of 30 hours of Honors College courses, including a minimum of:

- 3 hours of Honors Participation Courses, AND
- 6 hours of coursework identified as Signature Impact Experiences

Students must also complete their disciplinary requirements and have a minimum 3.4 cumulative unadjusted Auburn GPA at the time of graduation.

University Honors Research Scholar

To earn the designation University Honors Research Scholar, students are required to complete a minimum of 30 hours of Honors College courses, including a minimum of:

- 3 hours of Honors Participation Courses; 1 hour of which **must be** **“**Honors Lyceum: Research at Auburn”
- 3 hours of Honors Research Methods
- 6 hours of Honors Seminars
- 6 hours of designated Honors Research Seminars
- 6 hours of coursework identified as Signature Impact Experiences

Students must also complete their disciplinary requirements and have a minimum 3.4 cumulative unadjusted Auburn GPA at the time of graduation.

OR

Honors Scholar

To earn the designation Honors Scholar, students are required to complete a minimum of 24 hours of Honors College coursework, including a minimum of:

- 3 hours of Honors Participation Courses

Students must also complete their disciplinary requirements and have a minimum 3.2 cumulative unadjusted Auburn GPA at the time of graduation.

-OR-

To earn the designation Honors Scholar, students are required to complete a minimum of 7 hours of Honors coursework, including:

- 6 hours of Honors Research/Honors Thesis/Honors Special Topics or 6 hours of graduate level courses in the major field of study at the 6000 or 7000 level, AND
- 1 hour of an Honors Participation course

Students must also complete their disciplinary requirements and have a minimum 3.2 cumulative unadjusted Auburn GPA at the time of graduation.

Honors Research Scholar

To earn the designation University Honors Research Scholar, students are required to complete a minimum of 24 hours of Honors College courses, including a minimum of:

- 3 hours of Honors Participation Courses; 1 hour of which **must be** **“**Honors Lyceum: Research at Auburn”
- 3 hours of Honors Research Methods
- 6 hours of Honors Seminars
- 6 hours of designated Honors Research Seminars

Students must also complete their disciplinary requirements and have a minimum 3.2 cumulative unadjusted Auburn GPA at the time of graduation.

Honors Course Options

The Honors College curriculum is designed to give students flexibility with their choice of Honors courses in order to fulfill their diverse goals, needs, and interests. The Honors College offers students course work that fall into the following general areas:

Honors Academic Courses

- Honors University Core courses
- Honors Departmental courses
- Honors Study and Travel courses (maximum of 1)
- Honors Seminars (maximum of 2)
- Honors Research Methods courses (maximum of 2)
- Honors Research Seminar (maximum of 2)
- Honors Contract courses

Honors Participation Courses

- Honors Freshmen Exploration (one-time enrollment as a first-year student)
- Honors Lyceum (maximum of 2)
- Honors Book Club (maximum of 2)
- Honors Forum (maximum of 3)

Honors Signature Impact Experiences

- Honors Research
- Honors Thesis
- Honors Special Topics
- Honors Contract courses in the major field of study at the 4000-5000 level
- Graduate-level courses in the major field of study (maximum of 12 hours)

Honors Business Minor

The Honors Business minor is 15 hours consisting of five 3-hour courses: four required courses (12 hours) and one elective course (3 hours). Four of the five courses must be taken at the honors level to successfully complete the minor. The minor is limited to students in the Honors College.

Code	Title	Hours
Required Courses:		
ACCT 2110/2117	Principles of Financial Accounting *	3
FINC 3610/3617	Principles of Business Finance	3
MNGT 3100/3107	Principles of Management	3
MKTG 3310/3317	Principles of Marketing	3
Elective Courses (choose one):		
BUSI 3250/3257	International Business	3
ECON 2030/2037	Principles of Macroeconomics	3

* Students completing this minor in the College of Business summer abroad program will satisfy the Accounting requirement with ACCT 2817: Honors Fundamentals of Accounting.

Honors International Minor in Human Sciences

The Joseph S. Bruno Auburn Abroad in Italy program in which a student can earn the International Minor in one semester while studying abroad in Ariccia, Italy:

Code	Title	Hours
HUSC 3380	CHS at AU in Italy	2
HUSC 4017	Honors CHS at AU in Italy: Integrated Global Studies	6
HUSC 4387	Honors CHS at AU in Italy: Study and Travel	2

HUSC 4947	Honors CHS at AU in Italy: Directed Field Experiences	6
Total Hours		**16**

Study Abroad Program admission required. Please contact the CHS Office of Global Education for more information about program availability and application processes.

Honors Public Health Minor

The Honors Public Health Minor is 15 hours consisting of five 3-hour courses: four required courses (12 hours) and one elective course (3 hours). Four of the five courses must be taken at the honors level to successfully complete the minor. Three of the PAOH courses are honors level, so the chosen elective must be an honors elective or contracted for honors credit (arranged through Honors college) to make four total honors courses. The elective must be approved by the Advisor. The minor is limited to students in the Honors College.

Course list:

Code	Title	Hours
PAOH 2107	Honors Introduction to Public Health	3
PAOH 3017	Honors Introduction to Epidemiology	3
PAOH 4837	Honors Global and Comparative Health Systems	3
PAOH 4910	Observing Needs in Public Health	3
Honors Elective (approved by Advisor)		3
Total Hours		**15**

Policies

A grade of “C” or better in Honors courses is required to earn Honors College credit.

In order to remain in good standing as a member of the Honors College, students must meet the following minimum criteria:

1. Students are required to maintain satisfactory progress in completing the requirements of the Honors curriculum. Satisfactory progress is defined by attaining the following minimums by the end of the specified academic year:
   - First year 7 Honors hours
   - Second year 14 Honors hours
   - Third year 21 Honors hours
2. First-year students must attain a minimum of a 3.0 cumulative unadjusted Auburn GPA and second, third, and fourth-year students must maintain a minimum of 3.2 cumulative unadjusted Auburn GPA. A student whose GPA falls below the minimum is give one semester to correct the deficiency or be suspended from the Honors College.
3. All first-year students in the Honors College must meet with an Honors academic advisor in both fall and spring semesters and submit a Plan of Study prior to registration for spring courses. Any changes to the Plan of Study should be done at a meeting with an Honors College advisor.
4. Second, third, and fourth-year students must meet with an Honors academic advisor at least once a year to ensure retention and understanding of the program and to confirm progress being made toward the completion of the Honors requirements.
5. Students who do not successfully maintain good standing (Honors course progression, GPA, meeting at least once a year with their Honors advisor, and/or submission of the Plan of Study) will be suspended from the Honors College. Students may be reinstated upon attaining the minimum GPA and/or providing the Honors College with an updated Plan of Study for Honors courses. It is the student's responsibility to notify the College when good standing has been attained.
6. Any scholarships awarded by the Honors College are contingent upon maintaining membership in good standing in the Honors College. Suspension from the Honors College will result in a loss of Honors scholarship funding.

Honors College Graduation Distinctions

After completing the requirements of the Honors College curriculum, students graduate with a special designation that is noted on their diploma and transcript.

- To graduate as a *University Honors Scholar* or *University Honors Research Scholar,* students must complete all of the requirements for those designations, the requirements for their disciplines, and have a minimum cumulative unadjusted Auburn GPA of 3.4.

- To graduate as an *Honors Scholar or Honors Research Scholar,* students must complete all of the requirements for those designations, the requirements for their discipline, and have a minimum cumulative unadjusted Auburn GPA of 3.2.

International Academic Opportunities

- International Academic Opportunities (p. 146)
- International Internships, Curricular Practical Training (CPT) and Academic Training (AT) (p. 146)
- English as a Second Language (ESL) Program (p. 146)
- Office of International Programs (p. 146)
- OIP International Student and Scholar Services (p. 146)
- OIP Auburn Abroad Experience (p. 147)

International Academic Opportunities

Access to international opportunities is provided throughout many colleges, schools, departments and other student support units. However there are several units on campus that provide specialized services for English language study, study abroad and international students attending Auburn University.

There are also opportunities to receive early English-language training and a cultural introduction to American university life through our undergraduate and graduate pathway programs. These pathway programs are further described in the Policies and Procedures for Admissions (p. 134) section of this Bulletin.

At the graduate level, several departments have joint programs with international university partners to earn graduate degrees in an accelerated bachelor's/master's format. Detailed information about these programs can be found within the various academic college and department sections of this bulletin.

International Internships, Curricular Practical Training (CPT) and Academic Training (AT)

Academic internship experience both within the US and abroad are highly encouraged for all disciplines and all AU students. Students interested in participating in such experiences should check with their academic units for specific requirements. For international students, practical training is available (depending on U.S. immigration status) such as Curricular Practical Training (for F-1 students only) or Academic Training (for J-1 students only). Students may also undertake academic internships abroad through the Auburn Abroad office. For further details on Auburn Abroad or CPT/AT, students should check with International Student and Scholar Services (ISSS).

English as a Second Language (ESL) Program

The ESL Program operates under Auburn Global and offers English language instruction to international students and visiting scholars. It provides courses in oral and written proficiency to support international students enrolled in undergraduate and graduate degree programs, a course in classroom communication skills for international graduate teaching assistants, and an Intensive English program involving 20 hours of instruction per week in listening, speaking, reading, writing, grammar, and pronunciation. For additional information, contact: 309 Foy Hall, (334) 844-5749; email: weigerg@auburn.edu; or visit www.auburn.edu/esl (https://global.auburn.edu/).

Office of International Programs

The Office of International Programs (OIP) is a division of the AU Office of the Provost. Its mission is to provide leadership and relevant administrative support to academic units, faculty, students, and staff for the effective promotion and efficient adoption of Auburn University's internationalization goals. The International Students and Scholar Service (ISSS) component of the OIP assists foreign national students, visiting scholars, and university employees in achieving their academic objectives. The Auburn Abroad unit of the OIP promotes and facilitates student and faculty participation in an international education experience through programs outside of the United States. For additional information, contact: Office of International Program, 228 Foy Hall, 334-844-5001; intledu@auburn.edu; or https://www.auburn.edu/academic/international/.

OIP International Student and Scholar Services

The ISSS unit of the OIP provides assistance and guidance to foreign national students, visiting scholars, and University employees regarding US immigration requirements and Auburn policies for studying and/or working at Auburn University. Documentation of eligibility for study in the United States, work authorizations, and other government documents required by international students, scholars, and employees are issued and monitored by the ISSS. Currently, the university has more than 2500 international students, visiting scholars, and employees from over 90 nations. Go to the section on International Student Services for additional information.

OIP Auburn Abroad Experience

The Auburn Abroad Office is part of the Office of International Programs (OIP) and seeks to develop, expand, and facilitate opportunities for undergraduate and graduate students to participate in study, internship, research, service learning and exchange opportunities outside of the United States. Each year more than 1200 Auburn University students participate in over 90 programs through the Auburn Abroad Office. More than 90 percent of these students go on faculty led programs and exchange programs with the rest going on other university or provider programs. The Auburn Abroad Office also works with Outreach and the Office of Inclusion and Diversity on their abroad programs. By planning ahead, students can use approved university or transfer course credit earned on an Auburn Abroad Program to complete their core curriculum courses, as well as major and minor degrees.

Auburn Abroad programs vary in length from one week, one month to one or two semesters. They run during Fall, Winter Break, Spring, Spring Break and Summer semesters. The majority of students go abroad for month long programs in the summer. Most colleges and schools within Auburn University have programs abroad tailored to their students' needs. Students can find out about these international opportunities at by attending the Study Abroad Fair each Fall Semester and one of over 100 information sessions each year. Incoming Freshman should talk to their advisors about taking a few of their Core Curriculum courses abroad on the AU Core Curriculum Program in Barcelona, Spain during the summer.

Requirements for acceptance into the Auburn Abroad Experience include the following: (1) a minimum institutional cumulative GPA of 2.25 for undergraduates and 3.0 for graduate students, (2) the student must attain the age of 19 prior to the start date of program or have signed the minor forms, (3) the student's record must show no pending Auburn University judicial actions and the student must be in good academic standing in their college or school. Program abroad directors may also have additional requirements for their specific programs. With the exception of Pre-Freshman Programs open to entering Fall Semester Freshman level students, students must have completed at least one semester at Auburn University before participating in a program abroad. Although some programs require prior knowledge of a foreign language, many do not.

Deadline dates for programs will vary by program. Students need to start planning at least 9 months prior to the start of the semester they want to go abroad, to ensure that they adhere to program deadlines. Students should start their Auburn Abroad exploration by attending either (1) a weekly, thirty minute Study Abroad 101 general orientation session, or (2) by contacting program directors for their specific program abroad orientation session. Study Aboard 101 Sessions are conducted via zoom and in-person on Thursdays and Fridays in the Auburn Abroad conference room, 242 Foy Hall. Check the Auburn Abroad website for times. These sessions include an introduction to the on-line Auburn Abroad application process, hints on searching for faculty led and other types of programs abroad, the credit approval process, transcript information, information on a variety of funding resources, and paperwork needed for scholarship, PACT, VA, and other benefit programs. The cost of each programs and what that cost covers is detailed on each program abroad brochure on the Auburn Abroad Program search site.

After students attend a study abroad orientation session, they are ready to select their program and start their on-line study abroad application. Instructions can be found at: www.auburn.edu/studyabroad (http://www.auburn.edu/studyabroad/). Students will need to complete the on-line application, get courses approved and submit required materials by program deadlines in order to move through the approval process.

The OIP Auburn Abroad staff monitors students' on-line Auburn Abroad applications and they and Auburn Abroad interns are ready to assist students with any questions or concerns. Once students have been approved and have committed to a program, The Auburn Abroad staff will enroll individual students in one of the following Auburn Abroad Full Time Placeholder courses: UNIV 2940/UNIV 2945, UNIV 4940/UNIV 4945, UNIV 5940/UNIV 5945 or UNIV 7940/UNIV 7945. These placeholder courses will be listed on the students' transcripts while they are abroad so that students can be considered full time students during that time. Once students complete their course work on their program abroad, the actual courses will be posted based on the type of credit the program offers per course.

Auburn University takes the health and safety of students abroad very seriously. Students enrolled in Auburn Abroad programs are required to attend Health and Safety pre-departure sessions as well as specific program sessions. Once on site, students attend another program specific session. Students are enrolled in the Auburn University International Emergency Travel Assistance plan prior to departure and will receive an enrollment card and material to read concerning the assistance plan. The Auburn Abroad staff, along with the Office of Campus Safety and Security routinely monitor global situations and will provide assistance to students in distress abroad.

Upon completion of their program abroad, returning students are encouraged to become Global Tiger Advisors, and apply for internship positions in the Auburn Abroad office. They can also share their "Tiger Tale" on the Auburn Abroad website, and submit photos from their experience abroad for the annual student photo contest. Auburn University considers Study and Internship experiences a high impact practice for students and surveys the graduating class for the percentage of students engaging in these activities.

For additional information on programs abroad, procedures for applying for programs abroad, program deadlines, cost, funding and to read returning students' Tiger Tales, please visit the OIP Auburn Abroad Experience Website (https://www.auburn.edu/academic/international/auab/), follow Auburn Abroad on Twitter, Instagram and Facebook and/or send an email to: auab@auburn.edu.

National Honor and Recognition

National Honor Societies

The following members of the Association of College Honor Societies have established chapters at Auburn:

Alpha Delta Mu (Social Work), Alpha Epsilon (Biosystems Engineering), Alpha Epsilon Delta (Pre-Medicine), Alpha Kappa Delta (Sociology), Alpha Lambda Delta (Freshman Scholarship), Alpha Phi Sigma (Criminal Justice), Alpha Pi Mu (Industrial Engineering), Alpha Sigma Mu (Metallurgical & Materials Engineering), Beta Alpha Psi (Accounting), Beta Gamma Sigma (Business), Cardinal Key (Junior Leadership), Chi Epsilon (Civil Engineering), Eta Kappa Nu (Electrical and Computer Engineering), Kappa Delta Pi (Education), Iota Delta Sigma (Counselor Education), Lambda Sigma (Sophomore Leadership), Mortar Board (Student Leadership), Omega Chi Epsilon (Chemical Engineering), Omicron Delta Kappa (Student Leadership), Kappa Omicron Nu (Human Sciences), Phi Alpha Theta (History), Phi Beta Kappa (Arts and Sciences), Phi Eta Sigma (Freshman Scholarship), Phi Kappa Phi (Senior Scholarship), Phi Lambda Sigma (Pharmacy Leadership), Phi Sigma Tau (Philosophy), Pi Delta Phi (French), Pi Lambda Sigma (Pre-Law), Pi Sigma Alpha (Political Science), Pi Tau Sigma (Mechanical Engineering), Psi Chi (Psychology), Rho Chi (Pharmacy), Sigma Delta Pi (Spanish), Sigma Gamma Tau (Aerospace Engineering), Sigma Pi Sigma (Physics), Sigma Tau Delta (English), Tau Beta Pi (Engineering), Tau Sigma Delta (Architecture & Allied Arts), Xi Sigma Pi (Forestry).

National Recognition Societies

The following national societies have chapters established at Auburn:

Alpha Epsilon Lambda (Graduate), Alpha Eta Rho (Aviation), Alpha Kappa Psi (Business), Alpha Phi Omega (Service), Alpha Psi Omega (Theatre), Angel Flight (Air Force ROTC Auxiliary), Arnold Air Society (Air Force ROTC), Beta Beta Beta (Biology), Block and Bridle (Animal Husbandry), Delta Nu Alpha (Transportation), Delta Sigma Pi (Commerce & Business Administration), Eta Sigma Delta (Hotel and Restaurant Management), Gamma Sigma Delta (Agriculture), Golden Key National Honor Society, Kappa Kappa Psi (Band), Kappa Omicron Nu (Human Sciences), Kappa Psi (Pharmacy), Lambda Tau (Medical Technology), National Student Speech, Language, Hearing Association (Communication Disorders), Omicron Delta Epsilon (Economics), Omicron Kappa Pi (Architecture), Order of Omega (Greek Leadership), Phi Delta Kappa (Education), Phi Delta Chi (Pharmacy), Phi Lambda Sigma (Pharmacy), Phi Lambda Upsilon (Chemistry), Phi Mu Alpha (Music), Phi Psi (Textiles), Phi Zeta (Veterinary Medicine), Pi Alpha Xi (Horticulture), Pi Kappa Lambda (Music), Pi Mu Epsilon (Mathematics), Pi Sigma Epsilon (Marketing), Scabbard and Blade (Military), Semper Fidelis (Marine Corps ROTC), Sigma Alpha Iota (Music), Sigma Delta Chi (Journalism), Sigma Gamma Epsilon (Earth Sciences), Sigma Lambda Chi (Building Construction), Sigma Theta Tau (Nursing), Sigma Xi (Scientific Research), Society for Technical Communication (Liberal Arts), Steerage (Navy ROTC), Tau Beta Sigma (Band), Upsilon Pi Epsilon (Computer Science).

Professional and Continuing Education Non-credit Programs and Certificates

In addition to the academic programs offered by Auburn University as an accredited land-grant institution, Auburn provides non-credit professional and continuing education training and certificate programs available to learners in classroom and on-line formats. Auburn University follows national guidelines for non-credit program administration and awarding of continuing education units (CEUs) to participants as appropriate. Where applicable to the subject matter, programs also follow guidelines for certifications established by other cognate associations, professional societies, boards, and certifying agencies as required. A listing of professional, technical, and career programming, courses, and certificates is provided at https://www.auburn.edu/outreach/opce/.

Service Learning & Student Engagement

Auburn University has a long history of service to the community as part of its land-grant mission of outreach. The value of public service is also emphasized in the Auburn Creed. Service engagement is one of Auburn's strategic objectives for enhancing students' academic experience, and it is required for many courses of study. Students may engage in organized outreach activities over their academic career at Auburn, through a variety of curricular, co-curricular, and extracurricular services experiences.

Service engagement enhances academic study and provides opportunities for personal and professional growth, while making a difference in the surrounding community. Engagement also builds appreciation for collaboration and cooperation by working with community partners in a service environment. Students may participate in public service activities through formal service-learning

courses and internships that have been established in the university curriculum. Many majors require service as a component of disciplinary study. Students can also fulfill their personal service interests through student organizations, volunteerism in campus service projects, or direct engagement with community agencies.

Students can access information on service learning and service opportunities through AUBURNSERVES, an on-line network hosted by the university's engagement office, the Office of Public Service. AUBURNSERVES is a collaboration of campus partners including University Outreach, student organizations, learning communities, and academic programs in the schools and colleges, and more than 175 non-profit and community agencies in the east Alabama area and across the state. AUBURNSERVES offers students and their faculty mentors contact information for a wide range of organized service options available through these campus and community partners. The network also provides online resources for managing and documenting service projects.

For more information on student engagement and service learning at Auburn University, and to access the AUBURNSERVES network, visit www.auburnserves.com (https://www.auburnserves.com/), or contact the Office of Public Service at (334) 844-5117.

Statement on the Importance of Writing at Auburn University

The Importance of Writing at Auburn University

A key element of Auburn's instructional mission is the emphasis on written communication, which is supported through the university's general education courses and advanced through a robust Writing Across the Curriculum program. These efforts underscore the mechanics of formal writing, such as grammar and sentence structure, and engage students in an extensive process that translates ideas, insights, or interpretations into refined prose. Through the Writing Across the Curriculum program, every academic major maintains a comprehensive writing plan that supports student development across various occasions and audiences and provides opportunities for reflection, feedback, and assessment. By demonstrating the ability to logically present and explain a concept or idea to an audience, students understand and appreciate the role of writing as an integral part of learning.

Student Records

Confidentiality of Student Records

The university recognizes that the maintenance of student information and educational records is necessary and vital to assist the student's education and development and to provide opportunities for university research and policy formulation. The university recognizes its obligation to exercise discretion in recording and disseminating information about students to ensure that their rights of privacy are maintained.

The university will furnish annual notification to students of their right to inspect and review their educational records; the right to request amendment of educational records considered by them to be inaccurate or misleading or that violate privacy or other rights; and of their right to a hearing should the university decline to amend such records. This annual notice will be published in the *Auburn University Bulletin* and an electronic notification is sent to each active Auburn student.

The following guidelines have been developed to ensure the privacy rights of students. For the purposes of this policy statement a student is defined as an individual who has been admitted and has been in attendance in a component unit of the university. Classification as a student in one component unit of the university (e.g., an undergraduate program) does not imply that the person has been accorded the rights outlined below in other component units (i.e., graduate school, professional schools, branch campus).

Student Access to Records

Auburn University's permanent student education record consists of one or more of the following: the official transcript of grades, competency evaluations, and any narrative evaluations. This is in accordance with guidelines established by the American Association of Collegiate Registrars and Admissions Officers (https://www.aacrao.org/) and the State of Alabama policies on Retention of Records.

Students have the right to be provided a list of the type of educational records maintained by the university which are directly related to the student; the right to inspect and review the contents of these records; the right to obtain copies of these records; the right to a response from the university to reasonable requests for explanation and interpretation of these records; the right to an opportunity for a hearing to challenge the content of these records; and if any material or document in the educational record of a student includes information on more than one student, the right to inspect and review only the part of such material or document as relates to the student.

Students do not have access to financial records of their parents; confidential letters and statements of recommendation which were placed in the educational record prior to Jan. 1, 1975, provided such letters or statements were solicited or designated as confidential and are not used for purposes other than those for which they were specifically intended; confidential recommendations, if the student

signed a waiver of the right of access, respecting admission, application for employment, and the receipt of an honor or honorary recognition.

Students do not have access to instructional, supervisory or administrative personnel records which are not accessible or revealed to any other individual except a substitute; Campus Security records which are maintained apart from educational records, which are used solely for law enforcement purposes, and which are not disclosed to individuals other than law enforcement officials of the same jurisdiction; employment records except when such employment requires that the person be a student; and the Alumni Office records.

Students do not have access to physical or mental health records created by a physician, psychiatrist, psychologist or other recognized professional acting in his or her capacity or to records created in connection with the treatment of the student under these conditions which are not disclosed to anyone other than individuals providing treatment. A physician or appropriate professional of the student's choice may review these records.

Procedures for Access

The Office of the Registrar has a complete list of educational records maintained by the university which students may obtain. Students should contact the appropriate office to inspect and review their records. An office may require that a university official be present when a student inspects and reviews his or her educational records. Any questions concerning a student's access to records should be directed to the registrar.

Amending Educational Records

Students may request that any information contained in their educational records which they consider to be inaccurate, misleading, or in violation of their privacy or other rights be amended or deleted from the records. (A grade or other academic scores may not be amended, except that the accuracy of recording the information may be challenged.)

Students who request that information in their records be amended should first direct their request to the official with primary responsibility for the information on the record. If the matter is not resolved to their satisfaction, students should direct their requests to the official's dean or division head. If the matter is not resolved to their satisfaction, they may request a formal hearing.

Right to a Formal Hearing and Procedures for Decision

Students may request formal hearings to challenge information contained in their educational records. The hearing will be held in a reasonable time (not to exceed 45 days) and in a reasonable place. Students may be assisted or represented by persons of their choice, including an attorney, at the expense of the student, and shall be afforded a full and fair opportunity to present evidence relevant to the issue(s).

Students or their representative should request the hearing in writing and should specifically identify the information they seek to have amended. The request should be directed to the Office of the Provost/Vice President for Academic Affairs.

The Office of the Provost/Vice President for Academic Affairs will conduct the hearing and render a decision within a reasonable period of time after the conclusion of the hearing and the decision shall be based solely upon the evidence presented at the hearing. The student shall be notified in writing of the reason(s) for the decision and given a summary of the evidence.

If the decision is that the information in the student's educational records is inaccurate, misleading or in violation of his rights and privacy, the statement(s) will be corrected or expunged from the student's records.

If the decision is that the information is not inaccurate, misleading, or in violation of the privacy or other rights of the student and that the information or parts thereof are to remain in the student's educational records, the student shall be notified and given the right to enter a statement in the records setting forth any reason for disagreeing with the decision of the Office of the Provost/Vice President for Academic Affairs. This statement shall be maintained in the records as long as the record or contested portion thereof is maintained, and if the contested educational record or contested portion thereof is disclosed by Auburn University to any party, the student's explanation shall also be disclosed to that party.

The U.S. secretary of education has established a review board to receive complaints regarding violation of student's rights. Students wishing to file a complaint directly to the review board should write to the Family Policy and Regulations Office, Department of Education, Washington, D.C. 20202. Detailed procedures for this complaint procedure are listed under section 99.63 of the regulations issued by the secretary and will be furnished upon request by the registrar, Auburn University.

This policy is adopted pursuant to the Family Educational Rights and Privacy Act, (34 CFR Part 99), and is not intended to impose any restrictions or grant any rights not specifically required by this Act.

Release of Directory Information

The university may release directory information without the student's written consent. Directory information consists of student's complete name; local address and associated telephone number; place of birth; parent/spouse name, address and associated telephone number; mailing address and associated telephone number; E-mail address; photographs, video or other electronic image; participation in recognized activities and sports; weight and height of members of athletic teams; dates of attendance; enrollment time status (full or part time); degrees and awards received; and most recent previous educational agency or institution attended.

A student may deny the release of directory information by completing an Address Change/Information restriction request form available in the Office of the Registrar, Langdon Hall.

To deny the release of information regarding participation in recognized activities the student must notify the vice president for Student Affairs and the student's academic dean in writing. To deny the release of athletic information, the student must notify the director of Athletics in writing. A former student, one who is not in attendance, must contact the appropriate offices to deny the release of information.

Release of Educational Records

The university will release a student's educational record(s) upon the student's written request. The student must:

1. Specify the records to be disclosed.
2. Include the purpose or purposes of the disclosure.
3. State the party or parties and the address to whom the information is to be disclosed.

The student shall, upon request, receive a copy of the record that is to be disclosed. It is university policy to furnish single copies of a student's record at no charge.

The university may release student's educational records to the following without prior written consent:

1. University officials who have a legitimate educational interest in the records. University officials are defined as teachers, administrative personnel and other employees except personnel of the security or law enforcement unit of Auburn University, and other agents acting on behalf of the university. If university officials are required in the performance of their duties to review the educational records of a student, this will be considered to be a legitimate educational interest. Auburn University has designated the National Student Clearinghouse as a university official.
2. Officials of another school in which the student intends to enroll upon request of the transfer school.
3. Government representatives of the Comptroller General of the United States, the Secretary of Education, the U.S. Commissioner of Education, the Director of the National Institute of Education, the Assistant Secretary for Education, State educational authorities, and State officials to whom such information is specifically required to be reported or disclosed by State law adopted prior to Nov. 19, 1974.
4. Appropriate authorities in connection with financial aid with the understanding that only the necessary records will be released.
5. Organizations conducting studies for, or on behalf of, the university or its agencies for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction and student life provided that the studies will not permit the personal identification of students and their parents by individuals other than representatives of the organization and provided that the personally identifiable information furnished will be destroyed when no longer needed for the purposes for which the study was conducted.
6. Accrediting organizations to carry out their accrediting functions.
7. Parents of a dependent student as defined in section 152 of the Internal Revenue Code of 1954. University officials may release educational records to parents on the basis of a written documentation from the parent that the student is a dependent as defined under the Code and there is reasonable notification of the student regarding the request.
8. A court of law to comply with a judicial order or lawfully issued subpoena with the understanding that the student will be notified in advance insofar as possible.
9. Appropriate parties to protect the health and safety of the student or other individuals in emergencies with the understanding that only information essential to the emergency situation will be released, that information will be released only to a party who would be in a position to deal with the emergency, and that the student will be notified insofar as possible of the information released, the purpose for the release, and to whom the information was released.

No personal information on a student will be released without a statement from the university to the party receiving the information that no third party is to have access to such information without the written consent of the student.

Each office with educational records will maintain a record of each request and disclosure of personally identifiable information from the educational records of a student except for information requested in writing by the student, information released to the student or the student's parents, directory information, and information released to university officials and teachers who have a legitimate educational interest in the records. The student may inspect the record of requests, disclosures and the legitimate interests of parties requesting or obtaining information in the appropriate university office.

Substantive Change

This University Policy (https://auburnpub.cfmnetwork.com/B.aspx?BookId=12376&PageId=461565&Search=substantive) establishes the requirements and procedures to ensure timely, accurate and complete notification of the Commission on Colleges of the Southern Association of Colleges and Schools (SACSCOC) whenever the University or any of its units proposes to make a significant modification in the nature or scope of the institution's activities at the time of its most recent evaluation by SACSCOC.

Undergraduate Transfer Credit Policy

Auburn University's evaluation and acceptance of transfer credit for coursework from other postsecondary institutions will be based on official transcripts. To be eligible for evaluation, coursework must appear on an official transcript from the institution that offered the coursework and initially conferred the credit. The acceptance of dual enrollment credit requires an original transcript from the college or university that awarded the credit. The university generally does not accept transfer credit that is technical or remedial in nature.

Transferability of Credit

Transferability of credit refers to whether credit from other post-secondary institutions is acceptable for credit at Auburn University. The University accepts transfer credit from domestic post-secondary institutions accredited by one of the six associations listed below and from international colleges and universities accredited/approved by their country's Ministry of Education or other appropriate governmental agency.

- Middle States Association of Colleges and Schools
- North Central Association of Colleges and Schools
- New England Association of Schools and Colleges
- Northwest Commission on Colleges and Universities
- Southern Association of Colleges and Schools
- Western Association of Schools and Colleges, Senior Colleges and Junior Colleges

Students with credit at other institutions for non-traditional experiences such as Advanced Placement, International Baccalaureate, and military training will not automatically receive credit at Auburn University. The student must submit official documentation from the original provider of the non-traditional experience and will receive credit based on current university standards.

Students transferring from accredited public institutions within the state of Alabama will receive transfer credit for freshman and sophomore coursework according to the statewide Articulation and General Studies agreement.

Equivalency of Credit

Equivalency of credit refers to how the hours, course content and objectives of transferable credit align with Auburn courses. Exact alignment is not necessary for equivalence. Course modalities do not factor into equivalency decisions unless modality differences significantly affect the alignment of learning objectives. The university recognizes the best practice guidelines of the American Association of Collegiate Registrars and Admission Offices (AACRAO).

The evaluation of equivalency may result in the awarding of specific course credit or elective credit. Lower-level equivalencies are determined by the Office of the Registrar. Upper-level equivalencies are determined by the college/unit that houses the discipline.

Applicability of Credit

Applicability of credit refers to how transferable credit is applied toward the fulfillment of a student's degree/credential requirements. Applicability is determined by the academic unit that administers the degree/credential. Transferring between degree programs within Auburn University may affect the applicability of the credits towards the new degree program.

Transfer Credit Limitations

The following limitations apply to transfer credits.

Maximum Hours: The maximum number of transfer hours that can be applied to degrees, majors, minors, and certificates is limited as follows:

- Degrees: At least 25% of total degree hours must be Auburn University courses.
- Majors: At least 50% of total major hours must be Auburn University courses.
- Minors: At least nine of total minor hours must be Auburn University courses.
- Certificates: At least 50% of total certificate hours must be Auburn University courses.

Credit from Two-Year Institutions: Courses taken at a two-year institution will be given lower division (1000 and 2000 level) credit only. The maximum number of degree-applicable transfer hours from a two-year institution is one-half of the student's Auburn curriculum, but no more than 64 hours. Transfer credit exceeding this limit will not be applied to a degree.

Grades Earned: Transfer coursework with a "D" grade may be transferable to Auburn, but it is degree-applicable only if a "D" grade in the equivalent Auburn University course is also degree-applicable (e.g., students must earn a "C" grade in English Composition).

Grade Adjustment Policy Courses: Transfer credit will not be accepted as the repeat attempt for an Auburn University course for which a student has used the Grade Adjustment Policy. The student must complete the repeat attempt at Auburn University.

Transient Coursework

Auburn students may request approval to take courses at other domestic institutions on a transient basis. Approval is granted by the student's academic college. Requests to take upper division major courses require approval by the student's academic dean's office. Students on academic suspension or dismissal from Auburn University cannot be approved for transient credit, nor will they receive credit for courses taken at another institution while on suspension or dismissal. Any approval received prior to being placed on suspension or dismissal is void.

Students may also request approval to take courses at international institutions on a transient basis if the institution and program are recognized by the national Ministry of Education as a degree-granting institution/program, or is accredited by one of the six approved U.S. accrediting bodies. Approval is granted by the Office of the Registrar in consultation with the academic unit housing the discipline. Auburn University will not award transfer credit for English-language based, short-term, winter or summer international programs if these programs are non-degree and are not recognized or overseen by the corresponding Ministry of Education.

Withdrawal Policy

A **partial withdrawal** refers to a student dropping one or more courses but remaining enrolled in at least one Auburn University credit-bearing course. A **full withdrawal** (sometimes referred to as a **resignation**) refers to a student dropping all courses and no longer being enrolled in any courses or credit hours at Auburn University.

Before withdrawing from any course(s), students are encouraged to contact their advisors or other relevant offices such as Auburn Cares, Financial Aid, Scholarships, Veterans Resource Center, International Programs, and Athletics due to possible impacts on tuition, graduation timing, financial aid, veteran's benefits, international student standing, eligibility for varsity athletics, etc.

Withdrawing by the Withdrawal Deadline

A student may withdraw from one or more courses anytime on or before the withdrawal deadline published in the Academic Calendar. Withdrawing on or before the census date (also published in the Academic Calendar) results in no course grade and no record of attempting the course on the transcript. Withdrawing after the census date but on or before the withdrawal deadline results in a course grade of W. Grades of W are not used in calculating the Auburn University term or cumulative GPA.

Students withdrawing before the deadline due to a documented serious physical and/or psychological condition or the death or serious illness of an immediate family member should consult with the Auburn Cares office before withdrawing.

Withdrawing After the Withdrawal Deadline

A student may request to withdraw after the withdrawal deadline only under specific conditions or circumstances. Because the conditions necessary for approval of withdrawals after the deadline usually impact all courses, these are normally approved only as full withdrawals. All withdrawals after the deadline require permission through the appropriate approval process. Most commonly, medical or family medical withdrawals begin with the Auburn Cares office and personal or military withdrawals begin with the student's Advising Office.

Medical or family medical withdrawal: A medical withdrawal may be requested when, by recommendation of a licensed health care provider, a student cannot continue enrollment because of a serious physical and/or psychological condition. A family medical withdrawal may be requested when a student cannot continue enrollment due to the death or serious illness of an immediate family member. These withdrawals are reviewed and approved by the Auburn Cares office.

Personal withdrawal: A personal withdrawal may be requested when a student cannot continue enrollment due to documentable, extraordinary personal circumstances. These withdrawals are reviewed and approved by the student's Associate Dean for Academics.

Military withdrawal: A military withdrawal may be requested when a student is called to active military duty prior to the end of the term. These withdrawals are reviewed and approved by the Office of the Registrar.

When a withdrawal after the deadline is approved, grades of W and WF are assigned to courses the student is passing and failing, respectively, as of the withdrawal date. Grades of W are not used in calculating the Auburn University term or cumulative GPA. Grades of WF are used and have the same impact as a grade of F. In situations where it can be clearly demonstrated that a failing grade was directly related to the medical or personal situation leading to a withdrawal, the withdrawal approver may also approve a course grade of W.

Retroactive Dating of Withdrawals

Retroactive dating refers to establishing an effective withdrawal date prior to the actual date of withdrawal. Retroactive dating is most frequently initiated when a student has documentation from a health professional verifying a medical condition that prevented the student from withdrawing on the effective date.

Requests for retroactive dating of withdrawals due to medical or immediate family medical reasons are reviewed and approved by Auburn Cares and should be initiated within one calendar year (for family medical withdrawals) or two calendar years (for medical withdrawals) from the end of the term in question. Retroactive dating of withdrawals due to extraordinary personal circumstances are reviewed and approved by the Associate Dean of the student's college and the Provost Office designee and should be initiated no later than the student's next term enrolled at the university. Requests initiated beyond these deadlines must also be approved by the Provost Office designee.

Non-Academic Policies

The statements set forth in this *Bulletin* are for informational purposes only and should not be construed as the basis of a contract between a student and Auburn University.

While the provisions of the *Bulletin* will ordinarily be applied as stated, Auburn University reserves the right to change any provision listed in this *Bulletin*, including but not limited to academic requirements for graduation, without actual notice to individual students. Every effort will be made to keep students advised of any such changes. Information on changes will be available in the Registrar's Office and/or the dean's office. It is important that each student be aware of his or her individual responsibility to keep apprised of current graduation requirements for the student's respective degree program.

Civil Rights Compliance

Auburn University is an equal opportunity educational institution and operates without regard to race, sex, color, age, religion, national origin, disability or veteran status. The university complies with the regulations of Titles VI and VII of the Civil Rights Act of 1964, the Age Discrimination Act, the Age Discrimination in Employment Act, Title IX of the Education Amendments of 1972, Sections 503/504 of the Rehabilitation Act of 1973, the Vietnam Era Veterans Readjustment Assistance Act, the Americans with Disabilities Act of 1990, the Equal Pay Act and the Pregnancy Discrimination Act. As a matter of policy, Auburn University prohibits sexual orientation discrimination in matters regarding academic acceptance, academic performance, or dismissal, as well as employment decisions regarding hiring, promotion, and termination. Anyone wishing to file a complaint covered by the above should go to the Affirmative Action Office in 317 James E. Foy Hall, or call (334) 844-4794 between 7:45 a.m. and 4:45 p.m., Monday through Friday.

Equal Employment Opportunities

It is the policy of Auburn University to provide equal employment opportunities for all individuals without regard to race, sex, age, religion, color, national origin, disability or veteran status. Sexual orientation discrimination in employment decisions regarding hiring, promotion, and termination is also prohibited. Anyone wishing to file a complaint covered by the above should go to the Affirmative Action/EEO Office in 317 James E. Foy Hall, or call (334) 844-4794 between 7:45 a.m. and 4:45 p.m., Monday through Friday.

Prohibited Harassment

Harassment based on protected class constitutes a violation of university policy and may also constitute a violation of civil rights laws. Such harassment will not be tolerated by Auburn University. It subverts the mission of the university and threatens the careers, educational experience, and well-being of students, faculty, and staff. Prohibited harassment includes harassment based on race, sex, age, religion, color, national origin, disability, sexual orientation, and veteran status.

Sexual harassment is a form of sex discrimination and is prohibited by federal regulation. Sexual harassment in academic settings and in the employment area where students are involved is defined as unwelcome sexual advances, requests for sexual favors, and other verbal, graphic, or physical conduct of a sexual nature when (1) submission to such conduct may be explicitly or implicitly a term or condition of a student's academic success or employment, (2) submission to or rejection of such conduct may be used as the basis for employment or academic decisions affecting the student and the student's total educational and/or work experience, or (3) such conduct has the purpose or effect of substantially interfering with a student's employment or academic performance or creates an intimidating, hostile, or offensive work or educational environment that is severe, pervasive, and objectively offensive. Students who wish to make a complaint of sexual or other prohibited harassment or discriminatory conduct should contact the Office of Affirmative Action/Equal Opportunity in 317 James E. Foy Hall, or call (334) 844-4794 between 7:45 a.m. and 4:45 p.m., Monday through Friday.

Smoking

Smoking of tobacco in AU facilities and vehicles is prohibited except where signs are posted indicating otherwise.

Weapons

Auburn University prohibits possession, use and transportation on university properties of any dangerous or potentially dangerous weapons, including fixed-blade knives, shotguns, rifles, handguns, bows and arrows, crossbows, brass knuckles, air guns, swords and fireworks or explosive devices.

Graduate School General Policies

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Points of Contact

GEORGE T. FLOWERS, Dean
MARIA WITTE, Associate Dean

The Graduate School is open 7:45–11:45 a.m. and 12:45–4:45 p.m., Monday through Friday.
Telephone: (334) 844-4700. Fax: (334) 844-4348.
E-mail: gradadm@auburn.edu
Web: www.grad.auburn.edu (https://graduate.auburn.edu/)
Mailing Address: 106 Hargis Hall, Auburn, AL 36849-5122

Academic Bankruptcy Policy

Auburn University graduate students who have been suspended or expelled because of poor academic performance may petition the Graduate School for a declaration of academic bankruptcy. Academic bankruptcy allows the student to petition their program, department, and the Graduate School to restart their graduate program after a minimum of a one calendar year separation from Auburn University. For readmission, the student must submit a readmission request form and must be recommended for readmission by the graduate program to which the student is applying. If the graduate program recommends readmission, the student must, in coordination with the Graduate School and program Graduate Program Officer (GPO), identify the semester(s) for which they request academic bankruptcy. If approved, the student forfeits all graduate courses and credits earned at Auburn University for those semesters. Auburn University will retain all forfeited courses on the student's transcript but will not include forfeited courses in the calculation of the Graduate Grade Point Average. Students may not declare academic bankruptcy more than once.

Academic Engagement

Any graduate student enrolled in a degree program culminating in a thesis or dissertation will directly engage in research and/or creative scholarship with the major professor, will have access to the tools needed for the research/scholarly activity, will be immersed in the culture of graduate education, will engage in the professional activities of the discipline, and will complete the research/scholarly activity in a reasonable period of time.

Academic Integrity and Student Conduct

Graduate students at Auburn University are expected to adhere to established standards of academic integrity, personal conduct, and professional conduct. The primary code of conduct is detailed in the Auburn University Code of Student Conduct.

Academic units may also define and publish standards appropriate to their disciplines as well as describing the processes for resolving disputes and appealing decisions. Students found in violation of policies defining academic integrity, personal conduct, and professional conduct may be subject to dismissal from the Graduate School.

Academic Programs and Curricula

An **academic program** is an organized plan of study which, when successfully completed, is recognized by the awarding of a degree. It includes all courses and related activities required by the university and those required by a school, college, department or interdisciplinary program. **At Auburn University, the minimum number of hours in a doctoral program is 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses 7990 and 8990 and must include at least 10 hours of 8990.** Some departments require more than 60 semester hours and requirements may vary according to a student's background and interest. **The minimum number of hours in a master's degree program is 30 semester hours of courses, 6000-level and above.**

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of "track,"

“concentration,” “emphasis,” or similar terms, are not designated on the transcript; however, all academic programs and designated variations (whether called “options,” “tracks,” “concentrations,” “emphases” or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

A graduate **minor** is an organized sequence or cluster of courses offered by a department or interdepartmental program. Not all departments or interdepartmental programs offer a minor. At Auburn University, the term graduate minor designates those sequences or clusters of courses that have been formally proposed as minors by departments or interdepartmental programs and approved by the Graduate Council. The minimum number of semester hours in a minor is nine, all of which must be in courses at the 6000-level or above and must be completed at Auburn University.

Accelerated Bachelor’s/Master’s Degree Plan

The Accelerated Bachelor’s/Master’s Degree Program allows Auburn students in some academic programs to count up to nine approved hours in a 30–35 hour master’s program or twelve approved hours in a 36 hour or greater master’s program toward both a bachelor’s and a master’s degrees in the same program area. These hours must be at the graduate level.

Admission Criteria

To be considered for admission, students must have at least 45 hours of credit, with at least 24 hours completed at Auburn University, and must have a cumulative GPA of 3.4 or higher on all coursework completed at Auburn. Individual graduate programs may set higher standards or require additional criteria for admission to the accelerated degree program.

Students must earn the bachelor’s degree and meet departmental admission criteria to be fully admitted into the graduate program.

Admission Procedures

Students must work with a graduate advisor in the degree-granting department to complete an Accelerated Bachelor’s/Master’s Degree Program Application, available on the Graduate School website, including:

1. a list of the courses that count toward both the undergraduate and graduate degree and,
2. the projected dates for the completion of the bachelor’s and master’s degrees

Students in the Honors College remain eligible to graduate with Honors while participating and should consult with an Honors advisor.

Performance Expectations

Students earning a B or higher in a graduate course can apply the course credit toward the undergraduate and graduate degree (if admitted to the graduate program). A passing grade less than a B cannot count towards the graduate degree but may count toward the undergraduate degree if allowed by the degree program.

Accommodation Policy for Students with Disabilities

Auburn University is committed to providing its students with an accessible campus and equitable learning environment. If you have a disability that requires academic accommodations, access to assistive technology training, or support services, contact the Office of Accessibility for additional information: 1228 Haley Center; 334-844-2096 (Voice/TT) or visit the Office of Accessibility website at accessibility.auburn.edu (https://accessibility.auburn.edu/).

Activities Involving Animals

Auburn University’s Animal Resources Program requires compliance with the Animal Welfare Assurance negotiated with the Office of Protection from Research Risks/National Institutes of Health (OPRR/NIH). A major part of that Assurance involves the Institutional Animal Care and Use Committee (IACUC) that ensures compliance with the Assurance, the policies of the U.S. Department of Health and Human Services, the U.S. Department of Agriculture and all other federal, state and local regulations concerning care, treatment and use of animals. All activities, whether teaching, research, production or display of animals, and whether or not the activity is funded, must be approved in advance by the committee. The use of animals for any purpose that is not approved in advance by the IACUC may involve severe penalties for non-compliance with institutional policy and could jeopardize the university’s Animal Welfare Assurance filed with the OPRR and the NIH. Information may be obtained through the Animal Care and Use Program (IACUC).

AUETD Publication and Access Policy

AUETD is an online database of electronic theses and dissertations (ETDs) submitted by Auburn University students in partial fulfillment of the university's graduate degree requirements. Its purpose is to make Auburn University’s ETDs widely available to the public and easy to find online. The ETDs in the AUETD database are indexed by Google and other internet search engines and may

appear in search results for those search engines. Graduate students who want to limit access temporarily to the full text of their ETD must choose one of the limited access options **during the ETD submission process** (see options below). Students who choose to limit access to their ETD should be aware that basic bibliographical information about their ETD (including the abstract) will appear in the AUETD database and that the full text of their ETD will become publicly available immediately upon the expiration of the time limit set for limited access. Students who have questions or concerns about this policy are encouraged to contact a Graduate School advisor at (334) 844-4700 **BEFORE** submitting their ETD to AUETD.

Limited Access Options

1. **Unlimited access:** Publication in AUETD with unlimited access is immediate and irreversible. Once a thesis/dissertation is published in AUETD, access via the world-wide-web may not be denied or reversed.
2. **Limited access:** Upon request, students may limit access to their thesis/dissertation only to users with a valid AU user id and password for a limited time period. Upon request, limited access is granted for a period of time not to exceed: i) six months; ii) one year; iii) two years; or iv) five years. Unless the student petitions to extend the period of limited access, the thesis/dissertation will be published with unlimited access immediately upon the expiration of the time period.
3. **Withheld access:** Upon request, students may withhold access to their thesis/dissertation to all users for a limited time period. This means that all users, including the students and their advisory committees are denied access to the thesis/dissertation in AUETD. Upon request, withheld access is granted for a period of time not to exceed: i) six months; ii) one year; iii) two years; or iv) five years. Unless the student petitions to extend the period of limited access, the thesis/dissertation will be published with unlimited access immediately upon the expiration of the time period.
4. **Copyright:** If students plan to copyright some of all of their thesis/dissertation, these plans should be discussed in advance with the major professor, especially if the thesis/dissertation includes shared data.

Calendar

The university operates on the semester system. The Graduate School calendar at the beginning of this *Bulletin* is also available at the Graduate School and contains the dates of various important deadlines. It should be followed carefully.

Class Attendance

Students are expected to attend all their scheduled classes. College work requires regular class attendance as well as careful preparation. Specific policies regarding class attendance are the prerogative of individual faculty members. Faculty shall inform each class in writing at the beginning of the course regarding the effect of absences on the determination of grades.

The student is expected to carry out all assigned work and to take examinations at the class period designated by the instructor. Failure to carry out these assignments or to take examinations at the designated times may result in an appropriate reduction in grade, except as provided below.

Instructors shall determine the policy regarding grading which they feel is best for the course. This policy shall be presented to the class, in writing, at the beginning of the term and will govern the actions of the instructor in the course.

Arrangement to make up missed major examinations (e.g. hour exams, midterm exams) due to properly authorized excused absences (as defined by the Student Policy eHandbook) shall be initiated by the student within one week from the end of the period of the excused absence. Normally, a make-up exam shall occur within two weeks from the time that the student initiates arrangements for it. Instructors are encouraged to refrain from giving make-up examinations during the last three days prior to the first day of final examinations. The format of make-up exams and opportunities for students to make up work other than major examinations are at the discretion of the instructor whose make-up policies should be stated in writing at the beginning of the term. Instructors are expected to excuse absences for:

1. Illness of the student or serious illness of a member of the student's immediate family. The instructor may request appropriate verification.
2. The death of a member of the student's immediate family. The instructor may request appropriate verification.
3. Trips for members of the student organizations sponsored by an academic unit, trips for university classes, and trips for participation in intercollegiate athletic events. When feasible, the student must notify the instructor prior to such absences, but in no case more than one week after the absence. Instructors may request formal notification from appropriate university personnel to document the student's participation in such trips.
4. Religious holidays. Students are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays.
5. Subpoena for court appearance.

6. Presentations at professional meetings or conferences.
7. Any other reason the instructor deems appropriate.

If the instructor does not appear within 20 minutes after the designated class hour, it may be assumed the class is canceled.

It is university policy that all classes will meet as scheduled on the last day before and the first day after holiday periods designated by the university.

Unresolved problems regarding class attendance or procedures should be referred to the University Student Academic Grievance Committee.

Examinations

Examinations are classified as (1) final examinations at the end of each term; (2) special examinations; and (3) other course examinations as determined by the instructor.

Announced tests in graduate courses will be administered at a regularly scheduled meeting of the course. Exceptions to this regulation may arise in specialized courses requiring performance or oral tests, and in multiple-sectioned laboratory classes requiring practical laboratory tests. Faculty having sound reasons for scheduling tests at times other than regularly scheduled meeting times are to obtain approval from the department head prior to the beginning of the term, and are to present a written schedule of these changes to the class during the first few days of the term. Rescheduled tests are not to interfere with other scheduled academic endeavors of the students involved, and an appropriate reduction in regularly scheduled class time is to be given to compensate for the rescheduled test period.

Classified or Proprietary Research

No thesis or dissertation should be based exclusively on a proprietary or classified research project, nor should a thesis or dissertation include proprietary or classified information. Any graduate student and advisor engaged in such research should identify an alternative topic for the thesis or dissertation. Should a thesis or dissertation include such information, the document must be rewritten with offending material excised.

Credit for Directed Studies

The university policy on directed studies was approved effective August 2006. Auburn University offers directed readings courses, also referred to as special problems courses or independent studies, in accordance with established policy.

Directed readings courses allow in-depth study of a particular subject by a student who is well into her or his major and, in extraordinary circumstances, accommodate scheduling issues when no other remedy is available.

Directed readings courses should not normally be used as replacements for required courses or as a solution to routine scheduling problems.

Approval to Teach Course—A standard Approval for Independent Study/Directed Readings Form (https://www.auburn.edu/academic/provost/forms/ind_study.pdf), available through the Office of the Provost website, will specify the necessary approvals and serve as the vehicle for obtaining them.

Exceptions to Graduate School Policies

Exceptions may be made to policies of the Graduate School under special circumstances. A person wishing to request an exception should write a letter to the dean of the Graduate School stating the nature of the request and the reasons for it. If a student is making the request, the letter should be submitted first to the major professor, who will write a letter of recommendation. Both letters go to the department head. If a member of the faculty is making the request, the letter goes to the department head, who will write a letter of recommendation. All letters go to the associated college/school dean for approval. Letters and comments then are forwarded to the dean of the Graduate School. A request for an extension of time to meet degree requirements must be justified. It must be accompanied by a proposed schedule for completion and assurance that the student is current in subjects included in the plan of study.

General Regulations

Regulations listed here represent the minimums of the Graduate School. However, individual departments may impose more stringent requirements and students will be governed by them.

Grades

Grade Definitions

Final passing grades are A, superior; B, good; C, acceptable; D, passing; and S, satisfactory. Final failing grades are F, failure; FA, failure for excessive absences; U, unsatisfactory; NR, no grade reported; and WF, officially dropped with permission of the student's dean but failing at time of withdrawal and is calculated into the GPA. (For the definition of W, see the following section on Grade Assignment for Class Withdrawal.)

A TD, thesis and dissertation research credit, is assigned to courses 7990 Research and Thesis and 8990 Research and Dissertation.

A grade of IP (In Progress) is used by professional programs, specifically Pharmacy and Veterinary Medicine, for those courses that extend beyond the end of the regular term. Students who are making progress toward completion of their work but have not completed all course requirements may receive the IP grade. The IP grade is not calculated in the GPA until the grade is cleared.

Grades of SA and SN may be assigned in certain specialized classes in which progress to the next level of a program depends on performance in the class. In such cases, a grade of SA in a particular course may be required for advancement. A grade of SN will give the student appropriate earned credit, but will not allow the student to advance in that program.

An NR is assigned systematically when the instructor does not assign a letter grade.

Faculty Policy on Assigning Grades of Incomplete (excludes distance education courses)

Effective Fall 2007, student (or appropriate representative) must contact the instructor in writing prior to the submission of final course grades to request a grade of Incomplete (IN) due to documented reason (illness/death in family/etc.).

If a student does not request an IN, the instructor should grade the student based upon the percentage of course work completed to date and using a 0 for any exams/ assignments not completed.

To be eligible for a grade of IN, the student must have completed (and have passed) more than half of all class assignments for the semester or summer term.

The instructor must fill out the Incomplete Grade-Memorandum of Understanding form, indicating:

- reason for the IN,
- percent of course work currently completed at the time of submission and the grade average on that work,
- detailed information about the additional work needed to complete the course,
- timeline to complete the work (6 months maximum; preferably sooner), and
- grade the student should be assigned if the additional work is NOT completed by the deadline set for the completion of the work; the missing work is calculated as a 0.

Grades of Incomplete automatically become the grade identified by the instructor, if not cleared within 6 months.

If the instructor assigning a grade of IN leaves Auburn University, the department head should make a reasonable attempt to contact the former instructor and then assign a grade based upon the work presented by the student and the information provided on the Incomplete Grade-Memorandum of Understanding form.

Once an IN has been changed to another grade it may not be changed, in the future, to a different grade without approval of the provost.

Documentation of class work must be maintained by the student; the Incomplete Grade-Memorandum of Understanding form must be maintained by the student, faculty and the Office of the Registrar. For instructors who submit the IN Grade forms to the Office of the Registrar prior to course grades being rolled to academic history, the IN will be reflected on the electronic grade roster; faculty will be unable to change that grade on the electronic grade roster.

Instructors should NOT enter a grade on the electronic course roster for those students who are to be assigned the IN grade but leave the grade blank. The system will automatically convert blanks to NR. Once the IN Grade form is received by the Office of the Registrar, that office will convert the NR to the IN grade.

It is the responsibility of the instructor to send a copy of the Incomplete Grade-Memorandum of Understanding form to the Office of the Registrar.

When the student has completed the outstanding work, it is the responsibility of the instructor to initiate the change of grade form and send it to the appropriate department/dean's office for additional signatures and transmittal to the Office of the Registrar.

These policies apply to all students in undergraduate and graduate courses.

Faculty Policy on Grade Changes (includes NR; Excludes IN)

Grades should be accurate when posted.

- Any change of letter grades (A, B, C, D, F, S, U, FA, and NR) should be made only in extraordinary situations.
- Any grade changes must be completed within 6 months of completion of the course.
- Any grade changes outside of this timeframe must also be approved by the provost.
- A final grade may be changed only by the written request of the instructor, with approval of the department head and dean, submitted to the registrar.
- A grade of F and additional penalties may be assigned for academic dishonesty. See the Student Academic Honesty Code section in the Tiger Cub for further information.

Grade Assignment For Class Withdrawals

A student who withdraws from a course prior to the 15th class day during a semester (or the fifth class day of summer term) will have no grade assignment; however, from the 15th class day during a semester (or the fifth class day of summer term) through the withdrawal deadline published in the academic calendar a W (Withdrawn Passing) grade will be recorded for the course. A course may be dropped with a W after the withdrawal deadline only under unusual conditions and only with permission from the student's dean. When approval for dropping the course under such circumstances is granted, a W may be assigned only when the instructor indicates that the student is clearly passing the course. Otherwise, a grade of WF (Withdrawn Failing) is assigned. All failing grades are calculated into GPA as grades of F.

Grade Average and Quality Point Computation

A 4.0 grade scale is used. An A equals 4.0; B, 3.0; C, 2.0; D, 1.0; and F equals 0.0. Only course work attempted at Auburn University is used in determining the grade report average and continuation–in–residence requirements. S and U grades do not enter into grade-point computations.

S-U Grading

Grades of S (Satisfactory) and U (Unsatisfactory) may be assigned only to courses approved to be graded S-U, and courses elected under the S-U option.

A graduate student may enroll in undergraduate courses, except for 6000-level courses taken for graduate credit, under the S-U option on the major professor's recommendation.

Students are not permitted to change from S-U grading to conventional grading or vice versa after the fifteenth class day of the fall and spring terms or the fifth class day of any summer term.

Grade Reports

Grade information may be obtained through AU Access on Auburn University's website.

Graduate Certificate Definition

Graduate certificate programs constitute an integrated curriculum, but not necessarily one aligned with a specific academic program. They may exist within programs, bridge programs or offer content widely useable across programs. Graduate certificate programs consist of a minimum of 9 and maximum of 21 hours of graduate-level course work. The course work may be graded or non-graded. A minimum GPA of 3.0 must be maintained on all graded course work in the certificate program.

Graduate certificate programs pertain to graduate students, whether degree seeking or non-degree seeking. A graduate certificate is distinguished from graduate minors in two primary ways. First, graduate minors are intended exclusively for degree seeking graduate students. Graduate certificates may be directed to both degree seeking and non-degree seeking students. Second, there are limits to the number of course credits taken in pursuit of graduate minors that may be applied to a graduate degree (e.g., masters degrees require 21/30 hours to be in the major discipline). The limiting factor in the application of certificate course credits to graduate degrees is departmental policy or advisory committee recommendations. As an example, if a department developed a certificate program intended only for non-degree seeking students, that department could prevent those certificate courses from applying to a degree.

However, in the absence of departmental policy, and with the approval of a student's advisory committee, both degree seeking and non-degree seeking students (if they later change status to degree seeking) may include all certificate-related courses toward degree requirements.

When new graduate certificates are proposed, they undergo the full process of curriculum review. This same process applies regardless of delivery method (i.e., on campus and distance). Special requirements for applicants may be negotiated between the certificate proposing program and the graduate school at the time the program is proposed. Consistent with Graduate School policy related to the Masters and Specialist degrees, all requirements for a graduate certificate must be accomplished within 6 years unless departmental criteria for the certificate necessitate a longer time. Certificate Programs that require an exception to this 6-year time limit must be approved by the Graduate Council. Not only must the content of the proposed certificate be appropriate, but the availability of a viable group of graduate faculty to teach the courses in the certificate must be documented. Proposals for graduate certificate programs must identify a specific person who will serve as coordinator. Certificates that bridge departments must have a home department to which all certificate applicants apply. But each affiliated department must also designate a coordinator. Students who fulfill all requirements for a graduate certificate should submit the certificate completion application through AU Access. The certificate will be noted on the transcript after successful completion of all certificate requirements and the certificate completion application has been approved.

Graduate certificates are to be differentiated from professional development certificates. No comprehensive definition of the latter is offered here, however, in brief, completion of a professional development certificate does not require admission to the Graduate School and is awarded based on participation in non-credit work. The definition of graduate certificate does not limit the ability of departments or other units from defining, implementing, or awarding professional development certificates. Professional development certificates are not subject to the Auburn University curriculum process, nor are their achievement noted on Auburn University transcripts.

Graduate Curriculum Model Change

When a graduate curriculum model is changed, the changes apply only to students who matriculate after the approval of the changes and to currently enrolled students who voluntarily choose to complete the requirements of the new curriculum model. In no case, for students who are continuously enrolled, will the changed curriculum compel them to accumulate additional hours and grade points to graduate. Curriculum model changes are to be implemented at the beginning of the semester in which the largest number of new students typically enroll (fall semester for most programs). Graduate students who have not been enrolled at Auburn University for two or more semesters and who are returning to the same curriculum may be subject to different university, college, school or departmental requirements than those which existed when continuous enrollment ceased.

Graduate Program Option Definition

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of “track,” “concentration,” “emphasis,” or similar terms, are not designated on the transcript; however, all academic programs and designated variations (whether called “options,” “tracks,” “concentrations,” “emphases” or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

Graduate Study and University Employees

The educational benefit plan provides tuition waiver benefits to eligible and qualified employees, enabling them to enroll in undergraduate and graduate course work while actively employed at Auburn University. An employee may pursue a graduate degree with the approval by the employee’s immediate supervisor indicating whether or not the requested course is relevant to the student’s current position assignment. The application approval process is through Self Service Banner and is needed for each class each semester. Inquiries should be made through the Human Resource Development, Employee Education Benefits office.

Institutions with Special Affiliations

By special arrangement with Florida A&M University, the Graduate School application fee is waived for students applying from this institution.

Oak Ridge Associated Universities

Auburn University has been a sponsoring institution of the Oak Ridge Associated Universities (ORAU) since 1946. ORAU is a private, not-for-profit consortium of over 145 colleges and universities and a management and operating contractor for the U.S. Department

of Energy (DOE) with principal offices located in Oak Ridge, Tennessee. Founded in 1946, ORAU provides and develops capabilities critical to the nation's technology infrastructure, particularly in energy, education, health and the environment. ORAU works with and for its member institutions to help faculty and students gain access to federal research facilities; to keep members informed about opportunities for fellowship, scholarship and research appointments; and to organize research alliances among our members in areas where their collective strengths can be focused on issues of national importance.

ORAU manages the Oak Ridge Institute for Science and Education (ORISE) for DOE. ORISE is responsible for national and international programs in science and engineering education, training and management systems, energy and environment systems and medical sciences. ORISE's competitive programs bring students at all levels, K-12 through postgraduate, and university faculty members into federal and private laboratories. Other ORAU activities include the sponsorship of conferences and workshops, the Visiting Scholars program and the Junior Faculty Enhancement Awards. Contact the Office of Vice President for Research and Economic Development for more information about ORAU programs.

Research Involving Humans

Auburn University established the Institutional Review Board for the Use of Human Subjects in Research (IRB) to evaluate research for compliance with the guidelines and policies of the U.S. Department of Health and Human Services, the Public Health Service, the Food and Drug Administration and other federal, state and local regulations. All research using human subjects—whether it is conducted by faculty, staff or students—must be approved in advance by the IRB, regardless of the source of funding, lack of funding or any other consideration. Research involving human subjects not approved in advance may be disallowed and may incur severe penalties for non-compliance with institutional policy. Information and review forms may be obtained through the Office of Human Research (IRB).

Second Graduate or Post-Baccalaureate Professional Degree

For a second graduate or post-baccalaureate professional degree, the student fulfills all requirements applicable to any other graduate or post-baccalaureate professional degree, including the thesis, if appropriate. The student may, on recommendation of the advisory committee, transfer a limited number of credit hours from the previous graduate or post-baccalaureate professional degree. At least 24 semester hours, or 50% of the total hours required for the degree, whichever is greater, must be unique to each degree and be taken at Auburn University.

Student Academic Grievance Policy

The Student Academic Grievance policy, which appears in full in the Student Policy eHandbook, is designed to resolve academic grievances of students which result from actions of faculty or administrators.

Student Records

Confidentiality of Student Records

The university recognizes that the maintenance of student information and educational records is necessary and vital to assist the student's education and development and to provide opportunities for university research and policy formulation. The university recognizes its obligation to exercise discretion in recording and disseminating information about students to ensure that their rights of privacy are maintained.

The university will furnish annual notification to students of their right to inspect and review their educational records; the right to request amendment of educational records considered by them to be inaccurate or misleading or that violate privacy or other rights; and of their right to a hearing should the university decline to amend such records. This annual notice will be published in the *Auburn University Bulletin* and an electronic notification is sent to each active Auburn student.

The following guidelines have been developed to ensure the privacy rights of students. For the purposes of this policy statement a student is defined as an individual who has been admitted and has been in attendance in a component unit of the university. Classification as a student in one component unit of the university (e.g., an undergraduate program) does not imply that the person has been accorded the rights outlined below in other component units (i.e., graduate school, professional schools, branch campus).

Student Access to Records

Auburn University's permanent student education record consists of one or more of the following: the official transcript of grades, competency evaluations, and any narrative evaluations. This is in accordance with guidelines established by the American Association of Collegiate Registrars and Admissions Officers (https://www.aacrao.org/) and the State of Alabama policies on Retention of Records.

Students have the right to be provided a list of the type of educational records maintained by the university which are directly related to the student; the right to inspect and review the contents of these records; the right to obtain copies of these records; the right to a

response from the university to reasonable requests for explanation and interpretation of these records; the right to an opportunity for a hearing to challenge the content of these records; and if any material or document in the educational record of a student includes information on more than one student, the right to inspect and review only the part of such material or document as relates to the student.

Students do not have access to financial records of their parents; confidential letters and statements of recommendation which were placed in the educational record prior to Jan. 1, 1975, provided such letters or statements were solicited or designated as confidential and are not used for purposes other than those for which they were specifically intended; confidential recommendations, if the student signed a waiver of the right of access, respecting admission, application for employment, and the receipt of an honor or honorary recognition.

Students do not have access to instructional, supervisory or administrative personnel records which are not accessible or revealed to any other individual except a substitute; Campus Security records which are maintained apart from educational records, which are used solely for law enforcement purposes, and which are not disclosed to individuals other than law enforcement officials of the same jurisdiction; employment records except when such employment requires that the person be a student; and the Alumni Office records.

Students do not have access to physical or mental health records created by a physician, psychiatrist, psychologist or other recognized professional acting in his or her capacity or to records created in connection with the treatment of the student under these conditions which are not disclosed to anyone other than individuals providing treatment. A physician or appropriate professional of the student's choice may review these records.

Procedures for Access

The Office of the Registrar has a complete list of educational records maintained by the university which students may obtain. Students should contact the appropriate office to inspect and review their records. An office may require that a university official be present when a student inspects and reviews his or her educational records. Any questions concerning a student's access to records should be directed to the registrar.

Amending Educational Records

Students may request that any information contained in their educational records which they consider to be inaccurate, misleading, or in violation of their privacy or other rights be amended or deleted from the records. (A grade or other academic scores may not be amended, except that the accuracy of recording the information may be challenged.)

Students who request that information in their records be amended should first direct their request to the official with primary responsibility for the information on the record. If the matter is not resolved to their satisfaction, students should direct their requests to the official's dean or division head. If the matter is not resolved to their satisfaction, they may request a formal hearing.

Right to a Formal Hearing and Procedures for Decision

Students may request formal hearings to challenge information contained in their educational records. The hearing will be held in a reasonable time (not to exceed 45 days) and in a reasonable place. Students may be assisted or represented by persons of their choice, including an attorney, at the expense of the student, and shall be afforded a full and fair opportunity to present evidence relevant to the issue(s).

Students or their representative should request the hearing in writing and should specifically identify the information they seek to have amended. The request should be directed to the Office of the Provost/Vice President for Academic Affairs.

The Office of the Provost/Vice President for Academic Affairs will conduct the hearing and render a decision within a reasonable period of time after the conclusion of the hearing and the decision shall be based solely upon the evidence presented at the hearing. The student shall be notified in writing of the reason(s) for the decision and given a summary of the evidence.

If the decision is that the information in the student's educational records is inaccurate, misleading or in violation of his rights and privacy, the statement(s) will be corrected or expunged from the student's records.

If the decision is that the information is not inaccurate, misleading, or in violation of the privacy or other rights of the student and that the information or parts thereof are to remain in the student's educational records, the student shall be notified and given the right to enter a statement in the records setting forth any reason for disagreeing with the decision of the Office of the Provost/Vice President for Academic Affairs. This statement shall be maintained in the records as long as the record or contested portion thereof is maintained, and if the contested educational record or contested portion thereof is disclosed by Auburn University to any party, the student's explanation shall also be disclosed to that party.

The U.S. secretary of education has established a review board to receive complaints regarding violation of student's rights. Students wishing to file a complaint directly to the review board should write to the Family Policy and Regulations Office, Department of Education, Washington, D.C. 20202. Detailed procedures for this complaint procedure are listed under section 99.63 of the regulations issued by the secretary and will be furnished upon request by the registrar, Auburn University.

This policy is adopted pursuant to the Family Educational Rights and Privacy Act, (34 CFR Part 99), and is not intended to impose any restrictions or grant any rights not specifically required by this Act.

Release of Directory Information

The university may release directory information without the student's written consent. Directory information consists of student's complete name; local address and associated telephone number; place of birth; parent/spouse name, address and associated telephone number; mailing address and associated telephone number; E-mail address; photographs, video or other electronic image; participation in recognized activities and sports; weight and height of members of athletic teams; dates of attendance; enrollment time status (full or part time); degrees and awards received; and most recent previous educational agency or institution attended.

A student may deny the release of directory information by completing an Address Change/Information restriction request form available in the Office of the Registrar, Langdon Hall.

To deny the release of information regarding participation in recognized activities the student must notify the vice president for Student Affairs and the student's academic dean in writing. To deny the release of athletic information, the student must notify the director of Athletics in writing. A former student, one who is not in attendance, must contact the appropriate offices to deny the release of information.

Release of Educational Records

The university will release a student's educational record(s) upon the student's written request. The student must:

1. Specify the records to be disclosed.
2. Include the purpose or purposes of the disclosure.
3. State the party or parties and the address to whom the information is to be disclosed.

The student shall, upon request, receive a copy of the record that is to be disclosed. It is university policy to furnish single copies of a student's record at no charge.

The university may release student's educational records to the following without prior written consent:

1. University officials who have a legitimate educational interest in the records. University officials are defined as teachers, administrative personnel and other employees except personnel of the security or law enforcement unit of Auburn University, and other agents acting on behalf of the university. If university officials are required in the performance of their duties to review the educational records of a student, this will be considered to be a legitimate educational interest. Auburn University has designated the National Student Clearinghouse as a university official.
2. Officials of another school in which the student intends to enroll upon request of the transfer school.
3. Government representatives of the Comptroller General of the United States, the Secretary of Education, the U.S. Commissioner of Education, the Director of the National Institute of Education, the Assistant Secretary for Education, State educational authorities, and State officials to whom such information is specifically required to be reported or disclosed by State law adopted prior to Nov. 19, 1974.
4. Appropriate authorities in connection with financial aid with the understanding that only the necessary records will be released.
5. Organizations conducting studies for, or on behalf of, the university or its agencies for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction and student life provided that the studies will not permit the personal identification of students and their parents by individuals other than representatives of the organization and provided that the personally identifiable information furnished will be destroyed when no longer needed for the purposes for which the study was conducted.
6. Accrediting organizations to carry out their accrediting functions.
7. Parents of a dependent student as defined in section 152 of the Internal Revenue Code of 1954. University officials may release educational records to parents on the basis of a written documentation from the parent that the student is a dependent as defined under the Code and there is reasonable notification of the student regarding the request.
8. A court of law to comply with a judicial order or lawfully issued subpoena with the understanding that the student will be notified in advance insofar as possible.

9. Appropriate parties to protect the health and safety of the student or other individuals in emergencies with the understanding that only information essential to the emergency situation will be released, that information will be released only to a party who would be in a position to deal with the emergency, and that the student will be notified insofar as possible of the information released, the purpose for the release, and to whom the information was released.

No personal information on a student will be released without a statement from the university to the party receiving the information that no third party is to have access to such information without the written consent of the student.

Each office with educational records will maintain a record of each request and disclosure of personally identifiable information from the educational records of a student except for information requested in writing by the student, information released to the student or the student's parents, directory information, and information released to university officials and teachers who have a legitimate educational interest in the records. The student may inspect the record of requests, disclosures and the legitimate interests of parties requesting or obtaining information in the appropriate university office.

Teaching Graduate Courses for Lecturers and Senior Lecturers Policy

Lecturers and senior lecturers who otherwise meet graduate faculty criteria (level 1) for the department may be granted permission to teach graduate-level courses and/or serve on graduate student committees on an exceptions basis under the following conditions:

1. A lecturer/senior lecturer desiring to teach a graduate course or serve on a graduate student committee should make a written request to the department chair.
2. If this request is acceptable to the majority of the department's tenure and tenure track graduate faculty and chair, a memo requesting such authorization will be submitted to the graduate dean for review and approval.
3. Authorization may be requested for teaching only, committee service only, or both.
4. No more than one lecturer/senior lecturer may serve on a graduate student committee.
5. Authorization must be requested for each semester a graduate course is to be taught by a given lecturer/senior lecturer.
6. Authorization must be provided each time that a lecturer/senior lecturer serves on a graduate student committee.
7. The department will provide the faculty member with resources appropriate to the graduate service being provided. What constitutes appropriate support would vary by department, but the following points would generally apply:
   a. Service on a graduate committee should not simply be added on top of current service if the lecturer is already performing at least 5% service and has an appointment that is supposed to be 95% teaching and 5% service. If a lecturer serves on a graduate committee, other forms of service should be reduced, or the lecturer should receive a higher percent of his or her appointment for service.
   b. In most cases, teaching a graduate course requires being completely up-to-date with the most recent research in the field. Appropriate support might include a course release for a lecturer teaching the course for the first time.
   c. A lecturer should not teach a graduate course as an overload class.

Two-Campus Studies

A student seeking a graduate degree at Auburn University, Auburn University at Montgomery, the University of Alabama, the University of Alabama at Birmingham, or the University of Alabama at Huntsville may take up to half the course work at another of these institutions. The courses taken must be approved in advance by the student's Advisory Committee and the respective graduate deans. All credit must be earned at the two institutions in which the student is working, and none may be transferred from another institution. Students engaged in two-campus studies are required to meet the requirements of continuous enrollment at Auburn University.

Withdrawal Policy

A **partial withdrawal** refers to a student dropping one or more courses but remaining enrolled in at least one Auburn University credit-bearing course. A **full withdrawal** (sometimes referred to as a **resignation**) refers to a student dropping all courses and no longer being enrolled in any courses or credit hours at Auburn University.

Before withdrawing from any course(s), students are encouraged to contact their advisors or other relevant offices such as Auburn Cares, Financial Aid, Scholarships, Veterans Resource Center, International Programs, and Athletics due to possible impacts on tuition, graduation timing, financial aid, veteran's benefits, international student standing, eligibility for varsity athletics, etc.

Withdrawing by the Withdrawal Deadline

A student may withdraw from one or more courses anytime on or before the withdrawal deadline published in the Academic Calendar. Withdrawing on or before the census date (also published in the Academic Calendar) results in no course grade and no record of

attempting the course on the transcript. Withdrawing after the census date but on or before the withdrawal deadline results in a course grade of W. Grades of W are not used in calculating the Auburn University term or cumulative GPA.

Students withdrawing before the deadline due to a documented serious physical and/or psychological condition or the death or serious illness of an immediate family member should consult with the Auburn Cares office before withdrawing.

Withdrawing After the Withdrawal Deadline

A student may request to withdraw after the withdrawal deadline only under specific conditions or circumstances. Because the conditions necessary for approval of withdrawals after the deadline usually impact all courses, these are normally approved only as full withdrawals. All withdrawals after the deadline require permission through the appropriate approval process. Most commonly, medical or family medical withdrawals begin with the Auburn Cares office and personal or military withdrawals begin with the student's Advising Office.

Medical or family medical withdrawal: A medical withdrawal may be requested when, by recommendation of a licensed health care provider, a student cannot continue enrollment because of a serious physical and/or psychological condition. A family medical withdrawal may be requested when a student cannot continue enrollment due to the death or serious illness of an immediate family member. These withdrawals are reviewed and approved by the Auburn Cares office.

Personal withdrawal: A personal withdrawal may be requested when a student cannot continue enrollment due to documentable, extraordinary personal circumstances. These withdrawals are reviewed and approved by the student's Associate Dean for Academics.

Military withdrawal: A military withdrawal may be requested when a student is called to active military duty prior to the end of the term. These withdrawals are reviewed and approved by the Office of the Registrar.

When a withdrawal after the deadline is approved, grades of W and WF are assigned to courses the student is passing and failing, respectively, as of the withdrawal date. Grades of W are not used in calculating the Auburn University term or cumulative GPA. Grades of WF are used and have the same impact as a grade of F. In situations where it can be clearly demonstrated that a failing grade was directly related to the medical or personal situation leading to a withdrawal, the withdrawal approver may also approve a course grade of W.

Retroactive Dating of Withdrawals

Retroactive dating refers to establishing an effective withdrawal date prior to the actual date of withdrawal. Retroactive dating is most frequently initiated when a student has documentation from a health professional verifying a medical condition that prevented the student from withdrawing on the effective date.

Requests for retroactive dating of withdrawals due to medical or immediate family medical reasons are reviewed and approved by Auburn Cares and should be initiated within one calendar year (for family medical withdrawals) or two calendar years (for medical withdrawals) from the end of the term in question. Retroactive dating of withdrawals due to extraordinary personal circumstances are reviewed and approved by the Associate Dean of the student's college and the Graduate School designee and should be initiated no later than the student's next term enrolled at the university. Requests initiated beyond these deadlines must also be approved by the Graduate School designee.

Appeals of Dismissal

Undergraduate Policy on Appeals of Suspension and Dismissal

Appeals of Suspension

Undergraduate students who incur academic suspension under the rules detailed in this bulletin may appeal the decision to the Academic Appeals Committee if they believe that extraordinary circumstances merit an exception to the rules. To appeal a suspension, students should contact the Office of the Registrar.

Appeals of Dismissal

In general, undergraduate students who have been dismissed from the University may appeal their dismissal only after one calendar year has elapsed. In rare instances, students on dismissal who have a minimum grade point average of 1.85, are within 18 credit hours of graduation, and who demonstrate the appropriate changes in attitude necessary to be ready to complete their degree requirements may appeal through the Office of the Registrar to their academic dean for readmission. To appeal a dismissal, students should contact the Office of the Registrar.

The Undergraduate Policy on Appeals of Suspension and Dismissal is administered by the Office of the Registrar.

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Services

- Academic (p. 169)
- General (p. 171)

Academic Services

- Academic Support (p. 169)
- Accessibility (p. 169)
- Career Discovery and Success (p. 169)
- First Year Experience (p. 170)
- Testing Services (p. 170)
- University Undergraduate Advising Services (p. 170)

Academic Support

Academic Support contributes to retention and degree completion for Auburn University undergraduate students. The office hosts a variety of academic skill development programs that promote self-directed learning strategies and student success.

- **Academic Coaching:** Academic Coaching is a free program that empowers students to achieve their academic goals through improved study strategies and habits. Students collaborate with a trained coach to identify action steps to meet personalized goals.
- **Study Partners Peer Tutoring:** Study Partners provides free peer tutoring for a variety of undergraduate core courses. The program and the tutors encourage students to grow as confident, self-directed learners in their studies.
- **Study Smart:** Study Smart is a non-credit, 10-week curriculum for students on suspension that focuses on the skills required for academic success at Auburn University. The program guides students through an exploration of their responsibilities, motivation, self-awareness, and tools to maintain success.
- **Supplemental Instruction (SI):** Supplemental Instruction (SI) supports historically difficult classes with free, weekly, active-review sessions facilitated by students who previously excelled in the course. SI sessions are interactive opportunities to improve content knowledge, develop skills, and make peer connections.

To learn more, visit the Academic Support website at https://academicsupport.auburn.edu/, follow us on Twitter @AUAcadSupport (https://twitter.com/AUAcadSupport/?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor), Instagram @AUAcadSupport (https://www.instagram.com/auacadsupport/), or Facebook /AUAcadSupport (https://www.facebook.com/AUAcadSupport/), or call 334-844-5972.

Accessibility

Auburn University is committed to providing its students with an accessible campus and equitable learning environment. If you have a disability that requires reasonable academic accommodations, assistive technology, or support services, contact the Office of Accessibility for additional information, 1228 Haley Center; 334-844-2096 (Voice/TT).

Career Discovery and Success

Career Discovery and Success

Auburn University believes in student success. From the Exploration Center to our Career Strategists, as well as our Employer and Alumni engagement team, the services, programs, individual support, and professional networking opportunities provided by Career Discovery and Success, along with our campus partners, are designed to support each student at any phase of their college to career journey. We help transform IDEAS into reality through a network of support that allows students to **I**nvestigate their interests, **D**esign an action plan, **E**xperience career options and mentorship, **A**rticulate their skills, and **S**ucceed academically and professionally. Our holistic approach to serving students, supporting faculty and staff across the campus landscape, and building partnerships with employers and alumni, provides the foundation for comprehensive career development and experiential learning that empowers students to realize and successfully pursue their educational and career goals.

To learn more about Career Discovery and Success programs, services, and resources, or to schedule an appointment with a career counselor or career strategist, visit career.auburn.edu (https://career.auburn.edu/).

Exploratory Advising

Becoming educated and finding a fulfilling vocation is hard, but we believe that with the proper support and guidance any college student can learn about themselves and their options, discover the best path to pursue, and find a way to thrive. The Exploration Center in Career Discovery and Success provides personalized academic advising and career counseling to Auburn students at any stage of exploration. Incoming freshmen can declare as an Exploratory major for up to two semesters and will follow a structured exploring process through the exploratory first year seminar, taken for academic credit. Current Auburn students can get help thinking about a change of major, identifying possible career paths, or developing a personalized academic success plan. All students coming to Exploratory gain the support of our academic advisors and career counselors who specialize in helping students explore, discover, and pursue their best options. The Exploration Center is located at 101 Mary Martin Hall and is open from 7:45 a.m. to 4:45 p.m. Additional information may be obtained by calling (334) 844-7277, emailing explore@auburn.edu, or visiting the website at https://exploratory.auburn.edu/ (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fexploratory.auburn.edu%2F&data=05%7C02%7Cblltn%40auburn.edu%7C30aa5e6979db40acfe7308dc5b203cab%7Cccb6deedbd294b388979d72780f62d3b%7C0%7C0%7C638485441212126481%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=B%2Ba5NcTvhW0UdMeKZ0t0v2pS2BN0bj%2FzKNsXndgL92A%3D&reserved=0).

First Year Experience

First Year Experience provides programs to help the new student make the transition into Auburn University life. These programs promote intellectual and social development leading to personal and academic success. For assistance, call 334-844-4501 or visit fye.auburn.edu/ (https://fye.auburn.edu/).

Camp War Eagle

Camp War Eagle is Auburn's summer orientation experience for incoming freshmen and their parents. Sessions are held throughout the summer and engage the student and parent in the academic and social transition to college life, including meeting with the student's academic advisor.

Successfully Orientating Students

Successfully Orienting Students (SOS) is a one-day orientation program held for all transfer students and freshmen who do not attend Camp War Eagle during the summer or who enroll in the spring semester.

First Year Seminars

First Year Seminar (FYS) courses at Auburn University help new students acclimate to multiple aspects of university life. By taking an FYS course, students can learn about academic and personal resources and services, relevant social issues, opportunities for involvement on campus and in the local community, time management, critical thinking skills, study strategies, test preparation, note taking, goal setting, and many other topics and skills vital to college success. Most students in Learning Communities take an FYS course as a part of their fall semester courses, but FYS courses are available to all new students.

Learning Communities

Learning Communities are unique academic opportunities for Auburn freshmen. Each learning community is comprised of a small group of students who are co-enrolled in several core courses surrounding a particular theme or interest. By participating in a learning community, students are involved in an environment that helps them transition to college through faculty interaction, which promotes student retention and academic success. Students are also exposed to a small community of peers with similar academic interests and a supportive network of fellow students, peer educators, and professors.

Testing Services

The Biggio Center offers testing services to Auburn University students, faculty and visitors, including Auburn University academic testing, national proctored exams, and testing for outside universities. Please visit Biggio Testing Center (https://biggio.auburn.edu/programs/testing-services-programs/testing-services-contact-location/) or call (334) 844-3151 to learn more.

University Undergraduate Advising Services

Auburn University strives to provide clear and supportive academic advising to all undergraduates throughout their academic career. In addition, Auburn provides ongoing assessment of the quality of academic advising and provides professional development

opportunities throughout the year to ensure that the university's academic advisors are fully equipped to meet our students' needs. Auburn advisors frequently receive regional and national awards from the National Academic Advising Association (NACADA), the professional academic advising association, for the outstanding quality of their work. Students are strongly encouraged to take advantage of the advising services listed below.

College Advising Centers and Information

Every college and school on the campus of Auburn University provides students with academic advising designed to guide students through their academic curricula. Specific information about college-based advising services may be found on the Academic Advising web page.

Exploration Center

Becoming educated and finding a fulfilling vocation is hard, but we believe that with the proper support and guidance any college student can learn about themselves and their options, discover the best path to pursue, and find a way to thrive. The Exploration Center in Career Discovery and Success provides personalized academic advising and career counseling to Auburn students at any stage of exploration. Incoming freshmen can declare as an Exploratory major for up to two semesters and will follow a structured exploring process through the exploratory first year seminar, taken for academic credit. Current Auburn students can get help thinking about a change of major, identifying possible career paths, or developing a personalized academic success plan. All students coming to Exploratory gain the support of our academic advisors and career counselors who specialize in helping students explore, discover, and pursue their best options. The Exploration Center is located at 101 Mary Martin Hall and is open from 7:45 a.m. to 4:45 p.m. Additional information may be obtained by calling (334) 844-7277, emailing explore@auburn.edu, or visiting the website at https://exploratory.auburn.edu/ (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fexploratory.auburn.edu%2F&data=05%7C02%7Cblltn%40auburn.edu%7C30aa5e6979db40acfe7308dc5b203cab%7Cccb6deedbd294b388979d72780f62d3b%7C0%7C0%7C638485441212126481%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=B%2Ba5NcTvhW0UdMeKZ0t0v2pS2BN0bj%2FzKNsXndgL92A%3D&reserved=0)

General Services

Accessibility

Auburn University is committed to providing its students with an accessible campus and equitable learning environment. If you have a disability that requires reasonable academic accommodations, assistive technology, or support services, contact the Office of Accessibility for additional information, 1228 Haley Center; (334) 844-2096 (Voice/TT).

Career Discovery and Success

Auburn University believes in student success. From the Exploration Center to our Career Strategists, as well as our Employer and Alumni engagement team, the services, programs, individual support, and professional networking opportunities provided by Career Discovery and Success, along with our campus partners, are designed to support each student at any phase of their college to career journey. We help transform IDEAS into reality through a network of support that allows students to **I**nvestigate their interests, **D**esign an action plan, **E**xperience career options and mentorship, **A**rticulate their skills, and **S**ucceed academically and professionally. Our holistic approach to serving students, supporting faculty and staff across the campus landscape, and building partnerships with employers and alumni, provides the foundation for comprehensive career development and experiential learning that empowers students to realize and successfully pursue their educational and career goals.

To learn more about Career Discovery and Success programs, services, and resources, or to schedule an appointment with a career counselor or career strategist, visit career.auburn.edu (https://career.auburn.edu/).

Undergraduate

Auburn University offers a comprehensive array of programs that lead to a bachelor's degree. These programs are administered by the following colleges: the College of Agriculture; the College of Architecture, Design, and Construction; the Raymond J. Harbert College of Business; the College of Education; the Samuel Ginn College of Engineering; the College of Forestry, Wildlife and Environment; the College of Human Sciences; the College of Liberal Arts; the College of Nursing; the College of Sciences and Mathematics; the James Harrison College of Pharmacy; and the University College. The *Bulletin* contains the academic policies and curricular guidelines that govern a student's progress toward his or her degree in any of these programs. Students should plan to meet regularly with an advisor to ensure that they are staying on track to graduation and to resolve any questions that may arise about their selected plan of study.

This section of the *Bulletin* lists the schools and colleges alphabetically and provides information about curricula within them as well as general descriptions of interdepartmental and interdisciplinary curricula and ROTC programs. Information about most college and school undergraduate admission, retention and graduation standards as well as other information about the college or school is also provided here. Each undergraduate academic program offered by a school or college is presented in a curriculum model with required and elective courses listed in a possible semester-by-semester sequence. These models are provided as guides to help students and advisors plan the individual student's course of study. Students should realize, however, that it might not be possible to schedule every course in the year and semester as presented. Careful planning with the help of an academic advisor is usually necessary if students are to complete their programs in a timely manner and meet all course prerequisites.

All undergraduate curricula can accommodate six hours of ROTC; military science courses may be taken in place of electives, and in some curricula, with permission, in place of certain required courses.

College of Agriculture

ARTHUR APPEL, Interim *Dean*
AMY N. WRIGHT, *Associate Dean*

THE COLLEGE OF AGRICULTURE prepares students for a variety of opportunities throughout a global food, agricultural and natural resource system by emphasizing living sciences and providing challenging science-based curricula. Graduates are prepared to become productive global citizens and to address the challenges of providing a safe, affordable food, fiber and renewable bio-energy system while protecting environmental and water resources. Many of the basic science courses taken in the freshman and sophomore years serve as a foundation for additional basic and applied coursework in a specific major during the junior and senior year. The college's student-focused atmosphere fosters strong academic, engaged learning environments and student development around life-skills and international issues.

Curricula are offered in agricultural business and economics, agricultural communications, agricultural science, animal sciences, applied biotechnology, biological and agricultural technology management, crop and soil science, environmental science, fisheries, aquaculture & aquatic sciences, horticulture, and poultry science. The College of Agriculture also furnishes the subject matter training in agriculture for the curricula of biosystems engineering and agriscience education.

Employment opportunities for graduates with expertise gained in these majors are forecast to remain strong. Possible careers include: agricultural economists, agricultural engineers, crop scientists, animal nutritionists, aquaculturalists, biochemists, biological engineers, biometricians, botanists, business managers, cell biologists, climatologists, educators, extension specialists, entomologists, environmental scientists, farm services, fisheries scientists, florists, food systems and safety workers, geneticists, golf course managers, poultry scientists, molecular biologists, plant pathologists, plant physiologists, quality assurance workers, rural sociologists, science writers, soil scientists, toxicologists, turf scientist/specialists, as well as the foundation for entrance to graduate school, law, and health-related professional schools.

Transfer Credits

Transfer credits for agricultural subjects not considered equivalent to those required in the chosen curriculum may be substituted for elective credit; however, duplication of credit will not be allowed. Equivalence of agricultural subjects will be determined by the dean's office; however, students may also obtain transfer credit on the basis of validating examinations. Arrangements for validating examinations must be made with the academic dean of Agriculture in the first term of enrollment in the College of Agriculture at Auburn and the examinations must be completed before the middle of the second term. Transfer credit for courses which are upper-division courses at AU will not be accepted from two-year colleges.

Pre-Veterinary Medicine and Pre-Professional

Curricula within the college enable students to complete requirements for admission to health related professional schools. It is possible to gain admission to colleges of veterinary medicine or other health-related professional schools after a student's third year of undergraduate studies. If students are admitted to a college of veterinary medicine or other professional program after the completion of their third year, they may obtain a Bachelor of Science degree in their selected degree program after successful completion of their first year in a college of veterinary medicine or other professional degree program and completion of all major (bolded) courses. The specific graduation requirements may be obtained from a program advisor or academic advisor for the college. The minimum requirements for admission to most colleges of veterinary medicine and other professional programs are incorporated in the first three years of the options listed under the following curricula: animal sciences, fisheries and allied aquacultures and poultry science. (See also the curriculum in Pre-Veterinary Medicine in the College of Science and Mathematics and College of Forestry, Wildlife and Environment).

Majors

- Agricultural Business & Economics (p. 214)
- Agricultural Communications (p. 278)
- Agricultural Science (p. 264)
- Animal Sciences — Animal Industries Option (p. 233)
- Animal Sciences — Pre-Veterinary & Animal Biosciences Option (p. 234)
- Applied Biotechnology (p. 249)
- Biological and Agricultural Technology Management (p. 242)
- Biosystems Engineering (p. 640)
- Biosystems Engineering — Bioprocess Engineering Option (p. 637)
- Biosystems Engineering — Ecological Engineering Option (p. 642)
- Biosystems Engineering — Forest Engineering Option (p. 639)
- Crop and Soil Sciences (p. 222)
- Crop and Soil Sciences — Turfgrass Option (p. 224)
- Environmental Science (p. 226)
- Fisheries, Aquaculture, and Aquatic Sciences — Fisheries and Aquaculture Option (p. 257)
- Fisheries, Aquaculture, and Aquatic Sciences — Marine Resources Management Option (p. 258)
- Fisheries, Aquaculture, and Aquatic Sciences — Pre-Professional Option (p. 259)
- Horticulture — Fruit and Vegetable Production Track (p. 266)
- Horticulture — Landscape Horticulture Track (p. 268)
- Horticulture — Nursery and Greenhouse Science Track (p. 269)
- Horticulture — Pre-Landscape Architecture Track (p. 270)
- Poultry Science — Production Option (p. 277)
- Poultry Science — Pre-Veterinary Medicine Option (p. 275)

Minors

- Agribusiness (p. 213)
- Agricultural Leadership Studies (p. 280)
- Animal Sciences (p. 232)
- Crop and Soil Sciences (p. 224)
- Entomology (p. 251)
- Fisheries, Aquaculture, and Aquatic Science (p. 256)
- Horticulture (p. 265)
- Natural Resources Economics and Environmental Policy (p. 215)
- Plant Pathology (p. 251)
- Poultry Science (p. 275)
- Rural and Community Development (p. 216)
- Stewardship-based Agriculture (p. 227)

Graduate Programs

- Agricultural Economics — MS, MAg (p. 1547)
- Animal Sciences — MS, MAg, PhD (p. 1550)
- Applied Economics —PhD (p. 1547)
- Bioproducts and Bioprocessing — Graduate Certificate (p. 1557)
- Biosystems Engineering — MS, PhD (p. 1558)
- Crop, Soil, and Environmental Sciences — Graduate Certificate, MS, MAg, PhD (p. 1576)
- Earth System Science — Interdisciplinary PhD Program (p. 1635)
- Entomology — MS, MAg, PhD (p. 1660)
- Fisheries, Aquaculture, and Aquatic Sciences — MAq, MS, PhD (p. 1664)
- Food Science — MAg, MS, PhD (p. 1666)
- Horticulture — Graduate Cerificate, MS, MAg, PhD (p. 1680)
- One Health — Graduate Certificate (p. 1729)
- Plant Pathology — MAg, MS, PhD (p. 1739)
- Poultry Science — MAg, MS, PhD (p. 1751)
- Rural Sociology — MS (p. 1759)
- Rural Studies — Graduate Certificate (p. 1760)

Agric Economics Courses

AGEC 1000 GLOBAL ISSUES IN FOOD, AGRICULTURE, DEVELOPMENT, AND ENVIRONMENT (3) LEC. 3. To expose students to global issues in food, agriculture, development, and natural resource/environmental economics and to learn about career opportunities in the field.

AGEC 3010 AGRIBUSINESS MARKETING (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Principles and problems of marketing farm and agribusiness products including marketing methods, channels, structures, and institutions. May count either AGEC 3010 or AGEC 3013.

AGEC 3050 FARM APPRAISAL (2) LEC. 2. Theory of land values; terminology, processes and procedures for alternative appraisal purposes; factors affecting value; and evaluation of appraisal methods.

AGEC 3080 FUTURES AND OPTIONS MARKETING (2) LEC. 2. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Functions, institutions, economic performance, and practices and procedures involved in utilizing futures and options markets to manage market price risks.

AGEC 3100 COMPUTER APPLICATIONS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. P/C STAT 2010 or P/C STAT 2017 or P/C STAT 2510 or P/C STAT 2513 or P/C STAT 2610 or P/C BUAL 2600. Analytical methods for agricultural economics: spreadsheet applications, optimization, regression, budgeting, and risk management.

AGEC 3200 QUANTITATIVE METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. (MATH 1680 or MATH 1610) and AGEC 3100. The course covers mathematical and econometric models for the quantitative analysis of problems in food, agricultural, development and resource/environmental economics.

AGEC 3300 AGRICULTURAL POLICIES AND TRADE (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Public policies affecting agriculture. Theory and significance of international trade, distribution of production and trade, issues and policies, and influence of exchange rates.

AGEC 3920 AGRICULTURAL BUSINESS AND ECONOMICS INTERNSHIP (1-3) INT. SU. Departmental approval. Practical experience with agricultural business firms and agencies including finance, farm supply, production, marketing and sales and government. Course may be repeated for a maximum of 6 credit hours.

AGEC 3950 CAREERS IN AGRICULTURAL BUSINESS AND ECONOMICS (1) LEC. 1. SU. To develop skills to find a job and learn about career opportunities in agricultural business and economics.

AGEC 4000 PRINCIPLES OF AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2027 or ECON 2023). Economics and business principles applied to agriculture: business formation, composing and analyzing financial statements, financial analysis and decision-making functions of management, capital budgeting and investment decisions. (Credit will not be given to majors in AGEC, ECON, or business).

AGEC 4040 AGRIBUSINESS FINANCE (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600). ECON 2020 or ECON 2023 or ECON 2027 with minimum grade of C. Economic problems and policies in financing agriculture.

AGEC 4047 HONORS AGRIBUSINESS FINANCE (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600). ECON 2020 or ECON 2023 or ECON 2027 with minimum grade of C. Economic problems and policies in financing agriculture.

AGEC 4070 AGRICULTURAL LAW (3) LEC. 3. Recognition of legal problems associated with property ownership, contracts, torts, financing, estate planning and environmental controls and restrictions.

AGEC 4100 AGRICULTURAL COOPERATIVES (2) LEC. 2. Principles and problems of organizing and operating farmers' cooperative buying and selling associations.

AGEC 4120 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS (3) LEC. 3. Economic principles related to common property, public goods, property rights, externalities and resource scarcity and allocation applied to current issues.

AGEC 4960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-2) IND. Departmental approval. Individual or group projects with a faculty member in agricultural economics or agribusiness. May include research, data analysis or a combination of these. Course may be repeated for a maximum of 4 credit hours.

AGEC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Membership in the Honors College required; Topics in agricultural economics. Course may be repeated for a maximum of 3 credit hours.

AGEC 4970 SPECIAL TOPICS IN AGRICULTURAL ECONOMICS (1-3) LEC. 1-3. Departmental approval. Topics of special interest in agricultural economics. May be repeated with change of topic. Course may be repeated for a maximum of 6 credit hours.

AGEC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

AGEC 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Directed research and writing of honors thesis. Course may be repeated for a maximum of 3 credit hours.

AGEC 5010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613) and (ECON 2020 or ECON 2023 or ECON 2027) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and AGEC 3100. ECON 2020 or 2023 or 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 5030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (STAT 2010 or STAT 2510 or STAT 2610 or BUAL 2600) and (MATH 1680 or MATH 1610) and ECON 3020. Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring. May count either AGEC 5030 or AGEC 6030.

AGEC 5090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc. May count either AGEC 5090 or AGEC 6090.

AGEC 5100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and AGEC 3100 and ACCT 2210 or ACCT 2217 or ACCT 2810 and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools. May count either AGEC 5100 or AGEC 6100.

AGEC 5210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 5100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.

AGEC 5250 BIG DATA FOR AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 3200. To expose students to essential tools for acquiring, managing, and visualizing large datasets in agribusiness.

AGEC 6010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (ECON 2020 or ECON 2023 or ECON 2027) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600 or BUAL 2603) and (ACCT 2110 or ACCT 2113 or ACCT 2117 or ACCT 2810 or ACCT 2813) and AGEC 3100. ECON 2020/ECON 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 6030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600 or BUAL 2603) and ECON 3020. Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring.

AGEC 6090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc.

AGEC 6100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2210 or ACCT 2217 or ACCT 2810) and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools.

AGEC 6210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 6100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610). Case studies, managerial economics.

AGEC 6250 BIG DATA FOR AGRIBUSINESS MANAGEMENT (3) LEC. 3. To expose students to essential tools for acquiring, managing, visualizing, and analyzing large datasets in agribusiness.

AGEC 7000 ADVANCED AGRICULTURAL AND ENVIRONMENTAL POLICY (3) LEC. 3. Pr. AGEC 6090 and (AGEC 3300 or AGEC 6030 or AGEC 5030). Food and farm problems and related governmental actions from historical, political and analytical viewpoints. Welfare economics and other procedures used to evaluate costs and benefits of existing and proposed governmental programs and actions affecting agriculture, environment and the consumer.

AGEC 7030 ADVANCED AGRICULTURAL PRICES (3) LEC. 3. Pr. AGEC 6030 and ECON 6020. Theory and measurement of farm supply, retail demand and marketing-margin relationships. Introduction to equilibrium-displacement modeling.

AGEC 7080 PRODUCTION ECONOMICS I (3) LEC. 3. Pr. ECON 6020. Resource allocation and efficiency of production in the firm, between firms, and between agriculture and other industries.

AGEC 7090 RESOURCE ECONOMICS II (3) LEC. 3. Pr. AGEC 6090. Analysis of institutional and economic factors affecting use of natural resources including economic feasibility/conservation, benefit-cost analysis, environmental controls and other interventions.

AGEC 7100 OPERATIONS RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Optimization techniques with emphasis on linear programming and its extensions applied to agriculture. General theoretical background and associated computational procedures are used for presentation of models and modeling techniques.

AGEC 7110 AGRICULTURAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Conceptual and empirical analysis of economic development with emphasis on the lesser developed areas and countries. Analysis of financial and technical aid to other countries case studies of development problems.

AGEC 7200 AQUACULTURAL ECONOMICS I (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Application of economic theories and principles to production, marketing, and consumption of aquacultural enterprises and products. Role of aquaculture in economic development.

AGEC 7590 INTRODUCTION TO AGRICULTURAL ECONOMETRICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and STAT 2610. Regression analysis in economic research. Model specification and estimation plus introduction to detection and correction of violations of assumptions of OLS. Hypothesis testing, dummy variables, heteroschedasticity, autocorrelation and measurement errors.

AGEC 7690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS I (3) LEC. 3. Pr. AGEC 7590. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course.

AGEC 7700 RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. ECON 7130 and AGEC 7590. Overview of the philosophy of science, detailed discussion of how various research tools are used to perform applied research in agricultural economics.

AGEC 7960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-3) AAB. Departmental approval required; Individualized direction/instruction by faculty on research, teaching and/or outreach issues. Course may be repeated for a maximum of 6 credit hours.

AGEC 7970 SPECIAL TOPICS IN AGRIC ECON (3) LEC. 3. Departmental approval. New topics in agricultural and applied economics.

AGEC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

AGEC 8060 THEORY OF AGRICULTURAL MARKETS (3) LEC. 3. Pr. AGEC 7590 and ECON 6020. Theory and methods for estimating complete demand systems (e.g., LES, Translog, ALIDS, and Rotterdam) for food products. Introduction to imperfect competition models.

AGEC 8080 PRODUCTION ECONOMICS II (3) LEC. 3. Pr. AGEC 7080. Firm-level economics problems are extended. Consideration of the influence of risk on firm behavior; empirical analysis of theoretical problems; welfare analysis; technical change; impacts of research investments.

AGEC 8090 FOOD AND AGRICULTURAL POLICY (3) LEC. 3. Pr. ECON 6020 or ECON 7000 or ECON 7110. The course will cover current issues in the economics and policies associated with food, food production and marketing.

AGEC 8690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS II (3) LEC. 3. Pr. AGEC 8310. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course. May count either AGEC 8310 or AGEC 8690.

AGEC 8890 TOPICS IN AGRICULTURAL MICROECONOMETRICS (3) LEC. 3. Pr. AGEC 8690. This course is meant to assimilate knowledge acquired throughout core coursework in the Agricultural Economics PhD program.

AGEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Agriculture Courses

AGRI 1000 INTRODUCTION TO AGRICULTURE (2) LEC. 1. LAB. 2. Provide information about the College of Agriculture and Alabama Agriculture. An emphasis will be placed on learning about the different departments in the college.

AGRI 1080 AGRICULTURAL COMMUNICATIONS (3) LEC. 3. Departmental approval. Introduction to agricultural communications and professional development as applied to the ag sector; overviews of common communication methods and possible careers.

AGRI 3000 AGRICULTURAL GENETICS (4) LEC. 3. LAB. 2. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Introductory understanding of the applications of genetics to agricultural and natural systems. Theoretical and practical knowledge of qualitative, quantitative, molecular, population, and biotechnological aspects of genetics will be developed.

AGRI 3800 LEADING PEOPLE AND TEAMS IN AGRICULTURE (3) LEC. 3. Course focuses on creating and leading high functioning teams in Agriculture.

AGRI 4000 AGRICULTURE STUDY ABROAD (1-10) AAB/FLD. Departmental approval. Study abroad programs with emphasis on agricultural topics. Credit awarded in consultation with departmental chair. Course may be repeated for a maximum of 10 credit hours.

AGRI 4920 INTERNSHIP IN AGRICULTURAL COMMUNICATION AND LEADERSHIP (1-3) INT. Departmental approval. Supervised, closely monitored work experience in agricultural communications or leadership. Course may be repeated for a maximum of 6 credit hours.

AGRI 4940 AGRICULTURAL COMMUNICATIONS CAPSTONE (3) LEC. 3. Pr. AGRI 1080. A capstone experience for the Agricultural Communications major that brings together the agricultural topics and communication techniques that have been developed throughout the course of the student's study.

AGRI 4970 SPECIAL TOPICS IN AGRICULTURAL COMMUNICATION AND LEADERSHIP (1-3) DSL. Departmental approval. Directed study in agricultural communications or leadership. Course may be repeated for a maximum of 6 credit hours.

AGRI 5010 ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc. Credit will be given for only one of either AGRI 5010, AGRI 5013, AGRI 6010, or AGRI 6016.

AGRI 5840 LEADING ORGANIZATIONAL AND COMMUNITY CHANGE IN AGRICULTURE (3) LEC. 3. Course designed for students who want to make meaningful change in agricultural organizations and communities. Focuses on leading organizations/communities to adapt and thrive. Credit will only be given for one of the following: AGRI 5840 or AGRI 6840.

AGRI 6010 ANALYSIS OF PLANT, SOIL & ANIMAL DATA (3) LEC. 3. Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc. Credit will be given for only one of either AGRI 5010, AGRI 5013, AGRI 6010, or AGRI 6016.

AGRI 6840 LEADING ORGANIZATIONAL AND COMMUNITY CHANGE IN AGRICULTURE (3) LEC. 3. Course designed for students who want to make meaningful change in agricultural organizations and communities. Focuses on leading organizations/communities to adapt and thrive. Credit will only be given for one of the following: AGRI 5840 or AGRI 6840.

AGRI 7080 ADVANCED ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. AGRI 5010 or AGRI 5013 or AGRI 6010 or AGRI 6016 or STAT 7000. Analysis of continuous, count, and binary data from randomized, paired, blocked, and split-plot experimental designs used in agricultural research. Use of statistical software and interpretation of results for applied agricultural research with plants, soils, and animals.

AGRI 7820 RESEARCH PROPOSAL WRITING (3) LEC. 3. Graduate level standing or Departmental approval. Experience in all aspects of writing and reviewing competitive research proposals through a workshop-format culminating in each student writing a proposal on research topics of their choosing. Fall.

Animal Sciences Courses

ANSC 1000 INTRODUCTION TO ANIMAL SCIENCES (4) LEC. 3. LAB. 2. The importance of livestock to agriculture and to the health and nutrition of a modern society. Livestock terminology, selection, reproduction, nutrition, management, marketing, and species characteristics of beef and dairy cattle, swine, sheep and horses.

ANSC 1050 INTRODUCTION TO EQUINE CARE AND USE (3) LEC. 2. LAB. 2. This course serves as an introductory course to the history, care, use, and enjoyment of horses. Students will learn the foundations of numerous topics of working with horses and how to handle horses safely and effectively.

ANSC 1100 ORIENTATION TO ANIMAL SCIENCES (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of the college experience. Breadth of career opportunities for animal science graduates.

ANSC 2000 COMPANION ANIMAL MANAGEMENT (3) LEC. 3. Practical aspects of behavior, nutrition, breeding, reproduction, health and management of dogs, cats and other animals generally considered to be human companions.

ANSC 2010 ANIMALS AND SOCIETY (3) LEC. 3. Ethical and scientific issues surrounding human-animal interactions and the role human-animal interactions play in modern society.

ANSC 2050 EQUINE BEHAVIOR AND TRAINING (3) LEC. 1. LAB. 4. Pr. ANSC 1050. This course is designed to teach students concepts of how equine behavior applies to training. Students will be exposed to a variety of training methods used in the equine industry.

ANSC 2100 DAIRY GOAT U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Dairy Goat U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2150 SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. SU. Departmental approval. Basic management and care of animals used in intercollegiate equestrian and rodeo sports. Must be affiliated with the NCEA Equestrian Team or IHSA Equestrian Team in current term. Course may be repeated for a maximum of 2 credit hours.

ANSC 2200 DAIRY U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Dairy U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2300 BEEF U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Beef U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2400 HORSE U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Horse U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2720 THE MEAT WE EAT (3) LEC. 3. Foundation course on the global meat industry with emphasis on meat products, modern processing techniques, concepts of food safety, sanitation, inspection, grading and meeting consumer demands.

ANSC 2910 PRACTICUM IN LIVESTOCK WELFARE AND MANAGEMENT (2) LAB. 6. Pr. ANSC 1000. Departmental approval. Hands-on laboratory teaching applied management of livestock species, including horses, cattle, swine and small ruminants, using modern equipment and techniques.

ANSC 3000 HERD HEALTH MANAGEMENT (3) LEC. 3. Pr. ANSC 1000. The prevention and control of the major diseases of farm animals and the development of herd health programs.

ANSC 3150 EQUINE MARKETING (3) LEC. 3. Pr. ANSC 1000 and (ECON 2020 or ECON 2023 or ECON 2027). Practical concepts of equine marketing including evaluating the horse, assessing the market, targeting customers, and presenting the horse.

ANSC 3300 INTRODUCTORY LIVESTOCK EVALUATION AND MARKETING (2) LAB. 6. Pr. ANSC 1000. Comprehensive study of live animal and carcass evaluation techniques used in the selection and marketing of beef cattle, swine and sheep. The development of decision-making oral communication skills is emphasized.

ANSC 3310 INTRODUCTION TO MEAT SELECTION AND GRADING (2) LAB. 4. Instruction for the evaluation of meat carcasses, cuts, and products from cattle, swine, sheep, and goats. Understanding and calculating meat yield and quality for each species, evaluation of valuable traits, understanding product specifications, and preparation of written reasons. This course is required for participation in the meat judging program but is open to all students.

ANSC 3400 ANIMAL NUTRITION (4) LEC. 3. LAB. 2. Pr. CHEM 1040 and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles and practice of animal nutrition, nutrient contents of feedstuff, and diet formulation.

ANSC 3410 ANIMAL METABOLISM AND NUTRITION (3) LEC. 3. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles of animal nutrition and nutrient metabolism and a study of nutrients and their utilization by animals.

ANSC 3420 APPLIED ANIMAL FEEDING AND NUTRITION (3) LEC. 2. LAB. 1. Pr. ANSC 3410. Feedstuffs, diet formulation, and feeding practices applicable to the well-being and performance of economically important livestock and companion animals.

ANSC 3500 ANIMAL BREEDING (3) LEC. 3. Pr. ANSC 1000 and (STAT 2510 or STAT 2513 or BIOL 3000 or BIOL 3003 or AGRI 3000). Genetic and environmental effects of animal differences. Selection and mating systems used in the improvement of domestic animals with an emphasis on livestock.

ANSC 3600 REPRODUCTIVE PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and BIOL 2510. Comparative anatomy, physiology and endocrinology of animal reproduction; principles of reproductive biotechnologies used to enhance reproductive efficiency in mammalian systems.

ANSC 3610 ANIMAL GROWTH AND DEVELOPMENT (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and (BIOL 1030 or BIOL 1037). Biology of prenatal and postnatal growth of meat animals, emphasizing muscle, adipose, and bone tissues from a molecular, cellular, endocrine perspective. Application of concepts to improve rate, efficiency, and composition of growth.

ANSC 3650 PHYSIOLOGY OF EQUINE ATHLETE (3) LEC. 3. Pr. ANSC 1000 and BIOL 2510. Selection and development of the horse for athletic performance; exercising, training, and fitness conditioning for performance horses.

ANSC 3700 MUSCLE FOODS (4) LEC. 3. LAB. 2. Pr. ANSC 1000. Introduction to domestic animal growth and development, comparative evaluation of livestock and carcass composition. Biochemical and physiological factors affecting fresh meat and processed meat quality. Fundamentals of ante-and postmortem muscle biology, slaughter, processing, storage and merchandising of meat and meat products.

ANSC 3760 VALUE BASED MARKETING OF LIVESTOCK (3) LEC. 2. LAB. 2. Livestock grading standards and their application to carcasses of meat producing animals, concepts and principles of marketing, advertising, promotion and sales of commercial livestock.

ANSC 3800 CAREERS IN ANIMAL SCIENCE (1) LEC. 1. SU. Career opportunities for animal science graduates. Identifying and investigating careers and presenting oneself professionally for employment or post-baccalaureate education.

ANSC 3840 STUDY/TRAVEL IN ANIMAL SCIENCE (1-10) AAB/FLD. Departmental approval. Concentrated study in animal production and management, equine science and the meats industry within the US or international locations. Course may be repeated for a maximum of 10 credit hours.

ANSC 4000 MODERN LIVESTOCK SYSTEMS (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of beef, dairy, swine and small ruminant production systems. Modern concepts, ideas, and methodology associated with the application of technology to reproduction, breeding, health, nutrition, waste nutrient utilization, and management.

ANSC 4010 BEEF PRODUCTION (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of the beef cattle industry. Modern concepts, ideas and methodology associated with the application of technology to reproduction, breeding, nutrition, management and the use of facilities in a modern beef cattle enterprise.

ANSC 4050 EQUINE PRODUCTION AND MANAGEMENT (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420 or ANSC 4450) and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, reproduction, selection, herd health, and management for efficient horse production.

ANSC 4150 ADVANCED SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. SU. Pr. ANSC 2150. Principles and skills utilized in intercollegiate equestrian and rodeo team competition and management. Issues affecting management, training, marketing, and promotion of animals used in equestrian and rodeo sports. Must be affiliated with the NCEA Equestrian Team or IHSA Equestrian Team in current term. Course may be repeated for a maximum of 2 credit hours.

ANSC 4300 ADVANCED LIVESTOCK JUDGING (1) LAB. 4. Departmental approval. Advanced course in principles and techniques of livestock selection based on visual criteria, performance records, and other advanced technologies. Course may be repeated for a maximum of 2 credit hours.

ANSC 4310 ADVANCED MEAT JUDGING (1) LAB. 4. Pr. ANSC 3310. Practice in evaluation and grading of beef, pork, and lamb carcasses and cuts. Development of communication skills and exposure to animal agriculture through training and intercollegiate competition. Course may be repeated for a maximum of 2 credit hours.

ANSC 4450 EQUINE NUTRITION (3) LEC. 2. LAB. 2. Pr. ANSC 3410 or ANSC 3400. Principles of digestive physiology, nutrition, and metabolic disorders unique to various classes of horses.

ANSC 4700 MEAT PROCESSING (4) LEC. 3. LAB. 3. Integration of topics in meat and non-meat ingredient chemistry and their applications to muscle food processing. Physical, chemical, and sensory properties of fresh and processed meat products.

ANSC 4800 ISSUES IN ANIMAL AGRICULTURE (2) LAB. 4. Pr. COMM 1000 or COMM 1003. Issues affecting animal agriculture, dealing with concerns of consumers and activists, involvement in public debate, and the political process.

ANSC 4810 PROFESSIONAL DISCOURSE IN AGRICULTURE (1) LAB. 2. Pr. COMM 1000 or COMM 1003. Methods for enhancing effective discourse concerning issues facing the livestock industry.

ANSC 4920 INTERNSHIP IN ANIMAL SCIENCES (2) INT. SU. Departmental approval. Practical experience in an animal agriculture industry. Course may be repeated for a maximum of 4 credit hours.

ANSC 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Students will work under the direction of staff members on specific problems. Course may be repeated for a maximum of 15 credit hours.

ANSC 4967 HONORS SPECIAL PROBLEMS (3-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

ANSC 4970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-4) IND. Instruction and discussion of selected current topics in Animal Sciences. Course may be repeated for a maximum of 4 credit hours.

ANSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ANSC 4997 HONORS THESIS (3-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

ANSC 5070 ANIMAL WELFARE (3) LEC. 3. Pr. (POUL 1000 or ANSC 1000) and (POUL 3150 or ANSC 3600 or ANSC 3410). This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

ANSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. Credit will only be given for one of the following courses: ANSC 5700 or ANSC 6700.

ANSC 6070 ANIMAL WELFARE (3) LEC. 3. This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

ANSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (3) LEC. 3. LAB. 0. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. Credit will only be given for one of the following courses: ANSC 5700 or ANSC 6700.

ANSC 7010 ADVANCED BEEF SYSTEMS (3) LEC. 3. Advanced study of contemporary beef cattle production systems, including principles of planning, resource management and financing plus integrated biology in areas of breeding and selection, reproduction, metabolism, nutritional physiology and growth, health and disease; integration of forage system biology, soil and forage management as related to performance and sustainability.

ANSC 7400 RUMINANT NUTRITION (3) LEC. 3. Digestive physiology, mechanisms of rumen fermentation, postruminal nutritional biochemistry.

ANSC 7410 NONRUMINANT NUTRITION (3) LEC. 3. Departmental approval. Digestion, absorption, and utilization of macro and micro nutrients, nutrient interrelationship in swine and other non-ruminant species.

ANSC 7610 PHYSIOLOGY OF GROWTH (3) LEC. 3. Pr. BCHE 7210. Molecular and cellular basis of tissue differentiation, growth and development with emphasis on muscle, adipose and connective tissues and factors influencing gene expression controlling such events.

ANSC 7700 MUSCLE FOODS AND APPLIED MUSCLE BIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 3700 and BCHE 7210. Investigations of muscle microanatomy, biochemistry of muscle proteins and lipids, biochemistry of skeletal muscle contraction, lipid/protein interactions, antemortem and postmortem factors affecting fresh and processed meat quality; discussion of classic and current scientific literature.

ANSC 7950 SEMINAR (1) LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.

ANSC 7960 SPECIAL PROBLEMS (1-5) DSL/LEC. Conference problems, assigned reading, literature searches in one or more of the following major fields; (a) biochemistry, (b) nutrition, (c) animal breeding, (d) reproductive physiology, (e) growth physiology, (f) muscle foods, (g) microbiology, and (h) behavior. Course may be repeated for a maximum of 15 credit hours.

ANSC 7970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-5) IND. Emerging topics in Animal Science and related industries. Course may be repeated for a maximum of 5 credit hours.

ANSC 7990 RESEARCH AND THESIS (1-15) MST. Research and thesis may be on technical laboratory problems or on problems directly related to beef and dairy cattle, sheep, swine, or laboratory animals. Course may be repeated with change in topics.

ANSC 8400 PROTEIN AND ENERGY METABOLISM (3) LEC. 3. Pr. BCHE 7210. Nutritional biochemistry of protein and energy metabolism of mammalian, avian and aquatic species. Concepts of protein turnover, nutrient-gene interactions, control of bioenergetics, nutritional assessment, nutritional quality of nutrient sources.

ANSC 8410 VITAMIN AND MINERAL METABOLISM (3) LEC. 3. Departmental approval. Vitamin and mineral nutrition with emphasis on chemical structures and characteristics, metabolic functions, deficiencies and toxicity syndromes, interrelationships and requirements of vitamins and minerals.

ANSC 8950 DOCTORAL SEMINAR (1) LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.

ANSC 8990 DOCTORAL RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topics.

Applied Biotechnology Courses

APBT 1000 INTRODUCTION TO APPLIED BIOTECHNOLOGY (1) LEC. 1. Introduction to the field of biotechnology including key concepts from biology, chemistry, and physics, and career opportunities.

APBT 2950 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Development of professional skills required for modern careers in entomology, plant pathology and applied biotechnology.

APBT 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH (1-4) IND/RES. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

APBT 3100 METHODS OF SYNTHETIC BIOLOGY (4) LEC. 2. LAB. 5. Pr. (BIOL 1030 or BIOL 1037) and APBT 1000. This course provides an overview of the basic cellular processes harnessed by synthetic biology and biotechnology. It also provides an introduction to recombinant DNA and its applications. It combines lectures with labs to provide hands-on experience with molecular techniques, DNA cloning, heterologous protein expression, and methodologies used to engineer organisms.

APBT 4100 APPLIED BIOTECHNOLOGY (4) LEC. 2. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and (BIOL 3000 or BIOL 3003 or AGRI 3000) and APBT 3100. or instructor's approval. Principle and up-to-date advances of genetic modification of organisms; its practices and influences in a broad range of basic and applied sciences which have revolutionized "mean" of sustainable agriculture.

APBT 4920 INTERNSHIP (3) LEC. 3. SU. Pr. APBT 1000. Practical professional experience under the supervision of internship faculty and/or representatives of state, federal or private agency.

APBT 4980 UNDERGRADUATE RESEARCH (1-4) LAB. 2-8. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

APBT 5660 FIGURE FUNDAMENTALS : SCIENTIFIC ILLUSTRATION (3) LEC/STU. 1. Scientific illustration and data visualization implemented through the Adobe creative cloud package. May count either APBT 5660, ENTM 5660, or ENTM 6660.

APBT 5800 OMICS IN AGRICULTURE (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 3000 or AGRI 3000. This course will introduce students to the recent advances in high-throughput technologies such as genomics, transcriptomics, metagenomics, metabolomics, phenomics, modeling, and digital agriculture and how these technologies can be applied to tackling new and old problems in agriculture and human health. Students will be able to gain hands-on experience in analyzing and interpreting datasets obtained using these technologies.

APBT 5820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Pr. STAT 2510. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

Bio Ag Technology Management Courses

BATM 1110 INTRODUCTION TO TECHNOLOGY DESIGN (3) LEC. 2. LAB. 3. Introduction to the design process, 2D and 3D parametric solid modeling, and both manual and automated fabrication processes.

BATM 2110 DIGITAL ANALYTICS IN AGRICULTURE AND TECHNOLOGY (3) LEC. 2. LAB. 1. Pr. BATM 1110 or BIOP 2120. An introduction to creative and analytical methods to solve technological problems. Define the problem, explore strategies, select and implement solutions, and evaluate results.

BATM 3100 COMPUTER AIDED DESIGN TECHNOLOGY (3) LEC. 2. LAB. 1. Introductory course in computer aided design (CAD) and land mapping. Students gain competence in CAD operations used to fabricate parts and to develop field- and watershed-scale maps. Class and project topics include drawing for mechanical part fabrication and scale mapping for construction site development and agricultural field management. Must be in Junior standing Course may be repeated for a maximum of 6 credit hours.

BATM 3110 AG TECHNOLOGY GEOSPATIAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 1110 and (PHYS 1500 or PHYS 1600). Geospatial applications for agricultural land resource management. Course introduces equipment and practices used in conventional land surveying and geospatial mapping as they interface with global positioning systems (GPS), geographic information systems (GIS), and computer-aided design (CAD).

BATM 3500 NATURAL RESOURCE SYSTEMS CONSERVATION (3) LLB. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680) and (PHYS 1500 or PHYS 1600). Natural resource conservation technologies including rainfall-runoff relationships, sediment transport capacity, runoff control structures, water supply development, surveying techniques including GPS methods.

BATM 3510 AGRICULTURAL POWER AND MACHINERY FUNDAMENTALS (3) LLB. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680) and (PHYS 1500 or PHYS 1600). Power unit fundamentals with emphasis on diesel and small gasoline engines; mechanics of operation, safety, use, and adjustment of machines used for horticultural and agronomic crop production; and precision agriculturr principles and technology.

BATM 3530 AGRICULTURAL PRODUCTION AND PROCESSING FACILITY TECHNOLOGY (3) LEC. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680. Fundamental requirements for the design and operation of agricultural production and processing facilities.

BATM 3560 TURF SYSTEMS IRRIGATION DESIGN (3) LEC. 3. Pr. MATH 1120 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680. Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.

BATM 4100 PROFESSIONAL PRACTICE IN TECHNOLOGY MANAGEMENT (2) LEC. 1. LAB. 3. Pr. BATM 5110. First in the two-course capstone experience. This course focuses on professional topics that prepare students for technical careers; teamwork, communication, standards and codes, economics, project and time management. Teams initiate the capstone design project.

BATM 4110 TECHNOLOGY CAPSTONE (3) LEC. 1. LAB. 6. Pr. BATM 4100. Development and evaluation of a team-based capstone project using tools from the technology curriculum; emphasizing communication, critical thinking, and technical and economic analyses.

BATM 4960 SPECIAL PROBLEMS IN AGRICULTURAL TECHNOLOGY MANAGEMENT (3-6) IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biological and agricultural technology management. May be repeated with change in problem. Course may be repeated for a maximum of 6 credit hours.

BATM 4970 SPECIAL TOPICS IN AGRICULTURAL TECHNOLOGY MANAGEMENT (3) LLB. Departmental approval. Investigation of current issues in biological and agricultural technology management. Course may be repeated for a maximum of 6 credit hours.

BATM 4980 UNDERGRADUATE RESEARCH (3) LLB. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BATM 5110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 2110 and (PHYS 1500 or PHYS 1600). An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 5120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 5110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 5130 PRECISION AG TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. BATM 3510. An overview of the principles of precision agriculture with focus on prescriptive agriculture and the ability to effectively execute input management plans using today's technologies. Course material and discussions will include how technologies such as GPS, agricultural GIS, sensors for qualitative and quantitative measurement of soil and plant variables, variable-rate technology are being implement with data informing sub-field level management and subsequent farm business decisions.

BATM 5140 COMMERCIAL POULTRY & LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. Pr. STAT 2510. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BATM 5150 DRONE TECHNOLOGIES IN AGRICULTURAL AND BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 and PHYS 1500. Drone or Unmanned Aerial Vehicles (UAV) technologies and the data generated from these systems are being utilized in agricultural, biological and natural resource systems. Topics will include UAV types, sensors and application systems for drones, sensor resolution and calibration, flight and mission planning techniques. Image and date collection techniques, analysis, interpretation and decision making, generation of prescriptive maps, and other emerging drone technologies.

BATM 5550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1000 or PHYS 1003 or PHYS 1007 or PHYS 1500 or PHYS 1600 or PHYS 1607). Engineering concepts and unit operations used in processing food products. Fall.

BATM 6110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Departmental approval. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 6120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 6110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 6130 PRECISION AG TECHNOLOGY (3) LEC. 2. LAB. 3. An overview of the principles of precision agriculture with focus on prescriptive agriculture and the ability to effectively execute input management plans using today's technologies. Course material and discussions will include how technologies such as GPS, agricultural GIS, sensors for qualitative and quantitative measurement of soil and plant variables, variable-rate technology are being implement with data informing sub-field level management and subsequent farm business decisions.

BATM 6140 COMMERCIAL POULTRY AND LIVESTOCK HOUSING (3) LEC. 2. LAB. 1. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BATM 6150 DRONE TECHNOLOGIES IN AGRICULTURAL AND BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Drone or Unmanned Aerial Vehicles (UAV) technologies and the data generated from these systems are being utilized in agricultural, biological and natural resource systems. Topics will include UAV types, sensors and application systems for drones, sensor resolution and calibration, flight and mission planning techniques. Image and date collection techniques, analysis, interpretation and decision making, generation of prescriptive maps, and other emerging drone technologies.

BATM 6550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133) and (PHYS 1000 or PHYS 1003 or PHYS 1007). Engineering concepts and unit operations used in processing food products. Fall.

Crop, Soil, Environ Sciences Courses

CSES 1010 SOILS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Practical applications of important soil properties and their function in everyday life. Connections between soils and human life will be made. topics include food security, sustainable agricultural production, soil and water quality, and waste disposal.

CSES 1020 CROPS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Essential role of crop plants to human life. Topics will include historical development of crop science, impact of crop science on human development, and major issues and problems facing modern crop science and technology.

CSES 2000 BASIC CROP SCIENCE (4) LEC. 3. LAB. 2. Agronomic principles of classification, growth, structure, and soil-plant relationship of field crops, with emphasis on influence of man and environment, and importance of crop production.

CSES 2040 BASIC SOIL SCIENCE (4) LEC. 3. LAB. 2. Pr. (CHEM 1010 and CHEM 1011) or (CHEM 1030 and CHEM 1031) or (CHEM 1110 and CHEM 1111) or (CHEM 1117 and CHEM 1118) or (CHEM 1033 and CHEM 1031). Formation, classification, properties, management, fertility and conservation of soils in relation to the growth of plants. Fall, Spring.

CSES 2910 TURFGRASSES: USES AND CARE FOR SPORTS AND LEISURE (2) LEC. 2. Introduction to the commonly used turfgrasses of the southeastern United States including of these turfgrasses for gold courses, athletic fields and home lawns will be included. This course may not be substituted for CSES 3150.

CSES 3120 PRINCIPLES OF WEED SCIENCE (4) LEC. 3. Pr. CSES 2040 or AGRN 2040 and (BIOL 1020 or BIOL 1027). Weed identification and biology, methods of weed management and classification of herbicides and how they are used in weed control. Laboratory subjects are weed identification and sprayer calibration. Fall.

CSES 3150 TURFGRASS MANAGEMENT (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or AGRN 2040) and (BIOL 1020 or BIOL 1027). The management of recreational and home area turfgrass will be studied including establishment and maintenance of turf and the effect of light, traffic, soil fertility and water on its growth. Fall, Spring.

CSES 3200 APPLIED TURF MANAGEMENT (3) LEC. 1. LAB. 4. Pr. P/C CSES 3150 or AGRN 3150. Familiarize students with the operation and maintenance of the equipment used for turfgrass maintenance. Effects on turfgrass performance will also be covered.

CSES 3300 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. (P/C CSES 2000) or (BIOL 1020). Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 3400 SUSTAINABLE MANAGEMENT OF TROPICAL SOILS (3) LEC. 3. LAB. 0, AAB/LEC. 0. This course explores the unique characteristics of tropical soils, focusing on their genesis, and physical, chemical, and biological properties. Students will learn to apply sustainable management practices that enhance soil health and productivity in tropical environments. The course integrates scientific principles with practical approaches to address challenges in soil conservation and agricultural sustainability in tropical regions.

CSES 3920 INTERNSHIP (3) INT. 3. Practical experience under the the supervision of an approved employer and the department. Internship may be in the areas of production, business, turf or science. Course may be repeated for a maximum of 6 credit hours.

CSES 3960 SPECIAL PROBLEMS (2) LAB. 2. Departmental approval. Individual and group problems investigations in crop, soil or weed science. Course may be repeated for a maximum of 4 credit hours.

CSES 3970 SPECIAL TOPICS (3) AAB/ST1. 3. New topics in agronomy and soils. Course may be repeated for a maximum of 6 credit hours.

CSES 4100 CROPS JUDGING (2) LEC. 1. LAB. 2. Departmental approval. Crops Judging is a course designed to prepare students for the national Crops Judging contest held at the Students of Agronomy, Soils and Environmental Sciences annual meeting. Students will learn practical knowledge to diagnose in-field agronomic problems such as crop nutrient deficiencies, disease damage, insect damage, weed pressure, herbicide injury, and soil management issues. Students must participate in the Crops Judging Contest at the SASES meeting in the semester the class is taken. Course may be repeated for a maximum of 6 credit hours.

CSES 4200 SOIL JUDGING (2) LEC. 1. LAB. 4. Description, evaluation and interpretation of soil-profile characteristics. Fall. Course may be repeated for a maximum of 8 credit hours.

CSES 4210 ADVANCED SOIL JUDGING (2) LEC. 1. LAB. 2. Pr. CSES 4200 or AGRN 4200. Advanced description, evaluation, and interpretations of soil-profile characteristics. Spring. Course may be repeated for a maximum of 8 credit hours.

CSES 4300 TURFGRASS COMPETITIONS (2) LEC. 1. LAB. 2. Departmental approval. The class is a comprehensive overview of practical turfgrass management in preparation for student competitions organized by the Sports Field Managers Association 9SFMA Student Challenge)and the Golf Course Superintendents Association of America (Turf Bowl). Students will compete in one or both of these contests during the semester following successful completion of the course. Course may be repeated for a maximum of 6 credit hours.

CSES 4950 SENIOR SEMINAR (2) LEC. 2. This course will cover professional presentations, both oral and written, in the area of Agronomy and Soils.

CSES 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

CSES 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

CSES 5000 ENVIRONMENTAL QUALITY (3) LEC. 3. Role of global land use in biogeochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 5010 ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. MATH 1130 or STAT 2510. Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 5020 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 5030 ADVANCED CROP SCIENCE (3) LEC. 3. Pr. (CSES 1000 or CSES 1003 or CSES 2000) or (AGRN 1000 or AGRN 1003 or AGRN 1007) or (AGRN 2040 or AGRN 2043) and (CSES 2040 or CSES 2043) and (BIOL 1030 or BIOL 1037). Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030.

CSES 5060 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Pr. BIOL 3200. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 5061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 5060 or P/C CSES 5063) or (P/C AGRN 5060 or P/C AGRN 5063). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 5080 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 5080 Summer. CSES 5083 Fall.

CSES 5100 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 5110 PLANT BREEDING I (3) LEC. 3. Pr. CSES 3300 or BIOL 3000 or BIOL 3003 or AGRI 3000. Fundamental principles and theories utilized in the science of plant breeding and cultivar development and the role breeding plays in crop improvement.

CSES 5120 PLANT BREEDING II (3) LEC. 3. Pr. CSES 5110. Review and contrast how major crop species breeding strategies are determined. Emphasis on integration of traditional methodologies with modern genetic and genomic technologies.

CSES 5150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 5160 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 5200 APPLIED WEED SCIENCE TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. CSES 3120 or AGRN 3120. Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 5230 DRONES FOR CROP PRODUCTION (3) LEC. 2. LAB. 2. Pr. (CSES 2000) and (CSES 2040). Use of drone technology for crop production including applications of pesticides and fertilizers, planting cover crops, and capturing remote imagery to monitor plant health and make crop management decisions. Department approval.

CSES 5240 CROP PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 or HORT 3000. Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed. Credit will only be given for one of the following: CSES 5240 or CSES 6240.

CSES 5250 AQUATIC SEDIMENTS (4) LEC. 3. LAB. 1. An overview of sediments in aquatic environments with a focus on the biogeochemistry, storage capacity, and use in paleoenvironmental reconstruction.

CSES 5300 SOIL CHEMISTRY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 5400 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 5500 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops. Spring. May count either CSES 5500 or CSES 5503.

CSES 5590 ENVIRONMENTAL SOIL PHYSICS AND VADOSE ZONE HYDROLOGY (4) LEC. 3. LAB. 2. Pr. CSES 2040. Explore the dynamic interplay of soil physical properties and vadose zone hydrology in this comprehensive environmental soil physics course. Delve into the intricate mechanisms governing the movement of water, chemicals, heat, and gases through soils within diverse ecosystems, including agricultural, urban, and natural landscapes. Uncover the complexities of the soil-plant-atmosphere continuum and gain hands-on experience with field instrumentation for precise measurement and assessment of soil physical properties.

CSES 5800 CLIMATE, WATER, AND LIFE (3) LEC. 3. LAB. 0. The course will introduce essential hydroclimate processes and phenomena, and their impacts on water resources, food and agriculture, and ecosystems. Major topics include climate variability and change, radiation, temperature, humidity, precipitation, land surface energy and water fluxes, their linkages with plants and humans, and climate hazards and resiliency.

CSES 5960 SPECIAL PROBLEMS (1-3) IND. Work under the direction of a staff member on special problems in crop, soil or weed science. Course may be repeated for a maximum of 6 credit hours.

CSES 6000 ENVIRONMENTAL QUALITY (3) LEC. 3. Role of global land use in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 6010 ANALY PLANT, SOIL & ANI DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 6020 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 6030 ADVANCED CROP SCIENCE (3) LEC. 3. Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030/CSES 6030 or CSES 5033/CSES 6036.

CSES 6060 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 6061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 6060 or P/C CSES 6066) or (P/C AGRN 6060 or P/C AGRN 6066). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 6080 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 6080 Summer. CSES 6086 Fall.

CSES 6110 PLANT BREEDING I (3) LEC. 3. Fundamental principles and theories utilized in the science of plant breeding and cultivar development and the role breeding plays in crop improvement.

CSES 6120 PLANT BREEDING II (3) LEC. 3. Pr. CSES 6110. Review and contrast how major crop species breeding strategies are determined. Emphasis on integration of traditional methodologies with modern genetic and genomic technologies.

CSES 6150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 6160 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (BIOL 3100 or BIOL 6130) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 6200 APPLIED WEED SCIENCE TECH (3) LEC. 2. LAB. 2. Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 6230 DRONES FOR CROP PRODUCTION (3) LEC. 2. LAB. 2. Use of drone technology for crop production including applications of pesticides and fertilizers, planting cover crops, and capturing remote imagery to monitor plant health and make crop management decisions. Department approval for undergraduate version.

CSES 6240 CROP PHYSIOLOGY (3) LEC. 3. Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed. Credit will only be given for one of the following: CSES 5240 or CSES 6240.

CSES 6250 AQUATIC SEDIMENTS (4) LEC. 3. LAB. 1. An overview of sediments in aquatic environments with a focus on the biogeochemistry, storage capacity, and use in paleoenviromental reconstruction.

CSES 6300 SOIL CHEMISTRY (4) LEC. 2. LAB. 4. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 6400 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 6500 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Pr., In major or departmental approval. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops and (d) energy crops. May count either CSES 6500 or CSES 6506.

CSES 6590 ENVIRONMENTAL SOIL PHYSICS AND VADOSE ZONE HYDROLOGY (4) LEC. 3. LAB. 2. Pr. CSES 2040. Explore the dynamic interplay of soil physical properties and vadose zone hydrology in this comprehensive environmental soil physics course. Delve into the intricate mechanisms governing the movement of water, chemicals, heat, and gases through soils within diverse ecosystems, including agricultural, urban, and natural landscapes. Uncover the complexities of the soil-plant-atmosphere continuum and gain hands-on experience with field instrumentation for precise measurement and assessment of soil physical properties.

CSES 6800 CLIMATE, WATER, AND LIFE (3) LEC. 3. The course will introduce essential hydroclimate processes and phenomena, and their impacts on water resources, food and agriculture, and ecosystems. Major topics include climate variability and change, radiation, temperature, humidity, precipitation, land surface energy and water fluxes, their linkages with plants and humans, and climate hazards and resiliency.

CSES 6900 DIRECTED STUDIES (1-3) DSL/LEC. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6930 ADVANCED DIRECTED STUDIES (1-3) DSL/LEC. SU. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6960 SPECIAL PROBLEMS (1-3) DSL/IND. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 7080 EXPERIMENTAL METHODS (3) LEC. 3. Pr. STAT 7000. Experimentation in the agricultural sciences including experimental techniques, interpretation of research data, use of library references, and preparation of publications. Problems, assigned readings and lectures. Summer.

CSES 7100 AGINFORMATICS: COMPUTATIONAL THINKING FOR AGRICULTURE (3) LEC. 2. LAB. 2. Computer programming for applied sciences. Focus on the Python programming language and utilization of the Unix command line. Python programming from basics of control structures to object-oriented programming. Course will cover script development using integrated development environments and accessing data via APIs. Course will cover the command line interface and introduction to Bash scripting.

CSES 7120 PLANT GENOMICS (3) LLB. Hands-on bioinformatics of complex plant genomes, including assembly and annotation. Writing- and bioinformatics-intensive course that culminates in a plant genome manuscript. Fall.

CSES 7140 CHEMISTRY AND USE OF HERBICIDES IN CROP PRODUCTION (4) LEC. 3. LAB. 2. Pr. CHEM 1040. Principles and use of herbicides in agronomic crops. Methods of herbicide application, including time, incorporation and formulation, the fate of herbicides in soil and the ecological impact on succeeding plant species. Fall.

CSES 7160 GENETIC DATA ANALYSIS (3) LEC. 3. Pr. (CSES 5100 or CSES 5103) or (CSES 6100 or CSES 6106) and STAT 4020 or (AGRN 5100 or AGRN 5103) or (AGRN 6100 or AGRN 6106). Introduces procedures to study the genetic characteristics of individuals and populations. Computer models will be used to simulate genomes and traits. Application of quantitative methods to experimental populations used to plan breeding programs. Fall.

CSES 7170 ADVANCED PLANT BREEDING (3) LEC. 3. Pr. CSES 7160 or (AGRN 7160 or AGRN 7166). Estimation and interpretation of genetic variance components, heritability, selection response, yield stability indices and their effect on choice of breeding method. Recurrent selection theory and breeding for resistance to plant stresses.

CSES 7180 SUSTAINABLE AGROECOLOGY (3) LEC. 3. Pr. (BIOL 6130 or CSES 7250) or (AGRN 7250 or AGRN 7256) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). The study of interactions between crops and abiotic and biotic environments. Emphasis is placed on quantitatively examining theory and principles for production, stability and sustainability of agricultural ecosystems. Graduate standing in CSES or departmental approval

CSES 7200 WEED BIOLOGY AND ECOLOGY (4) LEC. 3. LAB. 2. Students will learn a broader understanding of and appreciation for the biology and bionomics of agricultural weeds and invasive species, relevant analytical tools, and the application of ecological concepts for sustainable weed management in agricultural and natural systems.

CSES 7270 QUANTITATIVE GENETICS IN PLANT BREEDING (3) LEC. 3. Quantitative and population plant genetics and their interrelationship with plant breeding. Genetic and environmental variation and how they relate to selection procedures and choice of type of variety. Predictive plant breeding. QTL discovery, molecular breeding, and genomic selection in an applied breeding program.

CSES 7540 PRINCIPLES OF PLANT NUTRITION (3) LEC. 3. Pr. CSES 6020 or CSES 6026 or (AGRN 6020 or AGRN 6026). Processes of nutrient flux to plant roots growing in soil. Chemistry and properties of soil in relation to the nutrition and growth of plants. Summer.

CSES 7600 AGROCLIMATOLOGY (3) LEC. 3. The relationships between climatological processes and agriculture, including precipitation, evapotranspiration, meteorological hazards, irrigation and drainage, crop development, climate data acquisition and analysis, crop-weather models, and impacts of global climate change. May count either CSES 7600 pr CSES 7606.

CSES 7670 SPECIAL TOPICS (1-4) DSL/LEC. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7800 DEEP LEARNING FOR ENVIRONMENTAL SCIENCES (3) LEC. 2. LAB. 2. The course will cover concepts and applications of deep learning for environmental sciences. The goal is to understand the concepts and applications of deep learning methods in environmental sciences, formulate relevant environmental, climate, and earth system science problems, and how to use these methods for understanding and developing creative solutions to these problems.

CSES 7950 SEMINAR (1) DSL/SEM. 1. SU. Required of all graduate students in Agronomy and Soils. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

CSES 7970 SPECIAL TOPICS (1-4) LEC. 1-4, LAB. 1-4. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7990 RESEARCH AND THESIS (1-10) DSL/MST. Research and thesis on problems in the soil and crop sciences. Course may be repeated with change in topics.

CSES 8570 PHYSICAL SOIL CHEMISTRY (3) LEC. 3. Pr. (CSES 6300 or CSES 6306) and CHEM 6070 or (AGRN 6300 or AGRN 6306). Interpretation of soil properties and chemical reactions in terms of ion exchange, solubility diagrams, solutions equilibria, electrochemistry and electrokinetics of charged particles. Fall.

CSES 8580 FATE AND TRANSPORT OF CHEMICALS IN SOILS (3) LEC. 3. Pr. MATH 1720 and (PHYS 1600 or PHYS 1607) and CSES 7590. Transport phenomena in soils. Physical principles and analysis of the storage and movement of water, solutes, heat, and gases in soils. Spring.

CSES 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and dissertation on problems in the soil and crop sciences. Course may be repeated with change in topics.

Entomology Courses

ENTM 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

ENTM 2040 INSECTS: AN INTRODUCTION TO ENTOMOLOGY (3) LEC. 3. Life processes, importance, and occurrence of insects.

ENTM 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH (1-4) IND/RES. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENTM 3040 GENERAL ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Introduction to the biology and diversity of insects. An insect collection is required.

ENTM 4020 ECONOMIC ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Consideration of the biological aspects, life histories and control of insects.

ENTM 4920 ENTOMOLOGY INTERNSHIP (5) INT. 5. SU. Practical professional experience under the supervision of internship faculty and/or representatives of state, federal or private agency.

ENTM 4960 SPECIAL PROBLEMS IN ENTOMOLOGY (1-3) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 3 credit hours.

ENTM 4980 UNDERGRADUATE RESEARCH (1-4) LAB. 2-8. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENTM 5120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 1. Pr. (BIOL 1030 or BIOL 1037) and (ENTM 3040 or ENTM 4020). Survey of insects, ticks, and mites of medical or veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 5220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Ecological interactions of insects and their environment, with emphasis on is herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 5300 INSECT DIVERSITY (4) LEC. 3. LAB. 1. Pr. ENTM 3040 or ENTM 4020. Survey of the biodiversity of insects, stressing taxon diagnostics.

ENTM 5330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

ENTM 5360 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 5370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 5500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 5660 FIGURE FUNDAMENTALS : SCIENTIFIC ILLUSTRATION (3) LEC/STU. 1. Scientific illustration and data visualization implemented through the Adobe creative cloud package. May count either ENTM 5660, APBT 5660, or ENTM 6660.

ENTM 5700 VECTOR ENTOMOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

ENTM 5820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Pr. STAT 2510. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

ENTM 5920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

ENTM 6120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Survey of insects, ticks, and mites of veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 6220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Departmental approval. Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 6300 INSECT DIVERSITY (4) LEC. 3. LAB. 1. Pr. ENTM 3040 or ENTM 4020. Survey of the biodiversity of insects, stressing taxon diagnostics.

ENTM 6330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

ENTM 6360 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 6370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 6440 INSECT MORPHOLOGY (5) LEC. 3. LAB. 6. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Comparative external anatomy and generalized internal structures of insects. Characteristics used in taxonomy will be emphasized. Credit will not be given for both ENTM 5440 and ENTM 6440.

ENTM 6500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 6660 FIGURE FUNDAMENTALS : SCIENTIFIC ILLUSTRATION (3) LEC. 2, LST. 1. Scientific illustration and data visualization implemented through the Adobe creative cloud package. May take either ENTM 5660, APBT 5660, or ENTM 6660.

ENTM 6700 VECTOR ENTOMOLOGY (3) LEC. 3. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

ENTM 6820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

ENTM 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

ENTM 7100 GENERAL TOXICOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 and CHEM 2030. Departmental approval. History, mechanism of action, metabolism, and structure activity relationship of natural and synthetic insecticides. Contemporary laboratory techniques in toxicology will be featured.

ENTM 7200 INSECT PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Departmental approval. Introduction to insect physiology stressing structure and function of each organ system. Methods used in physiological research will be emphasized.

ENTM 7230 PRACTICAL EVOLUTION (3) LEC. 3. Pr. BIOL 5800 or BIOL 6800. Students will learn evolutionary biology by making it happen, that is, by building and running simulation models. They will also learn of opportunities to apply evolutionary theory to practical problems in agriculture, public health and conservation.

ENTM 7900 DIRECTED STUDIES IN ENTOMOLOGY I (1-5) LEC. SU. Discussion groups on specific topics, assigned readings, on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

ENTM 7950 SEMINAR (1) SEM. 1. SU. Presentation and discussion of scientific literature of thesis research findings. Required of all M.S. candidates.

ENTM 7960 SPECIAL PROBLEMS IN ENTOMOLOGY (1-4) LAB. 2-8. Departmental approval. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

ENTM 7990 RESEARCH AND THESIS (1-10) MST. Topics may focus on technical laboratory problems or field research related to arthropod biology. Admission to the M.S. Program. Course may be repeated with change in topics.

ENTM 8900 DIRECTED STUDIES IN ENTOMOLOGY II (5) LEC. 5. Discussion groups on specific topics, assigned reading on laboratory problems or field research.

ENTM 8910 TEACHING PRACTICUM (1) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

ENTM 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Pr. ENTM 3040 and ENTM 4020 or (PLPA 3000 or PLPA 3003). Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

ENTM 8950 SEMINAR (1) LEC. 1. SU. Presentation and discussion of scientific literature or dissertation research findings. Required of all Ph.D. students.

ENTM 8960 ADVANCED SPECIAL PROBLEMS IN ENTOMOLOGY (1-4) LAB. 2-8. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

ENTM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Admission to the Ph.D. Program. Course may be repeated with change in topics.

Environmental Science Courses

ENVI 1010 INTRODUCTION TO ENVIRONMENTAL SCIENCE (1) LEC. 1. Introduction to the environmental science field and the ENVI major. Course may be repeated for a maximum of 3 credit hours.

ENVI 1020 FUNDAMENTALS OF ENVIRONMENTAL SCIENCE (3) LEC. 3. Preference given to students for whom the course is required. Survey of fundamental concepts, issues, and concerns related to environmental science.

ENVI 1030 ENVIRONMENT AND LIFE (4) LEC. 3. LAB. 3. This course is a lecture/lab course integrating principals of basic science with the impacts of humans on the environment. Topics will include population dynamics, land use change, energy, pollution, water availability, climate, human-environment interactions, biodiversity environmental policy, and sustainability. The laboratory component of the class will challenge students to observe phenomena in the world around them, construct and test hypotheses, and draw conclusions on the management and solutions to environmental problems in the world today.

ENVI 3000 INTRODUCTION TO STREAM RESTORATION (4) LEC. 2. LAB. 4. Introduction to concepts necessary for stream restoration design, construction, and maintenance and how they relate to the physical, chemical and biological processes of streams. Students will participate in research associated with stream restoration by assessing steam stability and classifying streams.

ENVI 4000 ENVIRONMENTAL REGULATION AND MANAGEMENT APPLICATIONS (3) LEC. 3. Pr. ENVI 1010 and ENVI 1020. This course provides an introduction to and overview of how municipal, state and federal regulations and programs are used in environmental management. The spectrum and development of environmental requirements, responsibilities, and direct applications as to the release of pollutants to air, soil and water are explored.

ENVI 4950 ENVIRONMENTAL SCIENCE SENIOR SEMINAR (2) LEC. 2. Pr. (ENGL 1120 or ENGL 1127) and ENVI 1010 and ENVI 1020. Departmental approval. This course will cover oral and written professional presentations, assessment of students in the ENVI major via standardized testing, and student assessment via exit surveys.

ENVI 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENVI 5100 CLIMATE CHANGE IMPACTS (3) LEC. 3. An overview of climate change for the non-climate scientist, how climate change affects global environments (forests, oceans, lakes, coasts, agriculture) in recent time periods and how historic records are used to study past climate change impacts.

ENVI 5200 ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN ENVIRONMENTAL SCIENCE (4) LEC. 3. LAB. 2, LLB. 0. Pr. (STAT 2510 or STAT 2513) and (MATH 1610 or MATH 1613 or MATH 1617). This course introduces environmental science students to the basics of artificial intelligence (AI) and machine learning (ML) and their applications in environmental science. Students will learn how to use AI/ML tools to analyze large and complex environmental data sets, make predictions, and identify patterns that are not visible to the naked eye. Students will become familiar with the potential and limitations of AI/ML in environmental science and what ethical considerations should be made.

ENVI 6100 CLIMATE CHANGE IMPACTS (3) LEC. 3. An overview of climate change for the non-climate scientist, how climate change affects global environments (forests, oceans, lakes, coasts, agriculture) in recent time periods and how historic records are used to study past climate change impacts.

ENVI 6200 ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN ENVIRONMENTAL SCIENCE (4) LEC. 3. LAB. 2. This course introduces environmental science students to the basics of artificial intelligence (AI) and machine learning (ML) and their applications in environmental science. Students will learn how to use AI/ML tools to analyze large and complex environmental data sets, make predictions, and identify patterns that are not visible to the naked eye. Students will become familiar with the potential and limitations of AI/ML in environmental science and what ethical considerations should be made.

Fisheries Allied Aqua Courses

FISH 1100 FISHERIES ORIENTATION (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of a future in fisheries.

FISH 1110 DIMENSIONS OF FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1) LEC. 1. Consideration of various aspects of fisheries, aquaculture, and aquatic sciences work, career options as related to individual interests, and career planning. Overview of the different research and extension areas of the School.

FISH 2000 GENERAL BIOLOGY OF FISHES AND AQUATIC ORGANISMS (1) LEC. 1. To introduce students to the anatomy and physiology of fishes, crustaceans, and mollusks to better prepare them to take advanced courses in the School of Fisheries, Aquaculture & Aquatic Sciences.

FISH 2020 GLOBAL AND REGIONAL PERSPECTIVES IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (2) LEC. 2. Overview of historical, biological, ecological, and social aspects of fisheries, aquaculture, and aquatic sciences, including the importance of water, biodiversity, fisheries management, and aquaculture, as well as how to determine reliability of sources, impacts of aquaculture, aquatic organism life cycles, and threatened and endangered species.

FISH 3950 CAREERS IN FISHERIES (1) LEC. 1. SU. Pr. FISH 2100. Consideration of various aspects of fisheries work, career options as related to individual interests, and career planning or departmental approval. Fall.

FISH 4100 INTRODUCTION TO FISHERIES SCIENCES (3) LEC. 2. LAB. 3. Departmental approval. Hands-on field activities and site visits related to aquatic ecology, fisheries biology, and aquaculture.

FISH 4900 DIRECTED STUDIES IN FISHERIES (1-4) IND. SU. Individualized in depth study on a particular subject under the guidance of a professor. May include directed reading and research. Course may be repeated for a maximum of 4 credit hours.

FISH 4920 INTERNSHIP (1-5) INT. SU. Departmental approval. Discipline-related learning while employed with cooperating private industry or public agency. Course may be repeated for a maximum of 5 credit hours.

FISH 4960 SPECIAL PROBLEMS (1-4) LEC. Departmental approval. Individual and group problems investigations in fisheries and allied aquacultures. Course may be repeated for a maximum of 4 credit hours.

FISH 4967 HONORS SPECIAL PROBLEMS (1-4) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 4 credit hours.

FISH 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FISH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

FISH 5210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 5215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 5220 WATER SCIENCE (3) LEC. 3. Pr. CHEM 1040. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems.

FISH 5230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 5240 HATCHERY MANAGEMENT (4) LEC. 2. LAB. 8. Pr. FISH 5210 or FISH 6210. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 5245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. One year of college-level Biology or departmental consent. Overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. Taught at Dauphin Island Sea Lab. May count either FISH 5245 or FISH 6245.

FISH 5250 AQUACULTURE PRODUCTION (4) LEC. 3. LAB. 4. Pr. FISH 5210. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.

FISH 5320 LIMNOLOGY (3) LEC. 3. Pr. CHEM 1040 and (BIOL 1030 or BIOL 1037). Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 5321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and (P/C FISH 5320 or P/C FISH 6320). Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 5380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 5410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 5440 FISH ANATOMY AND PHYSIOLOGY (4) LEC. 3. LAB. 4. Gross and microscopic fish anatomy.

FISH 5510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 5520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 5. LAB. 10. Pr. BIOL 1030 or BIOL 1037. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 5630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds.

FISH 5670 FISHERIES AND AQUACULTURES EXTENSION METHODS (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037 and CHEM 1040. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 5710 AQUATIC MICROBIOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 5725 MARINE ICHTHYOLOGY (6) LEC. 6. Pr. BIOL 3060. Departmental approval. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Admission to the Gulf Coast Research Laboratory.

FISH 5970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences. Course may be repeated for a maximum of 4 credit hours.

FISH 6210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Graduate level standing in FISH or departmental approval. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 6215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 6220 WATER SCIENCE (3) LEC. 3. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems.

FISH 6230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 6240 HATCHERY MANAGEMENT (4) LEC. 4. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 6245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. This course will provide students with an overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. Taught at Dauphin Island Sea Lab. May count either FISH 5245 or FISH 6245.

FISH 6250 AQUACULTURE PRODUCTION (4) LEC. 4. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.

FISH 6320 LIMNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 6321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (P/C FISH 5320 or P/C FISH 6320). Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 6410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 6425 MARINE FISH DISEASES (4) LEC. 4. Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases.

FISH 6440 FISH ANATOMY AND PHYSIOLOGY (4) LEC. 4. Gross and microscopic fish anatomy.

FISH 6510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 4. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 6520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 3. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 6630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years.

FISH 6650 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry.

FISH 6670 FISHERIES AND AQUACULTURE EXTENSION METHODS (2) LEC. 2. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 6710 AQUATIC MICROBIOLOGY (3) LEC. 3. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 6725 MARINE ICHTHYOLOGY (6) LEC. 6. General background in the biology of marine fishes and their taxonomy.

FISH 6970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences.

FISH 7100 ADVANCED PARASITE TAXONOMY (6) LEC. 2. LAB. 16. Departmental approval. This is a lab-based course for practicing parasitologists. The course instructs students on how to describe a metazoan parasite species.

FISH 7200 MARINE PARASITOLOGY (6) LEC. 2. LAB. 16. Departmental approval. This is an intensive lab-based course for marine parasitologists. Students will collect and identify marine/estuarine parasites of aquatic animals.

FISH 7230 WATER AND SEDIMENT QUALITY MANAGEMENT IN AQUACULTURE (4) LEC. 3. LAB. 3. Pr. FISH 6220. Departmental approval. Advanced treatment of water and sediment quality management in aquaculture. Analytical methods for soil and water quality.

FISH 7240 RESOURCE USE AND ENVIRONMENTAL ISSUES IN AQUACULTURE (2) LEC. 2. Resource use, environmental effects, and sustainability of aquaculture with emphasis on approaches to improving efficiency and reducing negative environmental effects.

FISH 7270 CRUSTACEAN AND MOLLUSCAN AQUACULTURE (4) LEC. 3. LAB. 3. Departmental approval. General biology and culture techniques of the major shrimp, crawfish and shellfish species cultured throughout the world.

FISH 7300 PATHOLOGY OF AQUATIC ORGANISMS (6) LEC. 2. LAB. 16. Departmental approval. Students gain appreciation for histopathological techniques and recognize basic pathological changes to tissues in aquatic organisms.

FISH 7330 RESERVOIR LIMNOLOGY (3) LEC. 2. LAB. 5. Departmental approval. Consideration of the ecological characteristics of reservoirs as they relate to modern concepts of ecosystem management. Even years.

FISH 7340 FISH ECOLOGY (3) LEC. 2. LAB. 3. Graduate level standing in FISH or departmental approval. Study of interactions among fish and their environment. Laboratory will emphasize critical literature reading and experimental approaches.

FISH 7350 META-ANALYSIS (3) LEC. 3. Meta-analysis is a quantitative approach for synthesizing results from diverse research studies (ecology, psychology, medicine, and education) that address a similar hypothesis. Effect sizes calculated from individual studies are combined to elucidate general patterns across studies.

FISH 7360 MANAGEMENT OF AQUATIC FLORA IN FISHERIES AND AQUACULTURE (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Role of aquatic vegetation in fish production, its utilization and control.

FISH 7380 ECOLOGY AND MANAGEMENT OF RIVERINE SYSTEMS (4) LEC. 3. LAB. 3. River systems within a landscape ecology and ecosystem management context. Laboratory sessions stress techniques for assessment and management. Even years.

FISH 7410 MOLECULAR DIAGNOSIS: PRINCIPLES AND APPLICATIONS (3) LEC. 3. Introduction to molecular biology techniques currently used in disease diagnosis.

FISH 7420 FISH DISEASES (3) LEC. 3. Pr. BIOL 3200. Viral, bacterial, fungal and parasitic diseases of fishes, including etiologic agents, geographical ranges, species susceptibility, clinical signs, clinical pathology, epidemiology and management.

FISH 7450 FISH PATHOLOGY (3) LEC. 2. LAB. 3. Departmental approval. Morphological and physiological changes in fish with infectious or non-infectious diseases. Even years.

FISH 7460 CLINICAL FISH DISEASE DIAGNOSIS (1-3) DSL/LEC. Pr. FISH 6410 or FISH 7420. Practical experience in necropsy of diseased fish. Identification of causative agents and prescription of appropriate disease control.

FISH 7530 FISH POPULATION DYNAMICS (3) LEC. 2. LAB. 4. Departmental approval. Derivation of fish population estimates, growth, recruitment and mortality; use of modeling techniques to assess exploited fish populations. Even years.

FISH 7540 QUANTITATIVE TECHNIQUES IN FISHERY ASSESSMENT (3) LEC. 2. LAB. 4. Departmental approval. Quantitative techniques to assess and manage fish populations in freshwater. The laboratory will analyze actual fisheries data using SAS on personal computers. Odd years.

FISH 7640 FISH NUTRITION (3) LEC. 3. Fundamental and applied aspects of fish nutrition, including nutrient requirements, physiology of food assimilation, feed preparation, and practical feeding.

FISH 7650 TRADITIONAL APPROACHES TO FISH GENETIC ENHANCEMENT (2) LEC. 2. Graduate level standing in FISH or departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, selective breeding, genetic management and inheritance.

FISH 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Graduate level standing in FISH or departmental approval. Principles and application of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies.

FISH 7715 ADVANCED MARINE ECOLOGY (2) LEC. 2. Departmental approval. Mechanisms that control distribution of plants and animals at scales ranging from individual organism to ecosystem

FISH 7725 MARINE BIOGEOCHEMICAL PROCESSES (2) LEC. 2. Departmental approval. Marine biogeochemical cycling of carbon, nitrogen, sulfur, phosphorus and metals, with emphasis on estuarine systems.

FISH 7750 BIOTECHNOLOGICAL APPROACHES TO FISH GENETICS (2) LEC. 2. Pr. FISH 7650. Departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, genetic management genetic engineering, genomic manipulation and genetic biotechnology.

FISH 7785 PHYSICAL OCEANOGRAPHY (4) LEC. 4. Departmental approval. Describes observed physical setting of the marine environment, and qualitatively explains how and why observed physical phenomena occur.

FISH 7800 PRINCIPLES OF ECOTOXICOLOGY (3) LEC. 3. Ecotoxicology-an interdisciplinary science studies the impacts of pollutants upon the structure and function of ecological systems. The broad scope of ecotoxicology requires a multidisciplinary approach of a variety of specialties, such as ecology, environmental chemistry, and applied biology.

FISH 7900 DIRECTED STUDIES IN FISHERIES I (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 7920 INTERNSHIP IN FISHERIES AND AQUACULTURE (1-10) INT. SU. Departmental approval. Field experience in aquaculture, fisheries or aquatic resource management on farm or with research, extension or aquatic management agency. Course may be repeated for a maximum of 10 credit hours.

FISH 7930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 7950 GRADUATE RESEARCH SEMINAR (1) SEM. 1. SU. Departmental approval. Oral presentation and discussion of research in the field of specialization.

FISH 7960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) IND. Individual or group project and research in consultation with faculty member on problem in fisheries, aquaculture, and/or aquatic sciences. Course may be repeated for a maximum of 9 credit hours.

FISH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FISH 8900 DIRECTED STUDIES IN FISHERIES II (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 8930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 8950 GRADUATE RESEARCH SEMINAR (1) SEM. 1. SU. Departmental approval. Acquaint students with current research and related activities.

FISH 8960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) IND. Individualized work and research in consultation with faculty member on problem in fisheries, aquaculture, and/or aquatic sciences. Course may be repeated for a maximum of 9 credit hours.

FISH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Food Science Courses

FDSC 1000 INTRODUCTORY FOOD SCIENCE (3) LEC. 3. Overview of food science discipline including food selection, food composition, food safety and sanitation, food processing, packaging, commodity types, and food laws.

FDSC 4290 PROFESSIONAL DEVELOPMENT IN FOOD SCIENCE (1) LEC. 1. Preparing for careers; enhancing computer and communication skills; planning for professional advancement.

FDSC 4920 FOOD SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the food industry. Course may be repeated for a maximum of 9 credit hours.

FDSC 4960 SPECIAL PROBLEMS IN FOOD SCIENCE (1-3) IND. 2.50 GPA or departmental approval. Individual or group projects with a faculty member in food science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

FDSC 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Instruction and discussion of current topics associated with food science. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

FDSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FDSC 5660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 1. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 1. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 7430 FLAVOR CHEMISTRY (3) LEC. 3. Chemistry of flavor compounds; Analytical approaches and sensory evaluation to characterize flavor.

FDSC 7600 MOLECULAR PATHOGENESIS OF FOODBORNE PATHOGENS (3) LEC. 3. Pr. BIOL 6260 or VBMS 7460. This course covers a detailed description of major foodborne pathogens that affect human health and their pathogenesis. Lectures will detail how the pathogen's adherence and invasion, host dissemination, and host cell damage lead to pathogenesis.

FDSC 7730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. History and methods of sensory testing of food products, factors affecting results.

FDSC 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either POUL 7950 or FDSC 7950. Course may be repeated for a maximum of 3 credit hours.

FDSC 7960 SPECIAL PROBLEMS (1-4) IND/ST1. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 8 credit hours.

FDSC 7970 SPECIAL TOPICS IN FOOD SCIENCE (1-4) LEC. Instruction and discussion of current advanced topics associated with food science. Course may be repeated for a maximum of 8 credit hours.

FDSC 7980 NONTHESIS RESEARCH (1-4) RES. Departmental approval. enrolled as FDSG MAg student. Research conducted as part of the Master of Agriculture degree.

FDSC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

FDSC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

Horticulture Courses

HORT 1010 INTRODUCTION TO HORTICULTURE (1) LEC. 1. Introduces scientific and practical aspects of pomology, olericulture, floriculture and landscape horticulture. Also presents the broad scope of career opportunities in the field of horticultural science. Fall.

HORT 2010 FRUIT AND NUT PRODUCTION (4) LEC. 2. LAB. 4. Introductory course in cultural practices and economics associated with commercial fruit and nut production. Fall.

HORT 2020 HORTICULTURE CROP PRODUCTION (3) LEC. 2. LAB. 3. Techniques of plant propagation and cultural methods for successful fruit, vegetable, and ornamental plant production. Fall.

HORT 2030 VEGETABLE PRODUCTION (3) LEC. 3. Principles, practices, establishment, production, maintenance, harvesting, storage and marketing of commercial vegetable crops. Fall and Spring.

HORT 2040 ORGANIC GARDENING (3) LEC. 3. Principles, production practices, maintenance, harvesting and marketing of organically and traditionally home-grown vegetables.

HORT 2060 HYDROPONICS: PRINCIPLES AND TECHNIQUES OF SOILLESS PLANT PRODUCTION (3) LEC. 3. This course is a survey of the science of hydroponic plant production and is focused on commercial and home vegetable crop production. Specific topics include plant growth and nutrition in hydroponic growing systems, challenges and opportunities, and system design. Fall.

HORT 2210 LANDSCAPE GARDENING (4) LEC. 2. LAB. 4. Principles of landscape gardening applied to residential and small-scale commercial grounds. Involves plant identification and use, basic landscape design, and landscape installation and management concepts.

HORT 2240 PLANT PROPAGATION (3) LEC. 2. LAB. 2. Pr. P/C BIOL 1030 or BIOL 1037. Basic principles and practices involved in the propagation of horticulture plants. Departmental approval. Spring.

HORT 2250 ART OF FLORAL DESIGN (3) LEC. 2. LAB. 2. Basic art principles and design elements and their use with flowers and foliage; history and utilization of flowers within society.

HORT 3000 GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1030. Growth and development of plants with concepts applied to the practice of Horticultural Science. Summer and Fall.

HORT 3110 A HISTORY OF GARDENS IN CULTURAL CONTEXT (3) LEC. 3. Heritage and traditions influencing the development of public and private garden styles, context, and function including cultural expressions, plant use, and impact of noted designers and horticulturists throughout history. Only taught in Study Abroad programs.

HORT 3200 WOODY LANDSCAPE PLANT IDENTIFICATION I (4) LEC. 2. LAB. 4. This course introduces students to the language of botany and the Southeastern palate of landscape plants with distinguished fall characteristics. Specific topics include taxonomy, morphology, plants with global popularity, cultivation practices, structural plantings, and use in the landscape. Fall.

HORT 3210 WOODY LANDSCAPE PLANT IDENTIFICATION II (4) LEC. 2. LAB. 4. This course introduces students to the language of botany and the Southeastern palate of landscape plants with distinguished spring characteristics. Specific topics include taxonomy, morphology, plants with global popularity, cultivation practices, structural plantings, and use in the landscape. Spring.

HORT 3220 ARBORICULTURE (4) LEC. 2. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Identification, culture and use of ornamental trees in landscape plantings. Fall.

HORT 3280 LANDSCAPE CONSTRUCTION (4) LEC. 2. LAB. 4. Principles and practices used in the interpretation and implementation of landscape construction and planting plans. Fall.

HORT 3840 STUDY/TRAVEL IN HORTICULTURE (1-10) AAB/FLD. Study of horticultural or fruit and vegetable science, landscape design, nursery and greenhouse management in U.S. or international location. Course may be repeated for a maximum of 10 credit hours.

HORT 3910 PROFESSIONAL LANDSCAPE (3) LEC. 3. Departmental approval. Field-based course designed for learning to prepare and compete in the NALP National Collegiate Landscape Competition. Spring.

HORT 3920 HORTICULTURE INTERNSHIP (1-4) INT. 1-4. Practical on-the-job training for selected commercial horticultural companies. Course may be repeated for a maximum of 8 credit hours.

HORT 3950 CAREERS IN HORTICULTURE (2) LEC. 2. Current developments and career opportunities in horticulture. Fall and Spring.

HORT 4000 PESTICIDE MANAGEMENT IN HORTICULTURE (3) LEC. 3. Pr. (ENTM 4020 or ENTM 3040) and PLPA 3000. Proper management of pesticides in horticulture; decision making skills in relation to control strategies; environmental issues relevant to horticulture; safety considerations; scouting and application techniques. Fall.

HORT 4100 HERBACEOUS ORNAMENTALS (4) LEC. 2. LAB. 4. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Identification, culture, and use of herbaceous annuals and perennials, bulbs, herbs, and ornamental grasses. Consideration of flower bed and border preparation, care and maintenance. Spring and Summer.

HORT 4250 INTERMEDIATE FRUIT & VEG PROD (3) LEC. 3. Pr. (HORT 2040 or HORT 2043) or HORT 2030. Intermediate horticulture course in which students apply knowledge gained in the classroom to hands-on fruit and vegetable gardening practices.

HORT 4270 INTERMEDIATE LANDSCAPE DESIGN (4) LEC. 2. LAB. 4. Pr. HORT 3210 or HORT 3220 or HORT 4100. A study of the design principles and elements and technical skills used to create a functional and aesthetically pleasing residential landscape design. Fall.

HORT 4300 COMPUTER AIDED PLANTING DESIGN (3) LEC. 3. Pr. HORT 4270. Graphic concepts relating to spatial visualization and communication and project cost estimation using computer aided drafting and project management software developed for landscape professionals. Spring.

HORT 4930 DIRECTED STUDIES (1-3) AAB/IND. Departmental approval. Directed Studies related to research, teaching or outreach educational programs in Horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 4970 SPECIAL TOPICS (1-3) IND. Principles, methods and techniques for understanding various horticultural disciplines. Course may be repeated for a maximum of 6 credit hours.

HORT 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

HORT 5100 HORTICULTURAL PLANT BREEDING (3) LEC. 3. Pr. (BIOL 3000 or CSES 3300 or AGRI 3000). This class will introduce students to traditional and modern technologies for breeding horticultural crops such as fruits, vegetables, and ornamental crops. Students will learn about the importance of plant breeding for horticultural crop improvement, mechanisms of traditional and modern breeding technologies, and biotechnologies with an emphasis on specific applications for horticultural crops. Credit will only be given for one of the following: HORT 5100 or HORT 6100.

HORT 5110 TREE FRUIT CULTURE (3) LEC. 3. Pr. HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Credit will only be given for one of the following courses: HORT 5110 or HORT 6110. Summer.

HORT 5120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Pr. HORT 3000. Principles and practices involved in the production and marketing of small fruits and pecans. Credit will only be given for one of the following courses: HORT 5120 or HORT 6120. Spring.

HORT 5130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and HORT 3000. Best management practices and quality of vegetable crops. Credit will only be given for one of the following: HORT 5130 or HORT 6130. Spring.

HORT 5140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. (PLPA 3000 or PLPA 3003) and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.

HORT 5150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Pr. HORT 3210 or HORT 3220 or Departmental approval. The following topics will be covered: financing, location, design, stocking, selling, personnel management, advertising and maintaining plants. May count either HORT 5150 or HORT 6150. Summer.

HORT 5200 CONTROLLED ENVIRONMENT AGRICULTURE (4) LEC. 3. LAB. 2. Pr. HORT 2060. This course will provide a thorough overview of the aerial factors that influence crop production in controlled environments. Credit will only be given for one of the following courses: HORT 5200 or HORT 6200.

HORT 5210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Pr. CSES 2040 and PLPA 3000. Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 5220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Pr. HORT 3000 and HORT 2240 and CSES 2040. Management, culture and economics of commercial greenhouse production. Fall.

HORT 5230 NURSERY MANAGEMENT (4) LEC. 2. LAB. 4. Pr. HORT 2240 and HORT 3000. Factors affecting plant production. Environmental issues related to facilities design and pesticide and nutrient management. Departmental approval. Spring.

HORT 5240 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 4. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens. Spring.

HORT 5330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/5333/6330/6336.

HORT 5910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Spring. Course may be repeated for a maximum of 8 credit hours.

HORT 6100 HORTICULTURAL PLANT BREEDING (3) LEC. 3. This class will introduce students to traditional and modern technologies for breeding horticultural crops such as fruits, vegetables, and ornamental crops. Students will learn about the importance of plant breeding for horticultural crop improvement, mechanisms of traditional and modern breeding technologies, and biotechnologies with an emphasis on specific applications for horticultural crops. Credit will only be given for one of the following: HORT 5100 or HORT 6100.

HORT 6110 TREE FRUIT CULTURE (3) LEC. 3. Manipulation of growth and development of tree fruit crops by cultural methods. Credit will only be given for one of the following courses: HORT 5110 or HORT 6110. Summer.

HORT 6120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Principles and practices involved in the production and marketing of small fruits and pecans. Credit will only be given for one of the following courses: HORT 5120 or HORT 6120. Spring.

HORT 6130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2. LAB. 2. Advanced course in best management practices and quality of vegetable crops. Credit will only be given for one of the following courses: HORT 5130 or HORT 6130. Spring.

HORT 6140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 2. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.

HORT 6150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Topics included: financing, location, design, stocking, selling, personnel management, advertising, and maintaining plants. Graduate students will evaluate garden centers and provide feedback for improvement. Summer.

HORT 6200 CONTROLLED ENVIRONMENT AGRICULTURE (4) LEC. 3. LAB. 2. This course will provide a thorough overview of the aerial factors that influence crop production in controlled environments. Credit will only be given for one of the following courses: HORT 5200 or HORT 6200.

HORT 6210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 6220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Management, culture and economics of commercial greenhouse production. Fall.

HORT 6230 NURSERY MANAGEMENT (4) LEC. 2. LAB. 4. Factors affecting plant production. Environmental issues related to facilities design and pesticide and nutrient management. Departmental approval. Spring.

HORT 6240 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 4. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens. Spring.

HORT 6330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/5333/6330/6336.

HORT 6910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Spring. Course may be repeated for a maximum of 8 credit hours.

HORT 7010 EXPERIMENTAL METHODS IN HORTICULTURE (3) LEC. 2. LAB. 2. Principles and methodologies of horticultural research, experimental design, preparation of project and grant proposals, and development of publication skills. Summer

HORT 7040 ADVANCED GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Plant growth and development from seed germination, through maturity and senescence. Spring.

HORT 7050 NUTRITIONAL REQUIREMENTS OF HORTICULTURAL PLANTS (3) LEC. 3. LAB. 2. Pr. HORT 3000. Nutritional requirements of horticulture crops and factors affecting these requirements. Departmental approval. Summer, odd years.

HORT 7070 PLANT BIOTECHNOLOGY (3) LEC. 3. Plant biotechnology, including plant tissue culture technologies, genetic transformation and applications for horticultural crop improvement.

HORT 7840 GRADUATE STUDY/TRAVEL IN HORTICULTURE (1-4) LEC. Departmental approval. Programmed activities to enhance national/international awareness and enable students to understand horticultural practices in diverse areas. Course may be repeated for a maximum of 8 credit hours.

HORT 7920 GRADUATE INTERNSHIP (1-4) INT. Departmental approval. Supervised professional experience in horticulture

HORT 7950 SEMINAR (1) SEM. SU. Graduate students are required to attend all seminars. Course may be repeated with change in topics.

HORT 7960 SPECIAL PROBLEMS (1-3) IND. 3. Conferences, problems and assigned readings in horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 7970 SPECIAL TOPICS IN HORTICULTURE (1-3) LEC. Principles, methods and techniques involved in gaining an understanding of different horticultural disciplines. Course may be repeated for a maximum of 3 credit hours.

HORT 7980 NON-THESIS RESEARCH (1-4) RES. 1-4. Research conducted as part of the Master of Agriculture degree. Course may be repeated for a maximum of 4 credit hours.

HORT 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

HORT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Plant Pathology Courses

PLPA 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

PLPA 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH (1-4) IND/RES. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

PLPA 3000 GENERAL PLANT PATHOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Survey of plant diseases common in Alabama, including symptom recognition, pathogen biology and management of plant diseases. Course credit will not be given for both PLPA 3000 and PLPA 3003/3004.

PLPA 4960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-3) IND. Departmental approval. Supervised work on a project in plant pathology. Areas of study are: A. Mycology; B. Nematology; C. Virology; D. Bacteriology; E. Extension and Clinic Experience; F. Physiological and Molecular Approaches. Course may be repeated for a maximum of 3 credit hours.

PLPA 4980 UNDERGRADUATE RESEARCH (1-4) LAB. 2-8. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

PLPA 5050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Pr. PLPA 3000 or PLPA 3003. Approaches, techniques, and practical experience in diagnosis of plant diseases. Credit will not be given for both PLPA 5050 and PLPA 6050. Summer.

PLPA 5200 MYCOLOGY (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems with an emphasis on plant pathogens. Credit will only be given to one of the following: PLPA 5200 or 6200.

PLPA 5250 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 5300 PLANT-BACTERIAL INTERACTIONS (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. Credit will only be given to one of the following: PLPA 5300 or PLPA 6300.

PLPA 5330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

PLPA 5400 PLANT VIROLOGY (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Plant viruses are one of the major pathogens causing problems in plants. This course will cover the fundamentals of plant viruses such as infectious cycle, genome, structure, and evolution. The course will also introduce applied biotechnology based on virus-plant interaction. Credit will only be given to one of the following: PLPA 5400 or PLPA 6400.

PLPA 5500 PLANT NEMATOLOGY (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. Credit will only be given to one of the following: PLPA 5500 or PLPA 6500.

PLPA 5600 MOLECULAR PLANT-MICROBE INTERACTIONS (3) LEC. 3. Pr. BIOL 3000. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances. Introduces biochemical, molecular and cellular mechanisms by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli. Credit will only be given for one of the following courses: PLPA 5600 or PLPA 6600.

PLPA 5700 VECTOR ENTOMOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

PLPA 5800 OMICS IN AGRICULTURE (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 3000 or AGRI 3000. This course will introduce students to the recent advances in high-throughput technologies such as genomics, transcriptomics, metagenomics, metabolomics, phenomics, modeling, and digital agriculture and how these technologies can be applied to tackling new and old problems in agriculture and human health. Students will be able to gain hands-on experience in analyzing and interpreting datasets obtained using these technologies.

PLPA 5820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Pr. STAT 2510. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

PLPA 5920 INTERNSHIP (3) IND. 3. SU. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 6050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Experience with plant disease diagnosis procedures and the diagnosis of many common plant diseases. Summer.

PLPA 6200 MYCOLOGY (2) LEC. 1. LAB. 2. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems with an emphasis on plant pathogens. Graduate level standing or Departmental approval. Credit will only be given to one of the following: PLPA 5200 or PLPA 6200.

PLPA 6250 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. Pr. BIOL 3200. or prior approval of the instructor. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 6300 PLANT-BACTERIAL INTERACTIONS (2) LEC. 1. LAB. 2. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. Credit will only be given to one of the following: PLPA 5300 or PLPA 6300.

PLPA 6330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

PLPA 6400 PLANT VIROLOGY (2) LEC. 1. LAB. 2. Plant viruses are one of the major pathogens causing problems in plants. This course will cover the fundamentals of plant viruses such as infectious cycle, genome, structure, and evolution. The course will also introduce applied biotechnology based on virus-plant interaction. Credit will only be given to one of the following: PLPA 5400 or PLPA 6400.

PLPA 6500 PLANT NEMATOLOGY (2) LEC. 1. LAB. 2. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. Credit will only be given to one of the following: PLPA 5500 or PLPA 6500.

PLPA 6600 MOLECULAR PLANT-MICROBE INTERACTIONS (3) LEC. 3. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances, biochemical, molecular and cellular mechanism by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli. Credit will only be given for one of the following courses: PLPA 5600 or PLPA 6600.

PLPA 6700 VECTOR ENTOMOLOGY (3) LEC. 3. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

PLPA 6800 OMICS IN AGRICULTURE (3) LEC. 2. LAB. 2. This course will introduce students to the recent advances in high-throughput technologies such as genomics, transcriptomics, metagenomics, metabolomics, phenomics, modeling, and digital agriculture and how these technologies can be applied to tackling new and old problems in agriculture and human health. Students will be able to gain hands-on experience in analyzing and interpreting datasets obtained using these technologies.

PLPA 6820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

PLPA 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 7080 FIELD SURVEY OF PLANT PATHOLOGY (3) LEC. 1. LAB. 6. Practical aspects of plant diseases under field conditions, on-site visits via field trips; discussion of experimental design for field research. Summer.

PLPA 7860 PLANT DISEASE EPIDEMIOLOGY (2) LEC. 2. Pr. PLPA 3000. Aspects of plant disease epidemiology including disease assessment and temporal progress, pathogen spread, and yield loss determination.

PLPA 7861 PLANT DISEASE EPIDEMIOLOGY LABORATORY (2) LAB. 4. Coreq. PLPA 7860. Quantitative aspects of plant disease epidemiology including spatial and temporal modeling, and disease system simulation.

PLPA 7880 PLANT MICROBIAL ECOLOGY (3) LEC. 3. LAB. 0. Concepts in ecology of plant-associated microbes and their interactions with plants using molecular approaches.

PLPA 7881 PLANT MICROBIAL ECOLOGY LABORATORY (2) LAB. 4. This course will involve hands-on experience with genomic, metagenomic, transcriptomic datasets. Graduate standing in the College of Agriculture/COSAM.

PLPA 7900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research.

PLPA 7910 TEACHING PRACTICUM (1) LAB. 2. SU. Graduate level standing in PLPA or ENTM or Departmental approval. The teaching practicum will address the practical and heretical issues of laboratory learning and facilitating the skills of pedagogy. Course may be repeated for a maximum of 3 credit hours.

PLPA 7930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 2 credit hours.

PLPA 7950 SEMINAR IN PLANT PATHOLOGY (1) SEM. 1. SU. Departmental approval. Seminar presentations on current departmental research and current issues in plant pathology and related disciplines. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 7960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-4) LAB. 2-8. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

PLPA 7970 SPECIAL TOPICS IN PLANT PATHOLOGY (1-5) ST1. Advanced topics related to plant pathology. Course may be repeated for a maximum of 5 credit hours.

PLPA 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research and thesis on problems in plant pathology. Course may be repeated with change in topics.

PLPA 8880 MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Open discussion and article review on current topics and cutting-edge discoveries in the field of molecular plant pathology, covering the cellular mechanisms of plant interactions with, and immune responses against pathogens.

PLPA 8900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

PLPA 8910 TEACHING PRACTICUM (1) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

PLPA 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

PLPA 8950 SEMINAR (1) SEM. 1. SU. Departmental approval. Presentations and discussion of scientific literature or dissertation research findings. Required for al Ph.D. candidates. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 8960 ADVANCED SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-4) LAB. 2-8. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

PLPA 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research and dissertation on problems in plant pathology. Course may be repeated with change in topics.

Poultry Science Courses

POUL 1000 INTRODUCTORY POULTRY SCIENCE (3) LEC. 3. Introduction to the poultry species and their commercial production, physiology, nutrition, and management.

POUL 2000 POULTRY AND EGG EVALUATION AND SELECTION (1) LAB. 1. A hands-on approach to poultry and egg evaluation based on the U.S. poultry and Egg guidelines and how to properly care for and handle the birds. Spring and Fall. Course may be repeated for a maximum of 4 credit hours.

POUL 2100 PROFESSIONAL DEVELOPMENT FOR ANIMAL AGRICULTURE, PRODUCTION, PROCESSING & FEED INDUSTRIES (1) LEC. 1. Development of professional skills and career preparation for students in animal agriculture.

POUL 3030 COMMERCIAL POULTRY PRODUCTION (4) LEC. 3. LAB. 3. The organization and management principles of the commercial poultry meat and egg production industries. Fall.

POUL 3060 POULTRY REPRODUCTION (3) LEC. 2. LAB. 2. Pr. POUL 3030. This course explores the reproductive physiology and endocrinology of poultry species, emphasizing genetics and management strategies impacting production, fertility, and hatchability in the industry. Students will also learn hatchery management and embryonic development of the chick.

POUL 3150 POULTRY PHYSIOLOGY (4) LEC. 3. LAB. 3. The physiological principles and anatomical characteristics of poultry species which directly interact with commercial management systems. Spring.

POUL 4920 POULTRY SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the poultry industry. Course may be repeated for a maximum of 9 credit hours.

POUL 4960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. 2.5 GPA or departmental approval. Individual or group projects with a faculty member in poultry science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

POUL 4970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Departmental approval. Instruction and discussion of selected current topics in poultry science. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

POUL 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

POUL 5020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 6020 or POUL 5020.

POUL 5030 ADVANCED COMMERCIAL POULTRY PRODUCTION (3) LEC. 3. Pr. POUL 3030 and POUL 3150 and POUL 5050 and POUL 5110. The course covers the major principles of the integrated poultry industry, including the interactions and interrelationships between business segments in the poultry industry.

POUL 5050 POULTRY FEEDING (3) LEC. 3. Pr. ANSC 3410. The application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 and POUL 6050.

POUL 5070 ANIMAL WELFARE (3) LEC. 3. Pr. (POUL 1000 or ANSC 1000) and (POUL 3150 or ANSC 3600). This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, wildlife, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

POUL 5080 POULTRY HEALTH (3) LEC. 3. Pr. BIOL 3200 and POUL 3150. Study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. May count either POUL 5080 or POUL 6080.

POUL 5110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Pr. POUL 3030 and (CHEM 1110 or CHEM 1030). The course focuses on poultry processing and related aspects. Students will learn the effects of live production, feed withdrawal and haul on poultry processing and quality as well as pre- and post-harvest food safety, USDA regulations, Halal and Kosher standards. May count either POUL 5110 or POUL 6110.

POUL 5140 POULTRY FURTHER PROCESSING AND PRODUCTS (3) LEC. 2. LAB. 3. Pr. CHEM 1110 or CHEM 1030. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. May count either POUL 5140 or POUL 6140.

POUL 5160 PRINCIPLES OF FOOD SAFETY (3) LEC. 3. Pr. BIOL 3200. Study of the identification and control of physical, chemical, and microbiological hazards in the food industry. Introduction to Hazard Analysis and Critical Control Points (HACCP). May count either POUL 5160 or POUL 6160.

POUL 6020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 5020 or POUL 6020.

POUL 6030 ADVANCED COMMERCIAL POULTRY PRODUCTION (3) LEC. 3. The course covers the major principles of the integrated poultry industry, including the interactions and interrelationships between business segments in the poultry industry. Graduate student standing.

POUL 6050 ADVANCED POULTRY FEEDING (3) LEC. 3. An advanced study and review of the literature on the application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 or POUL 6050.

POUL 6070 ANIMAL WELFARE (3) LEC. 3. This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, wildlife, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

POUL 6080 ADVANCED POULTRY HEALTH (3) LEC. 3. Departmental approval. An advanced study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. May count either POUL 5080 or POUL 6080.

POUL 6110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Students will acquire strong knowledge on each step of poultry processing from hanging to chilling and transportation. The course will cover topics on food safety (pre- and post-harvest), spoilage, antimicrobial interventions, USDA regulations as well as Halal and Kosher standards. May count either POUL 5110 or POUL 6110.

POUL 6140 POULTRY FURTHER PROCESSING AND PRODUCTS (3) LEC. 2. LAB. 3. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. May count either POUL 5140 or POUL 6140.

POUL 6160 ADVANCED PRINCIPLES OF FOOD SAFETY (3) LEC. 3. Advanced study of the identification and control of physical, chemical, and microbiological hazards in the food industry. Introduction to Hazard Analysis and Critical Control Points (HACCP). May count either POUL 5160 or POUL 6160.

POUL 7100 SUPERVISED INVESTIGATION (1-4) IND. Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either FDSC 7950 or POUL 7950. Course may be repeated for a maximum of 3 credit hours.

POUL 7960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. Critical analysis of classic and current research in poultry science, including literary research and/or data analysis. Course may be repeated for a maximum of 6 credit hours.

POUL 7970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Instruction and discussion of current advanced topics associated with poultry science. Course may be repeated for a maximum of 8 credit hours.

POUL 7980 NON-THESIS RESEARCH (1-4) RES. Departmental approval. enrolled as POUL MAg student. Research conducted as part of the Master of Agricultural degree.

POUL 7990 RESEARCH AND THESIS (1-10) MST. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

POUL 8100 GI SYSTEMS AND NUTRIENT UTILIZATION (3) LEC. 3. Pr. POUL 5050. Structure of feedstuffs and strategy in nutrient recovery from the gastrointestinal systems of fowl, swine, and ruminants.

POUL 8960 SPECIAL PROBLEMS (1-4) IND. A) Nutrition, B) Physiology, C) Health, D) Microbiology, E) Processing, F) Product Safety and Quality, G) Teaching, H) Immunonutrition. Course may be repeated with change in topic. Departmental approval.

POUL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

Rural Sociology Courses

RSOC 2090 FOOD SYSTEMS: POLICY, PRODUCTION, AND PRACTICE (3) LEC. 3. Post farm gate transformation of raw commodities into edible food. Supply chain, policy, and consumption issues as they relate to processing, safety, nutrition, and waste in the U.S.

RSOC 3560 ENVIRONMENT, SOCIETY, AND JUSTICE (3) LEC. 3. The course focuses on micro and macro structures influencing environmental problems, and possible pathways for their resolution. The course introduces Environmental Sociology through an action-oriented approach to environmental problems.

RSOC 3620 COMMUNITY ORGANIZATION (3) LEC. 3. Analysis of social organization at the community level. Conceptual framework developed to examine both internal and external forces affecting urban as well as rural communities in the U.S., and to identify strategies to strengthen local capacity to adapt to changing social and economic environments.

RSOC 4910 DIRECTED FIELD EXPERIENCE (3) LEC. 3. Departmental approval. Structured intensive involvement within an agency or organization serving people in communities or rural areas. Supervision is shared between agency personnel and department faculty who plan, consult, discuss, and evaluate student activities and reports.

RSOC 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Individualized study of topics in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 4960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Departmental approval. Investigation of problems in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 5190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. Key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy). May count either RSOC 5190 or RSOC 6190.

RSOC 5410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. An introduction to the Cooperative Extension System and other forms of educational outreach. Application of techniques used in extension and outreach planning and programming.

RSOC 5510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or ECON 2020 or ECON 2023 or ECON 2027. Description for Bulletin: Measuring and explaining poverty inequality and their effects on families and society, analysis of anti-poverty programs.

RSOC 5610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes, and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 5640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3) LEC. 3. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; citizen participation in community affairs.

RSOC 5650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 6190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. This is an advanced course that will focus on key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy).

RSOC 6410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. An introduction to the Cooperative Extension System and other forms of educational outreach. Application of techniques used in extension and outreach planning and programming.

RSOC 6510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Description for Bulletin: Measuring and explaining poverty and inequality and their effects on families and society; analysis of anti-poverty programs.

RSOC 6610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 6650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 7620 SOCIOLOGY OF COMMUNITY (3) LEC. 3. Emphasis on theories, conceptual approaches and methods for studying communities and assessing developmental needs with attention to organizational structure, power structure, decision-making and linkage networks to societal units.

RSOC 7630 POLITICAL ECONOMY OF DEVELOPMENT (3) LEC. 3. Theories of societal development applied to contemporary issues associated with change in non-industrialized nations. Exploration of institutional, class, and state interests that guide development processes, as well as alternative participatory development strategies.

RSOC 7700 METHODS OF SOCIAL RESEARCH (3) LEC. 3. Problem identification, hypothesis development and empirical analysis. Quantitative and qualitative procedures for obtaining social data using surveys, direct observation and secondary sources.

RSOC 7960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Pr., departmental approval. Investigation of a problem in a particular area of interest involving an in-depth review of the literature, a research project, or an outreach education activity. Course may be repeated for a maximum of 6 credit hours.

RSOC 7970 SPECIAL TOPICS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (3) LEC. 3. Departmental approval. New topic in the area of rural sociology and community development.

RSOC 7990 RESEARCH AND THESIS (1-10) MST. In conjunction with the preparation of a thesis. Course may be repeated with change in topics.

Department of Agricultural Economics and Rural Sociology

The curriculum provides broad technical training and a strong liberal arts and business background to prepare students for careers in a wide array of agribusiness and related fields.

Students are encouraged to use professional electives to complete a minor from the College of Agriculture, the College of Business, the College of Sciences and Mathematics or the College of Forestry, Wildlife and Environment or in Economics in the College of Liberal Arts. Otherwise, students may follow a general program by selecting from courses at the 3000-level or higher in the College of Agriculture, the College of Business, College of Mathematics and Sciences or the College of Forestry, Wildlife and Environment, as well as offerings at the 3000 level or higher in economics, sociology, anthropology, geography, political science, or statistics. Basic Soil Science (CSES 2040) may also be counted as a professional elective, as may up to 8 hours of a foreign language, regardless of the level. Students are encouraged to see their advisors to plan their professional electives around an interest area that best meets their career aspirations.

Majors

- Agricultural Business & Economics (p. 214)

Minors

- Agribusiness (p. 213)
- Natural Resources Economics and Environmental Policy (p. 215)
- Rural and Community Development (p. 216)

Agric Economics Courses

AGEC 1000 GLOBAL ISSUES IN FOOD, AGRICULTURE, DEVELOPMENT, AND ENVIRONMENT (3) LEC. 3. To expose students to global issues in food, agriculture, development, and natural resource/environmental economics and to learn about career opportunities in the field.

AGEC 3010 AGRIBUSINESS MARKETING (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Principles and problems of marketing farm and agribusiness products including marketing methods, channels, structures, and institutions. May count either AGEC 3010 or AGEC 3013.

AGEC 3050 FARM APPRAISAL (2) LEC. 2. Theory of land values; terminology, processes and procedures for alternative appraisal purposes; factors affecting value; and evaluation of appraisal methods.

AGEC 3080 FUTURES AND OPTIONS MARKETING (2) LEC. 2. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Functions, institutions, economic performance, and practices and procedures involved in utilizing futures and options markets to manage market price risks.

AGEC 3100 COMPUTER APPLICATIONS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. P/C STAT 2010 or P/C STAT 2017 or P/C STAT 2510 or P/C STAT 2513 or P/C STAT 2610 or P/C BUAL 2600. Analytical methods for agricultural economics: spreadsheet applications, optimization, regression, budgeting, and risk management.

AGEC 3200 QUANTITATIVE METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. (MATH 1680 or MATH 1610) and AGEC 3100. The course covers mathematical and econometric models for the quantitative analysis of problems in food, agricultural, development and resource/environmental economics.

AGEC 3300 AGRICULTURAL POLICIES AND TRADE (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Public policies affecting agriculture. Theory and significance of international trade, distribution of production and trade, issues and policies, and influence of exchange rates.

AGEC 3920 AGRICULTURAL BUSINESS AND ECONOMICS INTERNSHIP (1-3) INT. SU. Departmental approval. Practical experience with agricultural business firms and agencies including finance, farm supply, production, marketing and sales and government. Course may be repeated for a maximum of 6 credit hours.

AGEC 3950 CAREERS IN AGRICULTURAL BUSINESS AND ECONOMICS (1) LEC. 1. SU. To develop skills to find a job and learn about career opportunities in agricultural business and economics.

AGEC 4000 PRINCIPLES OF AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2027 or ECON 2023). Economics and business principles applied to agriculture: business formation, composing and analyzing financial statements, financial analysis and decision-making functions of management, capital budgeting and investment decisions. (Credit will not be given to majors in AGEC, ECON, or business).

AGEC 4040 AGRIBUSINESS FINANCE (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600). ECON 2020 or ECON 2023 or ECON 2027 with minimum grade of C. Economic problems and policies in financing agriculture.

AGEC 4047 HONORS AGRIBUSINESS FINANCE (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600). ECON 2020 or ECON 2023 or ECON 2027 with minimum grade of C. Economic problems and policies in financing agriculture.

AGEC 4070 AGRICULTURAL LAW (3) LEC. 3. Recognition of legal problems associated with property ownership, contracts, torts, financing, estate planning and environmental controls and restrictions.

AGEC 4100 AGRICULTURAL COOPERATIVES (2) LEC. 2. Principles and problems of organizing and operating farmers' cooperative buying and selling associations.

AGEC 4120 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS (3) LEC. 3. Economic principles related to common property, public goods, property rights, externalities and resource scarcity and allocation applied to current issues.

AGEC 4960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-2) IND. Departmental approval. Individual or group projects with a faculty member in agricultural economics or agribusiness. May include research, data analysis or a combination of these. Course may be repeated for a maximum of 4 credit hours.

AGEC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Membership in the Honors College required; Topics in agricultural economics. Course may be repeated for a maximum of 3 credit hours.

AGEC 4970 SPECIAL TOPICS IN AGRICULTURAL ECONOMICS (1-3) LEC. 1-3. Departmental approval. Topics of special interest in agricultural economics. May be repeated with change of topic. Course may be repeated for a maximum of 6 credit hours.

AGEC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

AGEC 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Directed research and writing of honors thesis. Course may be repeated for a maximum of 3 credit hours.

AGEC 5010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613) and (ECON 2020 or ECON 2023 or ECON 2027) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and AGEC 3100. ECON 2020 or 2023 or 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 5030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (STAT 2010 or STAT 2510 or STAT 2610 or BUAL 2600) and (MATH 1680 or MATH 1610) and ECON 3020. Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring. May count either AGEC 5030 or AGEC 6030.

AGEC 5090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc. May count either AGEC 5090 or AGEC 6090.

AGEC 5100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and AGEC 3100 and ACCT 2210 or ACCT 2217 or ACCT 2810 and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools. May count either AGEC 5100 or AGEC 6100.

AGEC 5210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 5100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.

AGEC 5250 BIG DATA FOR AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 3200. To expose students to essential tools for acquiring, managing, and visualizing large datasets in agribusiness.

AGEC 6010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (ECON 2020 or ECON 2023 or ECON 2027) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600 or BUAL 2603) and (ACCT 2110 or ACCT 2113 or ACCT 2117 or ACCT 2810 or ACCT 2813) and AGEC 3100. ECON 2020/ECON 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 6030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600 or BUAL 2603) and ECON 3020. Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring.

AGEC 6090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc.

AGEC 6100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2210 or ACCT 2217 or ACCT 2810) and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools.

AGEC 6210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 6100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610). Case studies, managerial economics.

AGEC 6250 BIG DATA FOR AGRIBUSINESS MANAGEMENT (3) LEC. 3. To expose students to essential tools for acquiring, managing, visualizing, and analyzing large datasets in agribusiness.

AGEC 7000 ADVANCED AGRICULTURAL AND ENVIRONMENTAL POLICY (3) LEC. 3. Pr. AGEC 6090 and (AGEC 3300 or AGEC 6030 or AGEC 5030). Food and farm problems and related governmental actions from historical, political and analytical viewpoints. Welfare economics and other procedures used to evaluate costs and benefits of existing and proposed governmental programs and actions affecting agriculture, environment and the consumer.

AGEC 7030 ADVANCED AGRICULTURAL PRICES (3) LEC. 3. Pr. AGEC 6030 and ECON 6020. Theory and measurement of farm supply, retail demand and marketing-margin relationships. Introduction to equilibrium-displacement modeling.

AGEC 7080 PRODUCTION ECONOMICS I (3) LEC. 3. Pr. ECON 6020. Resource allocation and efficiency of production in the firm, between firms, and between agriculture and other industries.

AGEC 7090 RESOURCE ECONOMICS II (3) LEC. 3. Pr. AGEC 6090. Analysis of institutional and economic factors affecting use of natural resources including economic feasibility/conservation, benefit-cost analysis, environmental controls and other interventions.

AGEC 7100 OPERATIONS RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Optimization techniques with emphasis on linear programming and its extensions applied to agriculture. General theoretical background and associated computational procedures are used for presentation of models and modeling techniques.

AGEC 7110 AGRICULTURAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Conceptual and empirical analysis of economic development with emphasis on the lesser developed areas and countries. Analysis of financial and technical aid to other countries case studies of development problems.

AGEC 7200 AQUACULTURAL ECONOMICS I (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Application of economic theories and principles to production, marketing, and consumption of aquacultural enterprises and products. Role of aquaculture in economic development.

AGEC 7590 INTRODUCTION TO AGRICULTURAL ECONOMETRICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and STAT 2610. Regression analysis in economic research. Model specification and estimation plus introduction to detection and correction of violations of assumptions of OLS. Hypothesis testing, dummy variables, heteroschedasticity, autocorrelation and measurement errors.

AGEC 7690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS I (3) LEC. 3. Pr. AGEC 7590. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course.

AGEC 7700 RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. ECON 7130 and AGEC 7590. Overview of the philosophy of science, detailed discussion of how various research tools are used to perform applied research in agricultural economics.

AGEC 7960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-3) AAB. Departmental approval required; Individualized direction/instruction by faculty on research, teaching and/or outreach issues. Course may be repeated for a maximum of 6 credit hours.

AGEC 7970 SPECIAL TOPICS IN AGRIC ECON (3) LEC. 3. Departmental approval. New topics in agricultural and applied economics.

AGEC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

AGEC 8060 THEORY OF AGRICULTURAL MARKETS (3) LEC. 3. Pr. AGEC 7590 and ECON 6020. Theory and methods for estimating complete demand systems (e.g., LES, Translog, ALIDS, and Rotterdam) for food products. Introduction to imperfect competition models.

AGEC 8080 PRODUCTION ECONOMICS II (3) LEC. 3. Pr. AGEC 7080. Firm-level economics problems are extended. Consideration of the influence of risk on firm behavior; empirical analysis of theoretical problems; welfare analysis; technical change; impacts of research investments.

AGEC 8090 FOOD AND AGRICULTURAL POLICY (3) LEC. 3. Pr. ECON 6020 or ECON 7000 or ECON 7110. The course will cover current issues in the economics and policies associated with food, food production and marketing.

AGEC 8690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS II (3) LEC. 3. Pr. AGEC 8310. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course. May count either AGEC 8310 or AGEC 8690.

AGEC 8890 TOPICS IN AGRICULTURAL MICROECONOMETRICS (3) LEC. 3. Pr. AGEC 8690. This course is meant to assimilate knowledge acquired throughout core coursework in the Agricultural Economics PhD program.

AGEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Rural Sociology Courses

RSOC 2090 FOOD SYSTEMS: POLICY, PRODUCTION, AND PRACTICE (3) LEC. 3. Post farm gate transformation of raw commodities into edible food. Supply chain, policy, and consumption issues as they relate to processing, safety, nutrition, and waste in the U.S.

RSOC 3560 ENVIRONMENT, SOCIETY, AND JUSTICE (3) LEC. 3. The course focuses on micro and macro structures influencing environmental problems, and possible pathways for their resolution. The course introduces Environmental Sociology through an action-oriented approach to environmental problems.

RSOC 3620 COMMUNITY ORGANIZATION (3) LEC. 3. Analysis of social organization at the community level. Conceptual framework developed to examine both internal and external forces affecting urban as well as rural communities in the U.S., and to identify strategies to strengthen local capacity to adapt to changing social and economic environments.

RSOC 4910 DIRECTED FIELD EXPERIENCE (3) LEC. 3. Departmental approval. Structured intensive involvement within an agency or organization serving people in communities or rural areas. Supervision is shared between agency personnel and department faculty who plan, consult, discuss, and evaluate student activities and reports.

RSOC 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Individualized study of topics in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 4960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Departmental approval. Investigation of problems in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 5190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. Key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy). May count either RSOC 5190 or RSOC 6190.

RSOC 5410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. An introduction to the Cooperative Extension System and other forms of educational outreach. Application of techniques used in extension and outreach planning and programming.

RSOC 5510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or ECON 2020 or ECON 2023 or ECON 2027. Description for Bulletin: Measuring and explaining poverty inequality and their effects on families and society, analysis of anti-poverty programs.

RSOC 5610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes, and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 5640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3) LEC. 3. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; citizen participation in community affairs.

RSOC 5650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 6190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. This is an advanced course that will focus on key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy).

RSOC 6410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. An introduction to the Cooperative Extension System and other forms of educational outreach. Application of techniques used in extension and outreach planning and programming.

RSOC 6510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Description for Bulletin: Measuring and explaining poverty and inequality and their effects on families and society; analysis of anti-poverty programs.

RSOC 6610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 6650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 7620 SOCIOLOGY OF COMMUNITY (3) LEC. 3. Emphasis on theories, conceptual approaches and methods for studying communities and assessing developmental needs with attention to organizational structure, power structure, decision-making and linkage networks to societal units.

RSOC 7630 POLITICAL ECONOMY OF DEVELOPMENT (3) LEC. 3. Theories of societal development applied to contemporary issues associated with change in non-industrialized nations. Exploration of institutional, class, and state interests that guide development processes, as well as alternative participatory development strategies.

RSOC 7700 METHODS OF SOCIAL RESEARCH (3) LEC. 3. Problem identification, hypothesis development and empirical analysis. Quantitative and qualitative procedures for obtaining social data using surveys, direct observation and secondary sources.

RSOC 7960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Pr., departmental approval. Investigation of a problem in a particular area of interest involving an in-depth review of the literature, a research project, or an outreach education activity. Course may be repeated for a maximum of 6 credit hours.

RSOC 7970 SPECIAL TOPICS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (3) LEC. 3. Departmental approval. New topic in the area of rural sociology and community development.

RSOC 7990 RESEARCH AND THESIS (1-10) MST. In conjunction with the preparation of a thesis. Course may be repeated with change in topics.

Agribusiness Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above)

Code	Title	Hours
AGEC 3010	Agribusiness Marketing	3
Select one of the following:		3
AGEC 4000	Principles of Agribusiness Management	
AGEC 5010	Farm Management	
AGEC 5100	Agricultural Business Management	
Elective Courses - See below course listing.		9
Total Hours		**15**

Code	Title	Hours
Choose 9 hours to satisfy elective courses		
AGEC 3100	Computer Applications in Agricultural Economics	3
AGEC 3050	Farm Appraisal	2
AGEC 3080	Futures and Options Marketing	2
AGEC 3300	Agricultural Policies and Trade	3
AGEC 4040	Agribusiness Finance	3

AGEC 4070	Agricultural Law	3
AGEC 4100	Agricultural Cooperatives	2
AGEC 4970	Special Topics in Agricultural Economics	1-3
AGEC 5030	Agricultural Prices	3

Agricultural Business & Economics (AGEC)

The Agricultural Business and Economics major focuses on the business and economic aspects of farming, food and fiber production, and resource management. The major provides students with skills in economics, business management, finance, marketing, international trade, data analysis, and policy analysis related to agriculture and prepares students to make sound business and economic decisions. The Agricultural Business and Economics major prepares students to enter different careers available in the business and agricultural industries, such as agribusiness marketing, agribusiness management, agricultural law, agricultural lending and finance, agricultural commodity trading and merchandising, farm management, government, and education. This major is ideal for those interested in the intersection of agriculture, business, and economics, as it prepares graduates to work in both the private and public sectors. Graduates will become business leaders, economists, and policy makers who shape the future of food and agriculture.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History 1	3	Core History 2	3
AGEC 1000 Global Issues in Food, Agriculture, Development, and Environment	3	STAT 2510 Statistics for Biological and Health Sciences	3
Core Fine Arts	3	ECON 2020 Principles of Microeconomics[5]	3
MATH 1680 Calculus with Business Applications I	4	PHIL 1040 Business Ethics	3
	16		**15**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2110 Principles of Financial Accounting	3	ACCT 2210 Principles of Managerial Accounting	3
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
ECON 2030 Principles of Macroeconomics	**3**	**ECON 3020 Intermediate Microeconomics**	**3**
Core Literature	3	COMM 1000 Public Speaking	3
RSOC 2090 Food Systems: Policy, Production, and Practice	3	Free Elective	2
	16		**15**

Junior

Fall	Hours	Spring	Hours
AGEC 3100 Computer Applications in Agricultural Economics	**3**	**AGEC 3200 Quantitative Methods in Agricultural Economics**	**3**
AGEC 4040 Agribusiness Finance	**3**	**AGEC 3300 Agricultural Policies and Trade**	**3**
AGEC 3010 Agribusiness Marketing	**3**	AGEC 3950 Careers in Agricultural Business and Economics	1
ENGL 3080 Business Writing	3	Agricultural Elective[2,4]	3-4
Agricultural Elective[2,4]	3-4	Professional Elective[3]	4
	16		**15**

Senior				
Fall	**Hours**		**Spring**	**Hours**
AGEC 4070 Agricultural Law		**3**	**AGEC 5010 Farm Management**	**3**
AGEC 5090 Environmental and Natural Resource Economics I		**3**	**AGEC 5030 Agricultural Prices**	**3**
AGEC 5100 Agricultural Business Management		**3**	UNIV 4AA0 Achieve the Creed	0
Professional Elective[3]		5	Professional Elective[3]	5
			Free Elective[4]	2-4
		14		**13**

Total Hours: 120

Total Hours Required: 120

"Courses in the major" are in **bold** print and designated (M) (36 credit hours; used to calculate "GPA in the major")

1 PHIL 1020 Introduction to Ethics or PHIL 1027 Introduction to Ethics or PHIL 1120 Introduction to Environmental Ethics may be substituted.

2 Select one Agriculture Elective from Group I and one from Group II below:
(Group I- Animal Sciences) ANSC 1000, or POUL 1000, or FDSC 1000
(Group II- Plant Sciences) CSES 2000, HORT 2010, HORT 2020, or HORT 2030

3 Select from any course at the 3000-level or higher in the College of Agriculture, the College of Business, College of Sciences and Mathematics or the College of Forestry, Wildlife and Environment, as well as offerings at the 3000 level or better in Sociology, Anthropology, Geography, Political Science, or Statistics (except AGEC 4000 Principles of Agribusiness Management). Basic Soil Science (CSES 2040) may also be counted as a professional elective, as may up to 8 hours of a foreign language, regardless of the level. Any course that is used to complete a minor may also be counted as a professional elective. Students are encouraged to see their advisors to plan their professional electives around an interest area that best meets their career aspirations. If the student does not have a minor, the student is required to take 5 credits from AGEC 3080, AGEC 3050, AGEC 4100, AGEC 5250, AGEC 3920, AGEC 4960, or RSOC 5410/RSOC 6410. No more than six hours of professional electives can come from X9XX courses. A maximum of three credits from AGEC 3920 is allowed.

4 If the selected Agricultural Elective is 3 hours, the Free Elective requirement will be increased by 1 hour. A total of 120 hours is required for this major.

5 AGEC Students are required to make C or higher in ECON 2020.

Natural Resources Economics and Environmental Policy Minor

15 semester hours in minor (minimum 12 hours at 3000-level or above)

Code	Title	Hours
Group A		
Select three of the following:		9
AGEC 5090	Environmental and Natural Resource Economics I	
RSOC 5650	Sociology of Natural Resources and the Environment	
RSOC 3620	Community Organization	
GEOG 5830	Geographic Information Systems	
Group B		
Select two of the following:		6
AGEC 3300	Agricultural Policies and Trade	
RSOC 3560	Environment, Society, and Justice	
AGEC 4120	Environmental and Natural Resource Economics	
NATR 5310	Environmental Ethics	

FORY 5540/6540	Environmental Law	
Total Hours		**15**

Rural and Community Development Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above)

Code	Title	Hours
RSOC 3620	Community Organization	3
Elective Courses - See advisor for approved course listing.		9
RSOC 5610	Rural Sociology	3
Total Hours		**15**

Code	Title	Hours
Choose 9 hours of elective courses.		
RSOC 2090	Food Systems: Policy, Production, and Practice	3
RSOC 3560	Environment, Society, and Justice	3
SOCY 3700	Methods of Social Research	3
RSOC 4910	Directed Field Experience	3
RSOC 4930	Directed Studies	1-3
RSOC 5510	Social Welfare, Family and Poverty	3
RSOC 5650	Sociology of Natural Resources and the Environment	3

Department of Crop, Soil and Environmental Sciences

The Department of Crop, Soil and Environmental Sciences offers four degree options (production, science, turfgrass, and soil, water, and land use) and administers the interdisciplinary environmental sciences major. Degrees are tailored to prepare students in a wide range of careers in the turfgrass industry, agri-life industry (e.g., producers of fertilizers, herbicides and other agricultural products), farm-advisory agencies (e.g., soil-testing laboratories and other private consultants), environmental consulting and regulatory agencies, public farm-advisory agencies e.g., Agricultural Extension System or the Natural Resources Conservation Service), research agencies or corporations, U.S. Department of Agriculture, colleges and universities, agricultural experiment stations, farming, and environmental agencies.

Majors

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- Crop and Soil Sciences (p. 222)
- Crop and Soil Sciences — Turfgrass Option (p. 224)
- Environmental Science (p. 226)

Minors

- Crop and Soil Sciences (p. 224)
- Stewardship-based Agriculture (p. 227)

Courses

CSES 1010 SOILS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Practical applications of important soil properties and their function in everyday life. Connections between soils and human life will be made. topics include food security, sustainable agricultural production, soil and water quality, and waste disposal.

CSES 1020 CROPS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Essential role of crop plants to human life. Topics will include historical development of crop science, impact of crop science on human development, and major issues and problems facing modern crop science and technology.

CSES 2000 BASIC CROP SCIENCE (4) LEC. 3. LAB. 2. Agronomic principles of classification, growth, structure, and soil-plant relationship of field crops, with emphasis on influence of man and environment, and importance of crop production.

CSES 2040 BASIC SOIL SCIENCE (4) LEC. 3. LAB. 2. Pr. (CHEM 1010 and CHEM 1011) or (CHEM 1030 and CHEM 1031) or (CHEM 1110 and CHEM 1111) or (CHEM 1117 and CHEM 1118) or (CHEM 1033 and CHEM 1031). Formation, classification, properties, management, fertility and conservation of soils in relation to the growth of plants. Fall, Spring.

CSES 2910 TURFGRASSES: USES AND CARE FOR SPORTS AND LEISURE (2) LEC. 2. Introduction to the commonly used turfgrasses of the southeastern United States including of these turfgrasses for gold courses, athletic fields and home lawns will be included. This course may not be substituted for CSES 3150.

CSES 3120 PRINCIPLES OF WEED SCIENCE (4) LEC. 3. Pr. CSES 2040 or AGRN 2040 and (BIOL 1020 or BIOL 1027). Weed identification and biology, methods of weed management and classification of herbicides and how they are used in weed control. Laboratory subjects are weed identification and sprayer calibration. Fall.

CSES 3150 TURFGRASS MANAGEMENT (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or AGRN 2040) and (BIOL 1020 or BIOL 1027). The management of recreational and home area turfgrass will be studied including establishment and maintenance of turf and the effect of light, traffic, soil fertility and water on its growth. Fall, Spring.

CSES 3200 APPLIED TURF MANAGEMENT (3) LEC. 1. LAB. 4. Pr. P/C CSES 3150 or AGRN 3150. Familiarize students with the operation and maintenance of the equipment used for turfgrass maintenance. Effects on turfgrass performance will also be covered.

CSES 3300 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. (P/C CSES 2000) or (BIOL 1020). Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 3400 SUSTAINABLE MANAGEMENT OF TROPICAL SOILS (3) LEC. 3. LAB. 0, AAB/LEC. 0. This course explores the unique characteristics of tropical soils, focusing on their genesis, and physical, chemical, and biological properties. Students will learn to apply sustainable management practices that enhance soil health and productivity in tropical environments. The course integrates scientific principles with practical approaches to address challenges in soil conservation and agricultural sustainability in tropical regions.

CSES 3920 INTERNSHIP (3) INT. 3. Practical experience under the the supervision of an approved employer and the department. Internship may be in the areas of production, business, turf or science. Course may be repeated for a maximum of 6 credit hours.

CSES 3960 SPECIAL PROBLEMS (2) LAB. 2. Departmental approval. Individual and group problems investigations in crop, soil or weed science. Course may be repeated for a maximum of 4 credit hours.

CSES 3970 SPECIAL TOPICS (3) AAB/ST1. 3. New topics in agronomy and soils. Course may be repeated for a maximum of 6 credit hours.

CSES 4100 CROPS JUDGING (2) LEC. 1. LAB. 2. Departmental approval. Crops Judging is a course designed to prepare students for the national Crops Judging contest held at the Students of Agronomy, Soils and Environmental Sciences annual meeting. Students will learn practical knowledge to diagnose in-field agronomic problems such as crop nutrient deficiencies, disease damage, insect damage, weed pressure, herbicide injury, and soil management issues. Students must participate in the Crops Judging Contest at the SASES meeting in the semester the class is taken. Course may be repeated for a maximum of 6 credit hours.

CSES 4200 SOIL JUDGING (2) LEC. 1. LAB. 4. Description, evaluation and interpretation of soil-profile characteristics. Fall. Course may be repeated for a maximum of 8 credit hours.

CSES 4210 ADVANCED SOIL JUDGING (2) LEC. 1. LAB. 2. Pr. CSES 4200 or AGRN 4200. Advanced description, evaluation, and interpretations of soil-profile characteristics. Spring. Course may be repeated for a maximum of 8 credit hours.

CSES 4300 TURFGRASS COMPETITIONS (2) LEC. 1. LAB. 2. Departmental approval. The class is a comprehensive overview of practical turfgrass management in preparation for student competitions organized by the Sports Field Managers Association 9SFMA Student Challenge)and the Golf Course Superintendents Association of America (Turf Bowl). Students will compete in one or both of these contests during the semester following successful completion of the course. Course may be repeated for a maximum of 6 credit hours.

CSES 4950 SENIOR SEMINAR (2) LEC. 2. This course will cover professional presentations, both oral and written, in the area of Agronomy and Soils.

CSES 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

CSES 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

CSES 5000 ENVIRONMENTAL QUALITY (3) LEC. 3. Role of global land use in biogeochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 5010 ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. MATH 1130 or STAT 2510. Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 5020 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 5030 ADVANCED CROP SCIENCE (3) LEC. 3. Pr. (CSES 1000 or CSES 1003 or CSES 2000) or (AGRN 1000 or AGRN 1003 or AGRN 1007) or (AGRN 2040 or AGRN 2043) and (CSES 2040 or CSES 2043) and (BIOL 1030 or BIOL 1037). Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030.

CSES 5060 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Pr. BIOL 3200. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 5061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 5060 or P/C CSES 5063) or (P/C AGRN 5060 or P/C AGRN 5063). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 5080 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 5080 Summer. CSES 5083 Fall.

CSES 5100 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 5110 PLANT BREEDING I (3) LEC. 3. Pr. CSES 3300 or BIOL 3000 or BIOL 3003 or AGRI 3000. Fundamental principles and theories utilized in the science of plant breeding and cultivar development and the role breeding plays in crop improvement.

CSES 5120 PLANT BREEDING II (3) LEC. 3. Pr. CSES 5110. Review and contrast how major crop species breeding strategies are determined. Emphasis on integration of traditional methodologies with modern genetic and genomic technologies.

CSES 5150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 5160 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 5200 APPLIED WEED SCIENCE TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. CSES 3120 or AGRN 3120. Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 5230 DRONES FOR CROP PRODUCTION (3) LEC. 2. LAB. 2. Pr. (CSES 2000) and (CSES 2040). Use of drone technology for crop production including applications of pesticides and fertilizers, planting cover crops, and capturing remote imagery to monitor plant health and make crop management decisions. Department approval.

CSES 5240 CROP PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 or HORT 3000. Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed. Credit will only be given for one of the following: CSES 5240 or CSES 6240.

CSES 5250 AQUATIC SEDIMENTS (4) LEC. 3. LAB. 1. An overview of sediments in aquatic environments with a focus on the biogeochemistry, storage capacity, and use in paleoenvironmental reconstruction.

CSES 5300 SOIL CHEMISTRY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 5400 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 5500 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops. Spring. May count either CSES 5500 or CSES 5503.

CSES 5590 ENVIRONMENTAL SOIL PHYSICS AND VADOSE ZONE HYDROLOGY (4) LEC. 3. LAB. 2. Pr. CSES 2040. Explore the dynamic interplay of soil physical properties and vadose zone hydrology in this comprehensive environmental soil physics course. Delve into the intricate mechanisms governing the movement of water, chemicals, heat, and gases through soils within diverse ecosystems, including agricultural, urban, and natural landscapes. Uncover the complexities of the soil-plant-atmosphere continuum and gain hands-on experience with field instrumentation for precise measurement and assessment of soil physical properties.

CSES 5800 CLIMATE, WATER, AND LIFE (3) LEC. 3. LAB. 0. The course will introduce essential hydroclimate processes and phenomena, and their impacts on water resources, food and agriculture, and ecosystems. Major topics include climate variability and change, radiation, temperature, humidity, precipitation, land surface energy and water fluxes, their linkages with plants and humans, and climate hazards and resiliency.

CSES 5960 SPECIAL PROBLEMS (1-3) IND. Work under the direction of a staff member on special problems in crop, soil or weed science. Course may be repeated for a maximum of 6 credit hours.

CSES 6000 ENVIRONMENTAL QUALITY (3) LEC. 3. Role of global land use in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 6010 ANALY PLANT, SOIL & ANI DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 6020 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 6030 ADVANCED CROP SCIENCE (3) LEC. 3. Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030/CSES 6030 or CSES 5033/CSES 6036.

CSES 6060 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 6061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 6060 or P/C CSES 6066) or (P/C AGRN 6060 or P/C AGRN 6066). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 6080 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 6080 Summer. CSES 6086 Fall.

CSES 6110 PLANT BREEDING I (3) LEC. 3. Fundamental principles and theories utilized in the science of plant breeding and cultivar development and the role breeding plays in crop improvement.

CSES 6120 PLANT BREEDING II (3) LEC. 3. Pr. CSES 6110. Review and contrast how major crop species breeding strategies are determined. Emphasis on integration of traditional methodologies with modern genetic and genomic technologies.

CSES 6150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 6160 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (BIOL 3100 or BIOL 6130) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 6200 APPLIED WEED SCIENCE TECH (3) LEC. 2. LAB. 2. Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 6230 DRONES FOR CROP PRODUCTION (3) LEC. 2. LAB. 2. Use of drone technology for crop production including applications of pesticides and fertilizers, planting cover crops, and capturing remote imagery to monitor plant health and make crop management decisions. Department approval for undergraduate version.

CSES 6240 CROP PHYSIOLOGY (3) LEC. 3. Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed. Credit will only be given for one of the following: CSES 5240 or CSES 6240.

CSES 6250 AQUATIC SEDIMENTS (4) LEC. 3. LAB. 1. An overview of sediments in aquatic environments with a focus on the biogeochemistry, storage capacity, and use in paleoenviromental reconstruction.

CSES 6300 SOIL CHEMISTRY (4) LEC. 2. LAB. 4. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 6400 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 6500 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Pr., In major or departmental approval. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops and (d) energy crops. May count either CSES 6500 or CSES 6506.

CSES 6590 ENVIRONMENTAL SOIL PHYSICS AND VADOSE ZONE HYDROLOGY (4) LEC. 3. LAB. 2. Pr. CSES 2040. Explore the dynamic interplay of soil physical properties and vadose zone hydrology in this comprehensive environmental soil physics course. Delve into the intricate mechanisms governing the movement of water, chemicals, heat, and gases through soils within diverse ecosystems, including agricultural, urban, and natural landscapes. Uncover the complexities of the soil-plant-atmosphere continuum and gain hands-on experience with field instrumentation for precise measurement and assessment of soil physical properties.

CSES 6800 CLIMATE, WATER, AND LIFE (3) LEC. 3. The course will introduce essential hydroclimate processes and phenomena, and their impacts on water resources, food and agriculture, and ecosystems. Major topics include climate variability and change, radiation, temperature, humidity, precipitation, land surface energy and water fluxes, their linkages with plants and humans, and climate hazards and resiliency.

CSES 6900 DIRECTED STUDIES (1-3) DSL/LEC. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6930 ADVANCED DIRECTED STUDIES (1-3) DSL/LEC. SU. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6960 SPECIAL PROBLEMS (1-3) DSL/IND. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 7080 EXPERIMENTAL METHODS (3) LEC. 3. Pr. STAT 7000. Experimentation in the agricultural sciences including experimental techniques, interpretation of research data, use of library references, and preparation of publications. Problems, assigned readings and lectures. Summer.

CSES 7100 AGINFORMATICS: COMPUTATIONAL THINKING FOR AGRICULTURE (3) LEC. 2. LAB. 2. Computer programming for applied sciences. Focus on the Python programming language and utilization of the Unix command line. Python programming from basics of control structures to object-oriented programming. Course will cover script development using integrated development environments and accessing data via APIs. Course will cover the command line interface and introduction to Bash scripting.

CSES 7120 PLANT GENOMICS (3) LLB. Hands-on bioinformatics of complex plant genomes, including assembly and annotation. Writing- and bioinformatics-intensive course that culminates in a plant genome manuscript. Fall.

CSES 7140 CHEMISTRY AND USE OF HERBICIDES IN CROP PRODUCTION (4) LEC. 3. LAB. 2. Pr. CHEM 1040. Principles and use of herbicides in agronomic crops. Methods of herbicide application, including time, incorporation and formulation, the fate of herbicides in soil and the ecological impact on succeeding plant species. Fall.

CSES 7160 GENETIC DATA ANALYSIS (3) LEC. 3. Pr. (CSES 5100 or CSES 5103) or (CSES 6100 or CSES 6106) and STAT 4020 or (AGRN 5100 or AGRN 5103) or (AGRN 6100 or AGRN 6106). Introduces procedures to study the genetic characteristics of individuals and populations. Computer models will be used to simulate genomes and traits. Application of quantitative methods to experimental populations used to plan breeding programs. Fall.

CSES 7170 ADVANCED PLANT BREEDING (3) LEC. 3. Pr. CSES 7160 or (AGRN 7160 or AGRN 7166). Estimation and interpretation of genetic variance components, heritability, selection response, yield stability indices and their effect on choice of breeding method. Recurrent selection theory and breeding for resistance to plant stresses.

CSES 7180 SUSTAINABLE AGROECOLOGY (3) LEC. 3. Pr. (BIOL 6130 or CSES 7250) or (AGRN 7250 or AGRN 7256) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). The study of interactions between crops and abiotic and biotic environments. Emphasis is placed on quantitatively examining theory and principles for production, stability and sustainability of agricultural ecosystems. Graduate standing in CSES or departmental approval

CSES 7200 WEED BIOLOGY AND ECOLOGY (4) LEC. 3. LAB. 2. Students will learn a broader understanding of and appreciation for the biology and bionomics of agricultural weeds and invasive species, relevant analytical tools, and the application of ecological concepts for sustainable weed management in agricultural and natural systems.

CSES 7270 QUANTITATIVE GENETICS IN PLANT BREEDING (3) LEC. 3. Quantitative and population plant genetics and their interrelationship with plant breeding. Genetic and environmental variation and how they relate to selection procedures and choice of type of variety. Predictive plant breeding. QTL discovery, molecular breeding, and genomic selection in an applied breeding program.

CSES 7540 PRINCIPLES OF PLANT NUTRITION (3) LEC. 3. Pr. CSES 6020 or CSES 6026 or (AGRN 6020 or AGRN 6026). Processes of nutrient flux to plant roots growing in soil. Chemistry and properties of soil in relation to the nutrition and growth of plants. Summer.

CSES 7600 AGROCLIMATOLOGY (3) LEC. 3. The relationships between climatological processes and agriculture, including precipitation, evapotranspiration, meteorological hazards, irrigation and drainage, crop development, climate data acquisition and analysis, crop-weather models, and impacts of global climate change. May count either CSES 7600 pr CSES 7606.

CSES 7670 SPECIAL TOPICS (1-4) DSL/LEC. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7800 DEEP LEARNING FOR ENVIRONMENTAL SCIENCES (3) LEC. 2. LAB. 2. The course will cover concepts and applications of deep learning for environmental sciences. The goal is to understand the concepts and applications of deep learning methods in environmental sciences, formulate relevant environmental, climate, and earth system science problems, and how to use these methods for understanding and developing creative solutions to these problems.

CSES 7950 SEMINAR (1) DSL/SEM. 1. SU. Required of all graduate students in Agronomy and Soils. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

CSES 7970 SPECIAL TOPICS (1-4) LEC. 1-4, LAB. 1-4. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7990 RESEARCH AND THESIS (1-10) DSL/MST. Research and thesis on problems in the soil and crop sciences. Course may be repeated with change in topics.

CSES 8570 PHYSICAL SOIL CHEMISTRY (3) LEC. 3. Pr. (CSES 6300 or CSES 6306) and CHEM 6070 or (AGRN 6300 or AGRN 6306). Interpretation of soil properties and chemical reactions in terms of ion exchange, solubility diagrams, solutions equilibria, electrochemistry and electrokinetics of charged particles. Fall.

CSES 8580 FATE AND TRANSPORT OF CHEMICALS IN SOILS (3) LEC. 3. Pr. MATH 1720 and (PHYS 1600 or PHYS 1607) and CSES 7590. Transport phenomena in soils. Physical principles and analysis of the storage and movement of water, solutes, heat, and gases in soils. Spring.

CSES 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and dissertation on problems in the soil and crop sciences. Course may be repeated with change in topics.

Crop and Soil Sciences (CSSN)

Freshman

Fall	Hours	Spring	Hours
CSES 2000 Basic Crop Science[1]	**4**	Core Social Science[2,3]	3
ENGL 1100 English Composition I	3	Core History	3
BIOL 1020 Principles of Biology	3	CHEM 1111 General Chemistry I Laboratory ***or*** 1031 Fundamental Chemistry I Laboratory	1
BIOL 1021 Principles of Biology Laboratory	1	CHEM 1110 General Chemistry I ***or*** 1030 Fundamentals Chemistry I	3
MATH 1120 Pre-Calculus Algebra ***or*** 1130 Pre-Calculus Trigonometry	3	ENGL 1120 English Composition II	3
	14		**13**

Sophomore

Fall	Hours	Spring	Hours
CSES 2040 Basic Soil Science	**4**	CHEM 1120 General Chemistry for Scientists and Engineers II ***or*** 1040 Fundamental Chemistry II	3
STAT 2510 Statistics for Biological and Health Sciences	3	CHEM 1121 General Chemistry II Laboratory ***or*** 1041 Fundamental Chemistry II Laboratory	1
BIOL 1030 Organismal Biology	3	BIOL 3100 Plant Biology	4
BIOL 1031 Organismal Biology Laboratory	1	Core Literature	3
Core Fine Arts	3	Directed elective[4]	4
	14		**15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
CSES 5000 Environmental Quality	**3**	**CSES 5060 Soil Microbiology**	**3**	CSES Experiential Learning[9]	3

BIOL 3200 General Microbiology	3	**CSES 5061 Soil Microbiology Lab**	**1**
BIOL 3201 General Microbiology Laboratory	1	**CSES 5020 Soil Fertility and Nutrient Management**	**3**
COMM 1000 Public Speaking (Core Literature II or humanities)	3	Directed Elective[4]	4
Core History II or Social Science[3]	3	Core Social Science[3]	3
Core Literature II or Humanities[5]	3		
	16	**14**	**3**

Senior

Fall	**Hours**	**Spring**	**Hours**
Precision Ag[6]	4	**CSES 4950 Senior Seminar**	**2**
Soil and Water[7]	3-4	UNIV 4AA0 Achieve the Creed	0
Directed Elective[4]	8	Directed Elective[4]	10
		Plant Protection[8]	4
	15-16		**16**

Total Hours: 120-121

1 Courses in **bold** are major courses and require a 2.0 minimum GPA for graduation.

2 Please see advisor. Student choice on whether to do Literature or History sequence. University requires 12 hours of both Social Science and Humanities core.

3 Suggested Core Social Science
AGEC 1000 Global Issues in Food, Agriculture, Development, and Environment
SUST 2000 Introduction to Sustainability
COUN 2000 Living and Communicating in a Diverse Society
ECON 2020 Principles of Microeconomics

4 Directed Electives: (25-27 hr)
Please see advisor for specific course electives in the area of interests:

1. Plant Breeding and Genetics
2. Precision Agriculture
3. Crop Management, Consulting or Extension
4. Plant or Soil Science Research
5. Soil Conservation
6. Soil Remediation

5 Suggested Core Humanities
PHIL 1010 Introduction to Logic
PHIL 1020 Introduction to Ethics
PHIL 1110 Ethical and Conceptual Foundations of Science
PHIL 1120 Introduction to Environmental Ethics

6 Precision Agriculture: Choose one course (3-4 hr)
GEOG 5830 Geographic Information Systems
BSEN 5220 Geospatial Technologies in Biosystems
GEOG 5700 Quantitative Methods and Spatial Analysis

7 Soil and/or Water: (3-4hr)
CSES 5080 Soil Resources and Conservation
CSES 5250 Aquatic Sediments
CSES 5800 Climate, Water, and Life
FISH 5220 Water Science
FISH 5320 Limnology

8 Plant Protection: Choose one course (3-4 hrs)

	CSES 3120 Principles of Weed Science PLPA 3000 General Plant Pathology ENTM 4020 Economic Entomology ENTM 5330 Integrated Pest Management ENTM 3040 General Entomology ENTM 5360 Landscape Entomology
9	Learning experiences such as Internship, Undergraduate Research, Judging, etc. See advisor for current list of opportunities.

Crop and Soil Sciences Minor

17 semester hours in minor (minimum 9 hours at 3000-level or above)

Code	Title	Hours
CSES 2000	Basic Crop Science	4
CSES 2040	Basic Soil Science	4
Elective Courses - Choose 3 CSES courses at 3000 level or higher		9-12
Total Hours		**17-20**

Crop and Soil Sciences — Turfgrass Option (CSTU)

Freshman

Fall	Hours	Spring	Hours
CSES 2000 Basic Crop Science[1]	**4**	Core Social Science[2,3]	6
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory	4	Core History	3
MATH 1130 Pre-Calculus Trigonometry ***or*** 1120 Pre-Calculus Algebra	3	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	CHEM 1110 General Chemistry I ***or*** 1030 Fundamentals Chemistry I	3
		CHEM 1111 General Chemistry I Laboratory ***or*** 1031 Fundamental Chemistry I Laboratory	1
	14		**16**

Sophomore

Fall	Hours	Spring	Hours	Summer	Hours
CSES 2040 Basic Soil Science	**4**	**CSES 3150 Turfgrass Management**	**4**	CSES 3920 Internship	3
STAT 2510 Statistics for Biological and Health Sciences	3	CHEM 1120 General Chemistry for Scientists and Engineers II ***or*** 1040 Fundamental Chemistry II	3		
BIOL 1030 Organismal Biology	3	CHEM 1121 General Chemistry II Laboratory ***or*** 1041 Fundamental Chemistry II Laboratory	1		
BIOL 1031 Organismal Biology Laboratory	1	BIOL 3100 Plant Biology ***or*** HORT 3000 Growth and Development of Horticultural Plants	4		
COMM 1000 Public Speaking	3	Core Literature	3		
	14		**15**		**3**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
CSES 5160 Advanced Turfgrass Management	**3**	**CSES 5060 Soil Microbiology**	**3**	CSES 3920 Internship	3
BIOL 3200 General Microbiology	3	**CSES 5061 Soil Microbiology Lab**	**1**		
BIOL 3201 General Microbiology Laboratory	1	**CSES 5020 Soil Fertility and Nutrient Management**	**3**		
Core Literature II or Humanities [4]	3	Plant Protection [6]	4		
Directed Elective[5]	4	Core History II or Social Science[3]	3		
	14		**14**		**3**

Senior

Fall	Hours	Spring	Hours
CSES 5000 Environmental Quality	**3**	**CSES 4950 Senior Seminar**	**2**
Precision Ag[7]	4	UNIV 4AA0 Achieve the Creed	0
Directed Elective[5]	4	Soil and Water[8]	3-4
Core Fine Arts	3	Plant Protection[6]	8
	14		**13-14**

Total Hours: 120-121

1 Courses in boldface type are major courses and require a 2.0 minimum GPA for graduation.

2 Suggested Core Social Studies:
AGEC 1000 Global Issues in Food, Agriculture, Development, and Environment
COUN 2000 Living and Communicating in a Diverse Society
SUST 2000 Introduction to Sustainability
ECON 2020 Principles of Microeconomics

3 Please see advisor. Student choice on Literature or History sequence. University requires 12 hours of Social Science and Humanities core.

4 Suggested Core Humanities:
PHIL 1010 Introduction to Logic
PHIL 1020 Introduction to Ethics
PHIL 1110 Ethical and Conceptual Foundations of Science
PHIL 1120 Introduction to Environmental Ethics

5 Directed Electives (8hrs)
(Substitutions to this list must be approved by the program coordinator and be at or above 3000-level.):
CHEM 2070 Organic Chemistry I
CHEM 2071 Organic Chemistry I Laboratory
CHEM 2030 Survey of Organic Chemistry
BATM 3560 Turf Systems Irrigation Design
HORT 3210 Woody Landscape Plant Identification II
HORT 3220 Arboriculture
HORT 5210 Landscape Bidding, Installation and Maintenance
HORT 3280 Landscape Construction
CSES 5030 Advanced Crop Science
CSES 3300 Plant Genetics and Crop Improvement
CSES 5500 Forage Production and Utilization
CSES 5150 Soil Morphology
CSES 5080 Soil Resources and Conservation
CTCT 2100 Power Equipment Technology

6	CTCT 4140 Agricultural Structure and Metal Fabrication Technology Plant Protection: (12hrs) CSES 3120 Principles of Weed Science PLPA 3000 General Plant Pathology ENTM 3040 General Entomology ENTM 5360 Landscape Entomology ENTM 5330 Integrated Pest Management PLPA 5050 Plant Disease Diagnosis
7	Precision Agriculture (3-4 hr) GEOG 5700 Quantitative Methods and Spatial Analysis GEOG 5830 Geographic Information Systems BSEN 5220 Geospatial Technologies in Biosystems
8	Soil and/or Water: (3-4hr) CSES 5080 Soil Resources and Conservation CSES 5250 Aquatic Sediments CSES 5800 Climate, Water, and Life FISH 5220 Water Science FISH 5320 Limnology

Environmental Sciences (ENVI)

The Environmental Science program, like the rather broad field of environmental science, is by its very nature highly interdisciplinary. Although the College of Agriculture administers the program through the Department of Crop, Soil, and Environmental Sciences, the Samuel Ginn College of Engineering and the College of Sciences and Mathematics are partners in developing the curriculum, guiding student development and providing instruction.

Environmental quality issues are often complex and significant expertise in physics, chemistry, biology, soil science and geology is needed to understand specific problems. Moreover, formulating solutions often requires mathematical expertise as well as specific knowledge of the air, water, and soil environments. Thus, the program is structured to educate environmental scientists broadly, but with considerable depth.

The program is specifically tailored to produce graduates who can enter and have a reasonable expectation of success in a field that is continually changing. The principal educational goals are to provide each student with a broad-based general education, a solid background in mathematics, physical science, and biological science, breadth of exposure to the environmental science field, and depth of knowledge in a specific area of environmental science of choice.

The curriculum is organized around a core set of courses that are required of all students. Students desiring to specialize may select from courses, called professional track electives, that emphasize environmental applications of biological science, physical science, soil science, or engineering science.

Freshman

Fall	Hours	Spring	Hours
ENVI 1010 Introduction to Environmental Science[1]	**1**	ENGL 1120 English Composition II	3
CHEM 1030 Fundamentals Chemistry I & CHEM 1031 Fundamental Chemistry I Laboratory	4	**ENVI 1020 Fundamentals of Environmental Science**	**3**
ENGL 1100 English Composition I	3	BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory	4
Core History 1	3	CHEM 1040 Fundamental Chemistry II & CHEM 1041 Fundamental Chemistry II Laboratory	4
MATH 1610 Calculus I	4	Core History 2	3
	15		**17**

Sophomore

Fall	Hours	Spring	Hours
BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory	4	CHEM 2030 Survey of Organic Chemistry	3
PHYS 1500 General Physics I	4	STAT 2510 Statistics for Biological and Health Sciences	3
GEOL 1100 Dynamic Earth	4	PHYS 1510 General Physics II	4
COMM 1000 Public Speaking	3	**GEOL 2100 Environmental Geology**	**4**
	15		**14**

Junior

Fall	Hours	Spring	Hours
BIOL 3200 General Microbiology	**3**	CHEM 3050 Analytical Chemistry & CHEM 3051 Analytical Chemistry Laboratory	4
BIOL 3201 General Microbiology Laboratory	**1**	**Professional Track**[2]	**4**
FORY 5470 GIS Applications in Natural Resources	2	CIVL 5210 Chemical Principles of Environmental Engineering ***or*** 4210 Water and Wastewater Treatment and Design	3
CSES 2040 Basic Soil Science	**4**	**BIOL 3060 Ecology**	**4**
Professional Track[2]	**6**		
	16		**15**

Senior

Fall	Hours	Spring	Hours
ENVI 4950 Environmental Science Senior Seminar	**2**	**Professional Track**[2]	**7**
Professional Track[2]	**4**	Core Social Science[3]	3
ECON 2020 Principles of Microeconomics	3	Core Literature	3
Core Fine Arts	3	UNIV 4AA0 Achieve the Creed	0
CSES 5000 Environmental Quality	3	PHIL 1020 Introduction to Ethics	3
	15		**16**

Total Hours: 123

1 Courses in boldface type are major courses and require a 2.0 minimum GPA for graduation.
2 Professional Track - see adviser for approved course listing.
3 Student will choose from the following: ANTH 1000, GEOG 1010/GEOG 1017, PSYC 2010, SOCY 1000/SOCY 1007, or UNIV 2720.

Stewardship-based Agriculture Minor

Code	Title	Hours
Required Courses for All Students		
CSES 3920	Internship (Required for all students)	3
CSES 2000	Basic Crop Science (Will not count in the Minor for students in CSES - major course)	4

Code	Title	Hours
Lower Division Courses		
CSES majors - take 6 hours from this group		

All other students - take 3 hours from this group		
CSES 2040	Basic Soil Science (Will not count for CSES and ENVI students - major course)	4
POUL 1000	Introductory Poultry Science (Will not count for students in POUL - major course)	3
HORT 2010	Fruit and Nut Production (Will not count for HORT students in Fruit and Veg production - major course)	4
HORT 2030	Vegetable Production (Will not count for HORT students in Fruit and Veg production - major course)	3
ANSC 1000	Introduction to Animal Sciences (Will not count for ANSC students - major course)	4
ANSC 2010	Animals and Society	3
PLPA 2000	Pests, Pathogens, Parasites, and People	3

Code	Title	Hours
Upper Division Courses - 6 hours selected from this group.		
AGEC 4000	Principles of Agribusiness Management (Will not count for CSES students in the Production option - major course. Students in the College of Business or in AGEC may not take this course for credit towards the minor. ECON 2020 is a pre-requisite.)	3
CSES 5020	Soil Fertility and Nutrient Management (Will not count for students in CSES - major course. AGRN 2040 is a pre-requisite.)	3
CSES 5030	Advanced Crop Science (Will not count for CSES students in the Production option - major course. CSES 1000, CSES 2040, BIOL 1030/1031 are pre-requisites.)	3
CSES 5080	Soil Resources and Conservation (Will not count for CSES students in the Production or Science* option - major course)	4
CSES 5500	Forage Production and Utilization (Will not count for CSES students in the Production or Science* option - major course)	3
HORT 4250	Intermediate Fruit & Veg Prod (HORT 2040 or HORT 2030 are pre-requisites)	3
RSOC 2090	Food Systems: Policy, Production, and Practice	3
PLPA 5050	Plant Disease Diagnosis (PLPA 3000 is a pre-requisite)	3
*The Science option in CSES requires either CSES 5080 or CSES 5500 but not both as a major course. Thus, a student in CSES in this minor could count one of the courses towards the minor.		

Many of these courses are also available as distance courses. Those courses would also be considered in this minor - their course numbers are not included for brevity and document clarity.

Department of Animal Sciences

The department offers two curriculum options. The Pre-Veterinary & Animal Biosciences option (ANPB) provides students with a foundation in the biological and physical sciences for careers in emerging areas of animal biotechnology while satisfying requirements for application to Auburn's College of Veterinary Medicine, other professional schools, or graduate school. The Animal Industries option (ANIN) offers greater breadth in animal production management and agribusiness while retaining more electives hours for additional curriculum flexibility. Students may use electives to develop expertise in fields such as animal breeding, nutrition, reproduction, growth, equine science, and meat science.

Majors

- Animal Sciences — Pre-Veterinary and Biosciences Option (p. 234)
- Animal Sciences — Industries Option (p. 233)

Minor

- Animal Sciences (p. 232)

Courses

ANSC 1000 INTRODUCTION TO ANIMAL SCIENCES (4) LEC. 3. LAB. 2. The importance of livestock to agriculture and to the health and nutrition of a modern society. Livestock terminology, selection, reproduction, nutrition, management, marketing, and species characteristics of beef and dairy cattle, swine, sheep and horses.

ANSC 1050 INTRODUCTION TO EQUINE CARE AND USE (3) LEC. 2. LAB. 2. This course serves as an introductory course to the history, care, use, and enjoyment of horses. Students will learn the foundations of numerous topics of working with horses and how to handle horses safely and effectively.

ANSC 1100 ORIENTATION TO ANIMAL SCIENCES (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of the college experience. Breadth of career opportunities for animal science graduates.

ANSC 2000 COMPANION ANIMAL MANAGEMENT (3) LEC. 3. Practical aspects of behavior, nutrition, breeding, reproduction, health and management of dogs, cats and other animals generally considered to be human companions.

ANSC 2010 ANIMALS AND SOCIETY (3) LEC. 3. Ethical and scientific issues surrounding human-animal interactions and the role human-animal interactions play in modern society.

ANSC 2050 EQUINE BEHAVIOR AND TRAINING (3) LEC. 1. LAB. 4. Pr. ANSC 1050. This course is designed to teach students concepts of how equine behavior applies to training. Students will be exposed to a variety of training methods used in the equine industry.

ANSC 2100 DAIRY GOAT U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Dairy Goat U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2150 SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. SU. Departmental approval. Basic management and care of animals used in intercollegiate equestrian and rodeo sports. Must be affiliated with the NCEA Equestrian Team or IHSA Equestrian Team in current term. Course may be repeated for a maximum of 2 credit hours.

ANSC 2200 DAIRY U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Dairy U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2300 BEEF U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Beef U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2400 HORSE U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Horse U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2720 THE MEAT WE EAT (3) LEC. 3. Foundation course on the global meat industry with emphasis on meat products, modern processing techniques, concepts of food safety, sanitation, inspection, grading and meeting consumer demands.

ANSC 2910 PRACTICUM IN LIVESTOCK WELFARE AND MANAGEMENT (2) LAB. 6. Pr. ANSC 1000. Departmental approval. Hands-on laboratory teaching applied management of livestock species, including horses, cattle, swine and small ruminants, using modern equipment and techniques.

ANSC 3000 HERD HEALTH MANAGEMENT (3) LEC. 3. Pr. ANSC 1000. The prevention and control of the major diseases of farm animals and the development of herd health programs.

ANSC 3150 EQUINE MARKETING (3) LEC. 3. Pr. ANSC 1000 and (ECON 2020 or ECON 2023 or ECON 2027). Practical concepts of equine marketing including evaluating the horse, assessing the market, targeting customers, and presenting the horse.

ANSC 3300 INTRODUCTORY LIVESTOCK EVALUATION AND MARKETING (2) LAB. 6. Pr. ANSC 1000. Comprehensive study of live animal and carcass evaluation techniques used in the selection and marketing of beef cattle, swine and sheep. The development of decision-making oral communication skills is emphasized.

ANSC 3310 INTRODUCTION TO MEAT SELECTION AND GRADING (2) LAB. 4. Instruction for the evaluation of meat carcasses, cuts, and products from cattle, swine, sheep, and goats. Understanding and calculating meat yield and quality for each species, evaluation of valuable traits, understanding product specifications, and preparation of written reasons. This course is required for participation in the meat judging program but is open to all students.

ANSC 3400 ANIMAL NUTRITION (4) LEC. 3. LAB. 2. Pr. CHEM 1040 and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles and practice of animal nutrition, nutrient contents of feedstuff, and diet formulation.

ANSC 3410 ANIMAL METABOLISM AND NUTRITION (3) LEC. 3. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles of animal nutrition and nutrient metabolism and a study of nutrients and their utilization by animals.

ANSC 3420 APPLIED ANIMAL FEEDING AND NUTRITION (3) LEC. 2. LAB. 1. Pr. ANSC 3410. Feedstuffs, diet formulation, and feeding practices applicable to the well-being and performance of economically important livestock and companion animals.

ANSC 3500 ANIMAL BREEDING (3) LEC. 3. Pr. ANSC 1000 and (STAT 2510 or STAT 2513 or BIOL 3000 or BIOL 3003 or AGRI 3000). Genetic and environmental effects of animal differences. Selection and mating systems used in the improvement of domestic animals with an emphasis on livestock.

ANSC 3600 REPRODUCTIVE PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and BIOL 2510. Comparative anatomy, physiology and endocrinology of animal reproduction; principles of reproductive biotechnologies used to enhance reproductive efficiency in mammalian systems.

ANSC 3610 ANIMAL GROWTH AND DEVELOPMENT (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and (BIOL 1030 or BIOL 1037). Biology of prenatal and postnatal growth of meat animals, emphasizing muscle, adipose, and bone tissues from a molecular, cellular, endocrine perspective. Application of concepts to improve rate, efficiency, and composition of growth.

ANSC 3650 PHYSIOLOGY OF EQUINE ATHLETE (3) LEC. 3. Pr. ANSC 1000 and BIOL 2510. Selection and development of the horse for athletic performance; exercising, training, and fitness conditioning for performance horses.

ANSC 3700 MUSCLE FOODS (4) LEC. 3. LAB. 2. Pr. ANSC 1000. Introduction to domestic animal growth and development, comparative evaluation of livestock and carcass composition. Biochemical and physiological factors affecting fresh meat and processed meat quality. Fundamentals of ante-and postmortem muscle biology, slaughter, processing, storage and merchandising of meat and meat products.

ANSC 3760 VALUE BASED MARKETING OF LIVESTOCK (3) LEC. 2. LAB. 2. Livestock grading standards and their application to carcasses of meat producing animals, concepts and principles of marketing, advertising, promotion and sales of commercial livestock.

ANSC 3800 CAREERS IN ANIMAL SCIENCE (1) LEC. 1. SU. Career opportunities for animal science graduates. Identifying and investigating careers and presenting oneself professionally for employment or post-baccalaureate education.

ANSC 3840 STUDY/TRAVEL IN ANIMAL SCIENCE (1-10) AAB/FLD. Departmental approval. Concentrated study in animal production and management, equine science and the meats industry within the US or international locations. Course may be repeated for a maximum of 10 credit hours.

ANSC 4000 MODERN LIVESTOCK SYSTEMS (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of beef, dairy, swine and small ruminant production systems. Modern concepts, ideas, and methodology associated with the application of technology to reproduction, breeding, health, nutrition, waste nutrient utilization, and management.

ANSC 4010 BEEF PRODUCTION (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of the beef cattle industry. Modern concepts, ideas and methodology associated with the application of technology to reproduction, breeding, nutrition, management and the use of facilities in a modern beef cattle enterprise.

ANSC 4050 EQUINE PRODUCTION AND MANAGEMENT (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420 or ANSC 4450) and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, reproduction, selection, herd health, and management for efficient horse production.

ANSC 4150 ADVANCED SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. SU. Pr. ANSC 2150. Principles and skills utilized in intercollegiate equestrian and rodeo team competition and management. Issues affecting management, training, marketing, and promotion of animals used in equestrian and rodeo sports. Must be affiliated with the NCEA Equestrian Team or IHSA Equestrian Team in current term. Course may be repeated for a maximum of 2 credit hours.

ANSC 4300 ADVANCED LIVESTOCK JUDGING (1) LAB. 4. Departmental approval. Advanced course in principles and techniques of livestock selection based on visual criteria, performance records, and other advanced technologies. Course may be repeated for a maximum of 2 credit hours.

ANSC 4310 ADVANCED MEAT JUDGING (1) LAB. 4. Pr. ANSC 3310. Practice in evaluation and grading of beef, pork, and lamb carcasses and cuts. Development of communication skills and exposure to animal agriculture through training and intercollegiate competition. Course may be repeated for a maximum of 2 credit hours.

ANSC 4450 EQUINE NUTRITION (3) LEC. 2. LAB. 2. Pr. ANSC 3410 or ANSC 3400. Principles of digestive physiology, nutrition, and metabolic disorders unique to various classes of horses.

ANSC 4700 MEAT PROCESSING (4) LEC. 3. LAB. 3. Integration of topics in meat and non-meat ingredient chemistry and their applications to muscle food processing. Physical, chemical, and sensory properties of fresh and processed meat products.

ANSC 4800 ISSUES IN ANIMAL AGRICULTURE (2) LAB. 4. Pr. COMM 1000 or COMM 1003. Issues affecting animal agriculture, dealing with concerns of consumers and activists, involvement in public debate, and the political process.

ANSC 4810 PROFESSIONAL DISCOURSE IN AGRICULTURE (1) LAB. 2. Pr. COMM 1000 or COMM 1003. Methods for enhancing effective discourse concerning issues facing the livestock industry.

ANSC 4920 INTERNSHIP IN ANIMAL SCIENCES (2) INT. SU. Departmental approval. Practical experience in an animal agriculture industry. Course may be repeated for a maximum of 4 credit hours.

ANSC 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Students will work under the direction of staff members on specific problems. Course may be repeated for a maximum of 15 credit hours.

ANSC 4967 HONORS SPECIAL PROBLEMS (3-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

ANSC 4970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-4) IND. Instruction and discussion of selected current topics in Animal Sciences. Course may be repeated for a maximum of 4 credit hours.

ANSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ANSC 4997 HONORS THESIS (3-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

ANSC 5070 ANIMAL WELFARE (3) LEC. 3. Pr. (POUL 1000 or ANSC 1000) and (POUL 3150 or ANSC 3600 or ANSC 3410). This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

ANSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. Credit will only be given for one of the following courses: ANSC 5700 or ANSC 6700.

ANSC 6070 ANIMAL WELFARE (3) LEC. 3. This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

ANSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (3) LEC. 3. LAB. 0. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. Credit will only be given for one of the following courses: ANSC 5700 or ANSC 6700.

ANSC 7010 ADVANCED BEEF SYSTEMS (3) LEC. 3. Advanced study of contemporary beef cattle production systems, including principles of planning, resource management and financing plus integrated biology in areas of breeding and selection, reproduction, metabolism, nutritional physiology and growth, health and disease; integration of forage system biology, soil and forage management as related to performance and sustainability.

ANSC 7400 RUMINANT NUTRITION (3) LEC. 3. Digestive physiology, mechanisms of rumen fermentation, postruminal nutritional biochemistry.

ANSC 7410 NONRUMINANT NUTRITION (3) LEC. 3. Departmental approval. Digestion, absorption, and utilization of macro and micro nutrients, nutrient interrelationship in swine and other non-ruminant species.

ANSC 7610 PHYSIOLOGY OF GROWTH (3) LEC. 3. Pr. BCHE 7210. Molecular and cellular basis of tissue differentiation, growth and development with emphasis on muscle, adipose and connective tissues and factors influencing gene expression controlling such events.

ANSC 7700 MUSCLE FOODS AND APPLIED MUSCLE BIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 3700 and BCHE 7210. Investigations of muscle microanatomy, biochemistry of muscle proteins and lipids, biochemistry of skeletal muscle contraction, lipid/protein interactions, antemortem and postmortem factors affecting fresh and processed meat quality; discussion of classic and current scientific literature.

ANSC 7950 SEMINAR (1) LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.

ANSC 7960 SPECIAL PROBLEMS (1-5) DSL/LEC. Conference problems, assigned reading, literature searches in one or more of the following major fields; (a) biochemistry, (b) nutrition, (c) animal breeding, (d) reproductive physiology, (e) growth physiology, (f) muscle foods, (g) microbiology, and (h) behavior. Course may be repeated for a maximum of 15 credit hours.

ANSC 7970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-5) IND. Emerging topics in Animal Science and related industries. Course may be repeated for a maximum of 5 credit hours.

ANSC 7990 RESEARCH AND THESIS (1-15) MST. Research and thesis may be on technical laboratory problems or on problems directly related to beef and dairy cattle, sheep, swine, or laboratory animals. Course may be repeated with change in topics.

ANSC 8400 PROTEIN AND ENERGY METABOLISM (3) LEC. 3. Pr. BCHE 7210. Nutritional biochemistry of protein and energy metabolism of mammalian, avian and aquatic species. Concepts of protein turnover, nutrient-gene interactions, control of bioenergetics, nutritional assessment, nutritional quality of nutrient sources.

ANSC 8410 VITAMIN AND MINERAL METABOLISM (3) LEC. 3. Departmental approval. Vitamin and mineral nutrition with emphasis on chemical structures and characteristics, metabolic functions, deficiencies and toxicity syndromes, interrelationships and requirements of vitamins and minerals.

ANSC 8950 DOCTORAL SEMINAR (1) LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.

ANSC 8990 DOCTORAL RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topics.

Animal Sciences Minor

The Animal Sciences minor requires a total of 16 hours of approved course work (minimum of 9 hours at 3000-level or above) from the following:

Code	Title	Hours
Required Course:		
ANSC 1000	Introduction to Animal Sciences	4
Select one from the following:		
ANSC 1050	Introduction to Equine Care and Use	3
ANSC 2000	Companion Animal Management	3
ANSC 2010	Animals and Society	3
ANSC 2050	Equine Behavior and Training	3
ANSC 2720	The Meat We Eat	3
ANSC 2910	Practicum in Livestock Welfare and Management	2
Select minimum of 9 hours from the following:		
ANSC 3000	Herd Health Management	3
ANSC 3150	Equine Marketing	3
ANSC 3300	Introductory Livestock Evaluation and Marketing	2
ANSC 3310	Introduction to Meat Selection and Grading	2
ANSC 3400	Animal Nutrition	4
ANSC 3500	Animal Breeding	3
ANSC 3600	Reproductive Physiology	4
ANSC 3610	Animal Growth and Development	4
ANSC 3650	Physiology of Equine Athlete	3
ANSC 3700	Muscle Foods	4

ANSC 3760	Value Based Marketing of Livestock	3
ANSC 3840	Study/Travel in Animal Science May only count one time towards minor	2
ANSC 4000	Modern Livestock Systems	4
ANSC 4010	Beef Production	4
ANSC 4050	Equine Production and Management	4
ANSC 4300	Advanced Livestock Judging	1
ANSC 4310	Advanced Meat Judging	1
ANSC 4450	Equine Nutrition	3
ANSC 4700	Meat Processing	4
ANSC 4800	Issues in Animal Agriculture	2
ANSC 4810	Professional Discourse in Agriculture	1
ANSC 4980	Undergraduate Research May only count one time towards minor	2
ANSC 5070	Animal Welfare	3
ANSC 5700	Microbiology of Meats and Other Foods	3

Total required: 16 hours

Animal Sciences — Animal Industries Option (ANIN)

Freshman

Fall	Hours	Spring	Hours
ANSC 1100 Orientation to Animal Sciences	**1**	**ANSC 1000 Introduction to Animal Sciences**	**4**
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1130 Pre-Calculus Trigonometry	3		
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
ANSC Elective - Lower Level[1]	**2**	COMM 1000 Public Speaking	3
Core Literature	3	ANSC Elective - Experiential Learning[2]	2
Core Fine Art	3	Core Humanities	3
Core History 1	3	STAT 2510 Statistics for Biological and Health Sciences	3
	15		**15**

Junior

Fall	Hours	Spring	Hours
ANSC 3400 Animal Nutrition	**4**	**ANSC Elective - Upper Level[3]**	**3**
ANSC 3600 Reproductive Physiology	**4**	**ANSC 3500 Animal Breeding**	**3**

AGRI 3000 Agricultural Genetics (OR BIOL 3000 & 3001)	4	**ANSC 3800 Careers in Animal Science**	**1**
ECON 2020 Principles of Microeconomics	3	**ANSC 3700 Muscle Foods**	**4**
Core History 2	3	Career Elective[5]	3
	18		**14**

Senior

Fall	Hours	Spring	Hours
ANSC Elective - Upper Level	**3**	**ANSC Elective - Capstone[4]**	**4**
BIOL 3200 General Microbiology	3	ANSC Elective - Lower or Upper Level	3
BIOL 3201 General Microbiology Laboratory	1	Career Elective[5]	3
Core Social Science	3	Free Electives	2
AGEC 4000 Principles of Agribusiness Management	3	UNIV 4AA0 Achieve the Creed	0
Free Electives	3		
	16		**12**

Total Hours: 120

Bolded courses constitute the major (33 hrs; 2.0 GPA required for these courses).

1 ANSC Lower Level Electives:
ANSC 1050, ANSC 2000, ANSC 2010, ANSC 2050, ANSC 2100, ANSC 2200, ANSC 2300, ANSC 2400, ANSC 2720, ANSC 2910

2 ANSC Experiential Learning Electives:
ANSC 2100, ANSC 2200, ANSC 2300, ANSC 2400, ANSC 3300, ANSC 3840, ANSC 4300, ANSC 4920, ANSC 4980, AGRI 4000

3 ANSC Upper Level Electives:
ANSC 3000, ANSC 3150, ANSC 3300, ANSC 3610, ANSC 3650, ANSC 3760, ANSC 3840, ANSC 4000, ANSC 4010, ANSC 4050, ANSC 4300, ANSC 4450, ANSC 4700, ANSC 4800, ANSC 4810, ANSC 4920, ANSC 4980, ANSC 5070, ANSC 5700, BCHE 3200, POUL 5020, CSES 5500

4 ANSC Capstone Courses:
ANSC 4000, ANSC 4010, ANSC 4050

5 ANSC Career Electives:
See advisor for possible courses to fill this requirement.

Animal Sciences — Pre-Veterinary & Animal Biosciences Option (ANPB)

Freshman

Fall	Hours	Spring	Hours
ANSC 1100 Orientation to Animal Sciences	**1**	**ANSC 1000 Introduction to Animal Sciences**	**4**
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1130 Pre-Calculus Trigonometry	3		
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
ANSC Elective - Lower Level[1]	**2**	COMM 1000 Public Speaking	3
Core Fine Art	3	ECON 2020 Principles of Microeconomics	3
Core History 1	3	STAT 2510 Statistics for Biological and Health Sciences	3
	16		**17**

Junior

Fall	Hours	Spring	Hours
ANSC 3700 Muscle Foods	**4**	**ANSC 3600 Reproductive Physiology**	**4**
ANSC 3400 Animal Nutrition	**4**	**ANSC 3800 Careers in Animal Science**	**1**
BCHE 3200 Principles of Biochemistry	3	**ANSC 3500 Animal Breeding**	**3**
AGRI 3000 Agricultural Genetics (Or BIOL 3000 & 3001)	4	PHYS 1500 General Physics I	4
		Core History 2	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
Core Literature	3	**ANSC Elective - Capstone**[3]	**4**
BIOL 3200 General Microbiology	3	Core Social Science	3
BIOL 3201 General Microbiology Laboratory	1	Health Science or ANSC Elective[4]	3
ANSC Elective - Upper Level[2]	**3**	Free Electives	4
Core Humanities	3	UNIV 4AA0 Achieve the Creed	0
	13		**14**

Total Hours: 120

Bolded courses constitute the ANPV major (30 hrs; 2.0 GPA required for these courses).

1 ANSC Lower Level Electives:
ANSC 1050, ANSC 2000, ANSC 2010, ANSC 2050 ANSC 2100, ANSC 2200, ANSC 2300. ANSC 2400, ANSC 2720, ANSC 2910

2 ANSC Upper Level Electives:
ANSC 3000, ANSC 3150, ANSC 3300, ANSC 3610, ANSC 3650, ANSC 3760, ANSC 3840, ANSC 4000, ANSC 4010, ANSC 4050, ANSC 4300, ANSC 4450, ANSC 4700, ANSC 4800, ANSC 4810, ANSC 4920, ANSC 4980, ANSC 5070, ANSC 5700, POUL 5020, CSES 5500

3 ANSC Capstone Courses:
ANSC 4000, ANSC 4010, ANSC 4050

4 Health Science Related Elective:
BIOL 3010, BIOL 4000, BIOL 4100, BIOL 5110, BIOL 5220, PHYS 1510, APBT 3100, PAOH 3010, PAOH 5100, ENTM 3040

Department of Biosystems Engineering

Biosystems engineers ensure that we have the necessities of life: healthy food to eat, clean water to drink, renewable fuel and energy sources, and a healthy environment in which to live. The mission of the Department of Biosystems Engineering at Auburn University is to develop and disseminate engineering knowledge to solve problems in biological systems, natural resources, and the environment. It meets the resident instruction portion of that mission through the offering of a degree program which leads to a Bachelor of Biosystems Engineering, and another degree that leads to Bachelor of Science in Biological and Agricultural Technology Management. The four pathways to the BSEN degree program (biosystems engineering pathway, bioprocess engineering option, ecological engineering option, and forest engineering option), and the biological and agricultural technology management degree program are described below:

Biosystems Engineering

The Department of Biosystems Engineering offers the only accredited degree in biosystems engineering in Alabama. It is committed to preparing students for productive professional careers in the biosystems industries and related natural resource and environmental systems sectors.

The biosystems engineering program curriculum pathway is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the pre-biosystems engineering program.

Bioprocess Engineering Option

The focus of the bioprocess engineering option is to produce engineers that seamlessly combine engineering and natural sciences to designing and developing systems, processes and equipment that convert biological and agricultural materials to value-added products such as food, nutraceuticals, polymers and pharmaceuticals. Bioprocess engineers provide a bridge between the research lab and the economic, large-scale implementation of technologies used to convert these biological materials to value-added products. The bioprocess engineering option is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the bioprocess engineering option portion of the pre-biosystems engineering program.

Ecological Engineering Option

The Department of Biosystems Engineering offers an option in ecological engineering as part of the Bachelor of Biosystems Engineering degree. This option prepares students to solve environmental problems by applying engineering knowledge to natural ecological and biological systems. Ecological engineering combines basic and applied science from engineering, ecology, economics, and natural sciences to design, construct, and manage sustainable ecosystems that have value to both humans and the natural environment. The ecological engineering option is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the ecological engineering option portion of the pre-biosystems engineering program.

Forest Engineering Option

The Department of Biosystems Engineering (in conjunction with the Samuel Ginn College of Engineering and College of Forestry, Wildlife and Environment) offers an option in forest engineering as part of the Bachelor of Biosystems Engineering degree.

This forest engineering option involves preparing graduates to be able to apply of engineering principles and techniques for sustainable management and maintenance of trees, soil, water and other natural resources with the forest ecosystem. Forest engineering is therefore a hybrid of engineering, forest and management that is focused on efficient, cost-effective and environmentally friendly utilization of these resources. Therefore, this option prepares students for productive professional careers in the forest products industry and related natural resource and environmental systems sector.

The forest engineering option is coordinated by the Samuel Ginn College of Engineering and the College of Forestry, Wildlife and Environment, and is administered by the Department of Biosystems Engineering. Students can become registered foresters upon completion of a minor in forest resources. Beginning students should apply to the Samuel Ginn College of Engineering and complete the forest engineering option portion of the pre-biosystems engineering program. Students pursuing the forest engineering option must meet College of Forestry, Wildlife and Environment requirements for admission to the Forestry Summer Field Practicum.

Biological and Agricultural Technology Management

Students enrolled in the biological and agricultural technology management (BATM) major take a variety of courses in technology, science and management that will enable them to be practical problem solvers and be able to manage and develop solutions to the technological challenges of the increasingly complex agricultural and biological systems of the 21st century. The curriculum is also

designed such that students can simultaneously obtain a minor in an area that is of interest to the student such as minor in agronomy and soils, stewardship-based agriculture, agribusiness, poultry science, information systems management, business analytics, technical and professional communication, or sustainability. The BATM curriculum is coordinated by the College of Agriculture.

Majors

- Biosystems Engineering (p. 640)
- Biosystems Engineering — Bioprocess Engineering Option (p. 637)
- Biosystems Engineering — Ecological Engineering Option (p. 642)
- Biosystems Engineering — Forest Engineering Option (p. 639)
- Biological and Agricultural Technology Management (p. 242)

Bio Ag Technology Management Courses

BATM 1110 INTRODUCTION TO TECHNOLOGY DESIGN (3) LEC. 2. LAB. 3. Introduction to the design process, 2D and 3D parametric solid modeling, and both manual and automated fabrication processes.

BATM 2110 DIGITAL ANALYTICS IN AGRICULTURE AND TECHNOLOGY (3) LEC. 2. LAB. 1. Pr. BATM 1110 or BIOP 2120. An introduction to creative and analytical methods to solve technological problems. Define the problem, explore strategies, select and implement solutions, and evaluate results.

BATM 3100 COMPUTER AIDED DESIGN TECHNOLOGY (3) LEC. 2. LAB. 1. Introductory course in computer aided design (CAD) and land mapping. Students gain competence in CAD operations used to fabricate parts and to develop field- and watershed-scale maps. Class and project topics include drawing for mechanical part fabrication and scale mapping for construction site development and agricultural field management. Must be in Junior standing Course may be repeated for a maximum of 6 credit hours.

BATM 3110 AG TECHNOLOGY GEOSPATIAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 1110 and (PHYS 1500 or PHYS 1600). Geospatial applications for agricultural land resource management. Course introduces equipment and practices used in conventional land surveying and geospatial mapping as they interface with global positioning systems (GPS), geographic information systems (GIS), and computer-aided design (CAD).

BATM 3500 NATURAL RESOURCE SYSTEMS CONSERVATION (3) LLB. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680) and (PHYS 1500 or PHYS 1600). Natural resource conservation technologies including rainfall-runoff relationships, sediment transport capacity, runoff control structures, water supply development, surveying techniques including GPS methods.

BATM 3510 AGRICULTURAL POWER AND MACHINERY FUNDAMENTALS (3) LLB. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680) and (PHYS 1500 or PHYS 1600). Power unit fundamentals with emphasis on diesel and small gasoline engines; mechanics of operation, safety, use, and adjustment of machines used for horticultural and agronomic crop production; and precision agriculturr principles and technology.

BATM 3530 AGRICULTURAL PRODUCTION AND PROCESSING FACILITY TECHNOLOGY (3) LEC. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680. Fundamental requirements for the design and operation of agricultural production and processing facilities.

BATM 3560 TURF SYSTEMS IRRIGATION DESIGN (3) LEC. 3. Pr. MATH 1120 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680. Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.

BATM 4100 PROFESSIONAL PRACTICE IN TECHNOLOGY MANAGEMENT (2) LEC. 1. LAB. 3. Pr. BATM 5110. First in the two-course capstone experience. This course focuses on professional topics that prepare students for technical careers; teamwork, communication, standards and codes, economics, project and time management. Teams initiate the capstone design project.

BATM 4110 TECHNOLOGY CAPSTONE (3) LEC. 1. LAB. 6. Pr. BATM 4100. Development and evaluation of a team-based capstone project using tools from the technology curriculum; emphasizing communication, critical thinking, and technical and economic analyses.

BATM 4960 SPECIAL PROBLEMS IN AGRICULTURAL TECHNOLOGY MANAGEMENT (3-6) IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biological and agricultural technology management. May be repeated with change in problem. Course may be repeated for a maximum of 6 credit hours.

BATM 4970 SPECIAL TOPICS IN AGRICULTURAL TECHNOLOGY MANAGEMENT (3) LLB. Departmental approval. Investigation of current issues in biological and agricultural technology management. Course may be repeated for a maximum of 6 credit hours.

BATM 4980 UNDERGRADUATE RESEARCH (3) LLB. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BATM 5110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 2110 and (PHYS 1500 or PHYS 1600). An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 5120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 5110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 5130 PRECISION AG TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. BATM 3510. An overview of the principles of precision agriculture with focus on prescriptive agriculture and the ability to effectively execute input management plans using today's technologies. Course material and discussions will include how technologies such as GPS, agricultural GIS, sensors for qualitative and quantitative measurement of soil and plant variables, variable-rate technology are being implement with data informing sub-field level management and subsequent farm business decisions.

BATM 5140 COMMERCIAL POULTRY & LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. Pr. STAT 2510. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BATM 5150 DRONE TECHNOLOGIES IN AGRICULTURAL AND BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 and PHYS 1500. Drone or Unmanned Aerial Vehicles (UAV) technologies and the data generated from these systems are being utilized in agricultural, biological and natural resource systems. Topics will include UAV types, sensors and application systems for drones, sensor resolution and calibration, flight and mission planning techniques. Image and date collection techniques, analysis, interpretation and decision making, generation of prescriptive maps, and other emerging drone technologies.

BATM 5550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1000 or PHYS 1003 or PHYS 1007 or PHYS 1500 or PHYS 1600 or PHYS 1607). Engineering concepts and unit operations used in processing food products. Fall.

BATM 6110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Departmental approval. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 6120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 6110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 6130 PRECISION AG TECHNOLOGY (3) LEC. 2. LAB. 3. An overview of the principles of precision agriculture with focus on prescriptive agriculture and the ability to effectively execute input management plans using today's technologies. Course material and discussions will include how technologies such as GPS, agricultural GIS, sensors for qualitative and quantitative measurement of soil and plant variables, variable-rate technology are being implement with data informing sub-field level management and subsequent farm business decisions.

BATM 6140 COMMERCIAL POULTRY AND LIVESTOCK HOUSING (3) LEC. 2. LAB. 1. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BATM 6150 DRONE TECHNOLOGIES IN AGRICULTURAL AND BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Drone or Unmanned Aerial Vehicles (UAV) technologies and the data generated from these systems are being utilized in agricultural, biological and natural resource systems. Topics will include UAV types, sensors and application systems for drones, sensor resolution and calibration, flight and mission planning techniques. Image and date collection techniques, analysis, interpretation and decision making, generation of prescriptive maps, and other emerging drone technologies.

BATM 6550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133) and (PHYS 1000 or PHYS 1003 or PHYS 1007). Engineering concepts and unit operations used in processing food products. Fall.

Biosystems Engineering Courses

BSEN 2210 ENGINEERING METHODS FOR BIOLOGICAL SYSTEMS (2) LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607) or Departmental approval. Introduction to experimental design methodology, basic engineering design and problem solving methodology for Biological Engineering. Visualization skills, computer-aided 3-D solid modeling of parts, 3-D assembly of solid part geometries, computation of mass properties, 2-D engineering drawings, engineering design process, safety, tools and fabrication processes and design, and hands-on shop fabrication of semester project.

BSEN 2240 BIOLOGICAL AND BIOENVIRONMENTAL HEAT AND MASS TRANSFER (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1600 or PHYS 1607) and P/C ENGR 2010. Basic principles of heat and mass transfer with special applications to biological and environmental systems. Introduction to steady state and transient heat conduction. Convection, radiation, diffusion, simultaneous heat and mass transfer, and generation and depletion of heat and mass in biological systems.

BSEN 3210 MECHANICAL POWER FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. ENGR 2010 and MATH 2650 and P/C ENGR 2350. Basic engineering analysis, synthesis, and design concepts applied to power sources, mobile equipment, and machinery applications for agricultural, forestry, and natural resource systems.

BSEN 3230 NATURAL RESOURCE CONSERVATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Engineering analysis applied to natural resource systems. Design principles and practices in rainfall-runoff relationships, soil erosion and its prediction and control, hydraulic structures, and open channel hydraulics.

BSEN 3240 PROCESS ENGINEERING IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. Theory and application of process operations in biological, food and agricultural systems. Heat transfer, fluid flow, thermal processing, evaporation, psychrometrics, refrigeration, drying freezing.

BSEN 3260 ENGINEERING FOR PRECISION AGRICULTURE AND FORESTRY (3) LEC. 2. LAB. 3. Pr. BSEN 3610 and MATH 2650. Departmental approval. Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site specific applications. Fall.

BSEN 3310 HYDRAULIC TRANSPORT IN BIOLOGICAL SYSTEMS (4) LEC. 3. LAB. 3. Pr. (ENGR 2050 or ENGR 2053) and MATH 2650 or Departmental approval. Fluid properties, Non-Newtonian fluids and biological systems, Fluid statics, Energy equation, mass and momentum balance, pipe flow for Newtonian and Non-Newtonian fluids, dimensional analysis, compressible flows.

BSEN 3610 INSTRUMENTATION AND CONTROLS FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and BSEN 2210. Departmental approval. Understanding of fundamentals of electrical circuits, sensing and sensors, simple digital electronics, analog measurement circuits, introductory digital signal processing, computer data acquisition.

BSEN 4200 POLYMERS FROM RENEWABLE RESOURCES (2) LEC. 2. Fundamental aspects of natural, biodegradable polymers, including fibers, adhesives, films and coatings, their synthesis, their structure/properties relationships, and the microbiology of their degradation.

BSEN 4210 IRRIGATION SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. Theory and design of irrigation systems for the application of water and wastewater including surveying techniques for system design. Systems include solid-set, traveler, center-pivot, and trickle. Fall.

BSEN 4250 HYDRAULIC CONTROL SYSTEMS DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3310 or Departmental approval. Principles of energy transfer by means of fluid power. Design of hydraulic control systems using prime movers, valves, actuators, and accessories. Spring.

BSEN 4300 PROFESSIONAL PRACTICE IN BIOSYSTEMS ENGINEERING (2) LEC. 1. LAB. 3. Pr. ENGR 2070 and (BSEN 4240 or BSEN 3230). This course focuses on issues related to the professional practice of biological engineering including preparing students for transition to careers as professional engineers.

BSEN 4310 ENGINEERING DESIGN FOR BIOSYSTEMS (3) LEC. 1. LAB. 6. Pr. BSEN 4300. Departmental approval. Capstone design course in biosystems engineering emphasizing teamwork, communication, safety engineering, and economic analysis to complete an engineering design project. Spring.

BSEN 4960 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) AAB/IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biosystems engineering. May be repeated with change in problem. Course may be repeated with change in topics.

BSEN 4970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) DSL. Departmental approval. Individual or small group study of a specialized area in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

BSEN 5220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 5230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. (CHEM 1040 or CHEM 1120) and BIOL 3200 and (BSEN 3230 or BSEN 4240). Introduction to animal waste management problems of confined production systems, and characterization of animal waste types. Design of biological treatment and processing systems. Departmental approval. May count either BSEN 5230 or BSEN 6230.

BSEN 5240 BULK BIOLOGICAL SOLIDS BEHAVIOR, HANDLING AND PROCESSING (3) LEC. 3. Pr. BSEN 3310 or CIVL 3310. Understanding of the properties of bulk solids and how these properties influence the behavior, handling and processability of biological solids.

BSEN 5250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. LAB. 2. Pr. MATH 2650. Modeling of biosystems, methods to deal with complexity, and validation tools.

BSEN 5260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Application and use of renewable energy in biological, food, forest and agricultural systems including bioenergy, solar energy, wind power and geothermal. Departmental approval. May count either BSEN 5260 or BSEN 6260.

BSEN 5270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Pr. BIOL 3200 and (CHEM 1040 or CHEM 1120). Or with the consent of the instructor. Introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries.

BSEN 5280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 1. Pr. BSEN 2240 and BSEN 3310. Introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 5510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities. Departmental approval. May count either BSEN 5510 or BSEN 6510.

BSEN 5520 WATERSHED MODELING (3) LEC. 3. Pr. BSEN 3230. Modeling of non-point source pollution at watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants. Departmental approval. May count either BSEN 5520 or BSEN 6520.

BSEN 5540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 1040 or CHEM 1120) and MATH 2650 and BSEN 3310. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 5560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230 or (CIVL 3110 and CIVL 3010). Development of student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts. Departmental approval. May count either BSEN 5560 or BSEN 6560.

BSEN 5570 COASTAL ECOLOGICAL ENGINEERING (3) LEC. 1. LAB. 4. Pr. BSEN 3310. Fundamentals of coastal processes and engineering and also provide an introduction to modeling the flow of water in coastal systems

BSEN 6220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 6230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Coreq. BSEN 3230. Introduction to the animal waste management problems of confined production systems and characterization of animal waste types. Design of biological treatment and processing systems.

BSEN 6240 BULK BIOLOGICAL SOLIDS BEHAVIOR, HANDLING AND PROCESSING (3) LEC. 3. Understanding of the properties of bulk solids and how these properties influence the behavior, handling and processing ability of biological bulk solids.

BSEN 6250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Modeling of biosystems, methods to deal with complexity, and validation tools.

BSEN 6260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Application and use of renewable energy in biological, food forest and agricultural systems including biomass and bioenergy, solar energy, wind power and geothermal.

BSEN 6270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Department/instructor approval. An introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries. May count either BSEN 5270 or BSE 6270.

BSEN 6280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. This course introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 6510 ECOLOGICAL ENGINEERING (3) LEC. 3. Departmental approval. The course introduces students to ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities.

BSEN 6520 WATERSHED MODELING (3) LEC. 3. Departmental approval. The course covers modeling of non-point source pollution at the watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants.

BSEN 6540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 6560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. The course is designed to develop student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts.

BSEN 6570 COASTAL ECOLOGICAL ENGINEERING (3) LEC. 1. LAB. 4. Fundamentals of coastal processes and engineering. Introduction to modeling the flow of water in coastal systems.

BSEN 7110 FUNDAMENTALS OF INSTRUMENTATION FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Students will gain an understanding of the fundamentals of sensing and sensors, simple digital electronics and measurement circuits, introductory digital signal processing, and computer data acquisition. They will be required to build and test instrumentation to collect data on biological systems that might include fluid flow, pressure, force, or other transducers.

BSEN 7140 ALGAE SYSTEMS ENGINEERING (3) LEC. 2. LAB. 1. This course is a study of engineered systems for cultivating algae for various uses in society. To develop an understanding of engineering principles applied to growing, cultivating, and producing algal biomass for a number of applications, study into the biology, physiology, and ecology of algae and similar species will be a major part of the course. Departmental Approval.

BSEN 7510 INTRODUCTION TO LAND AND WATER ENGINEERING (3) LEC. 3. This course aims at equipping students with the engineering tools and knowledge needed for advanced courses in land and water engineering.

BSEN 7520 INTRODUCTION TO FLUVIAL GEOMORPHOLOGY (3) LEC. 3. Pr. BSEN 3230. This course provides an overview of stream geomorphology as it relates to natural stream physical processes.

BSEN 7900 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in biosystems engineering at the graduate level. Pr., Course may be repeated with change in topics.

BSEN 7950 SEMINAR (1) SEM. SU. Reviews and discussions of research techniques, current scientific literature, and recent developments in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 7970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) AAB. Departmental approval. Individual or small group study of an advanced specialized area in biosystems engineering at the graduate level. Course may be repeated with change in topics.

BSEN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BSEN 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Biological and Agricultural Technology Management (BATM)

Freshman

Fall	Hours	Spring	Hours
Core History I	3	Core History II	3
MATH 1610 Calculus I	4	PHYS 1500 General Physics I	4
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
AGRI 1000 Introduction to Agriculture (or ANSC 1000/FISH 2020 /FDSC 1000)	2	COMM 1000 Public Speaking	3
BATM 1110 Introduction to Technology Design	3	BATM 2110 Digital Analytics in Agriculture and Technology	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
ENVD 2040 Design, Invention and Society (or Core Fine Arts)	3	BIOL 1030 Organismal Biology ***or*** CHEM 1020 Survey of Chemistry II	3
BIOL 1020 Principles of Biology	3	BIOL 1031 Organismal Biology Laboratory ***or*** CHEM 1021 Survey of Chemistry II Laboratory	1
BIOL 1021 Principles of Biology Laboratory	1	STAT 2510 Statistics for Biological and Health Sciences ***or*** 2610 Statistics for Business and Economics	3
CHEM 1010 Survey of Chemistry I	3	AGEC 3010 Agribusiness Marketing	3
CHEM 1011 Survey of Chemistry I Laboratory	1	ACCT 2810 Fundamentals Of Accounting	3
ECON 2020 Principles of Microeconomics	3	BATM 3510 Agricultural Power and Machinery Fundamentals	3
	14		**16**

Junior

Fall	Hours	Spring	Hours
BATM 3110 Ag Technology Geospatial Applications	3	BATM 3500 Natural Resource Systems Conservation	3
BATM 5110 Agri-Industrial Electrical Applications	3	AGEC 4070 Agricultural Law	3
AGEC 4000 Principles of Agribusiness Management	3	ENGL 3040 Technical Writing	3
BUAL 2650 Business Analytics II	3	Technical Elective 2[1]	3
Technical Elective 1[1]	3	BATM 5130 Precision Ag Technology	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
BATM 4100 Professional Practice in Technology Management	2	BATM 4110 Technology Capstone	3
BATM 5120 Agri-Industrial Electronics and Controls	3	Core Social Science	3
BATM 5140 Commercial Poultry and Livestock Housing	3	Core Humanities (PHIL 1020, 1030, 1040)	3
Core Literature	3	Technical Elective 4[1]	3
Technical Elective 3[1]	3	Technical Elective 5[1]	3
		UNIV 4AA0 Achieve the Creed	0
	14		**15**

Total Hours: 120

[1] To meet personal career objectives, the technical electives can be used to obtain a minor. See Academic Advisor for approved list of electives and minors.

Department of Entomology and Plant Pathology

The Department of Entomology and Plant Pathology enjoys a rich tradition in teaching, research and outreach activities as part of a land grant institution in Alabama. From the hiring of its first entomologist in 1896 and its first plant pathologist in 1903, the entomology and plant pathology program at AU has grown to its present faculty of entomologists and plant pathologists with teaching, research and extension responsibilities.

As a part of the College of Agriculture, the entomology and plant pathology department offers a broad range of both basic and applied courses at the undergraduate and graduate levels, providing a sound background for students considering careers in entomology, plant pathology, and related pest management areas. The curriculum is complemented by a diversity of courses in agricultural and biological sciences offered through departments in the university. The department offers undergraduate minors in entomology and plant pathology. It also offers thesis and non-thesis master's degrees and doctoral programs in these disciplinary areas.

Majors

- Applied Biotechnology (p. 249)

Minors

- Entomology (p. 251)
- Plant Pathology (p. 251)

Applied Biotechnology Courses

APBT 1000 INTRODUCTION TO APPLIED BIOTECHNOLOGY (1) LEC. 1. Introduction to the field of biotechnology including key concepts from biology, chemistry, and physics, and career opportunities.

APBT 2950 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Development of professional skills required for modern careers in entomology, plant pathology and applied biotechnology.

APBT 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH (1-4) IND/RES. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

APBT 3100 METHODS OF SYNTHETIC BIOLOGY (4) LEC. 2. LAB. 5. Pr. (BIOL 1030 or BIOL 1037) and APBT 1000. This course provides an overview of the basic cellular processes harnessed by synthetic biology and biotechnology. It also provides an introduction to recombinant DNA and its applications. It combines lectures with labs to provide hands-on experience with molecular techniques, DNA cloning, heterologous protein expression, and methodologies used to engineer organisms.

APBT 4100 APPLIED BIOTECHNOLOGY (4) LEC. 2. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and (BIOL 3000 or BIOL 3003 or AGRI 3000) and APBT 3100. or instructor's approval. Principle and up-to-date advances of genetic modification of organisms; its practices and influences in a broad range of basic and applied sciences which have revolutionized "mean" of sustainable agriculture.

APBT 4920 INTERNSHIP (3) LEC. 3. SU. Pr. APBT 1000. Practical professional experience under the supervision of internship faculty and/or representatives of state, federal or private agency.

APBT 4980 UNDERGRADUATE RESEARCH (1-4) LAB. 2-8. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

APBT 5660 FIGURE FUNDAMENTALS : SCIENTIFIC ILLUSTRATION (3) LEC/STU. 1. Scientific illustration and data visualization implemented through the Adobe creative cloud package. May count either APBT 5660, ENTM 5660, or ENTM 6660.

APBT 5800 OMICS IN AGRICULTURE (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 3000 or AGRI 3000. This course will introduce students to the recent advances in high-throughput technologies such as genomics, transcriptomics, metagenomics, metabolomics, phenomics, modeling, and digital agriculture and how these technologies can be applied to tackling new and old problems in agriculture and human health. Students will be able to gain hands-on experience in analyzing and interpreting datasets obtained using these technologies.

APBT 5820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Pr. STAT 2510. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

Entomology Courses

ENTM 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

ENTM 2040 INSECTS: AN INTRODUCTION TO ENTOMOLOGY (3) LEC. 3. Life processes, importance, and occurrence of insects.

ENTM 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH (1-4) IND/RES. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENTM 3040 GENERAL ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Introduction to the biology and diversity of insects. An insect collection is required.

ENTM 4020 ECONOMIC ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Consideration of the biological aspects, life histories and control of insects.

ENTM 4920 ENTOMOLOGY INTERNSHIP (5) INT. 5. SU. Practical professional experience under the supervision of internship faculty and/or representatives of state, federal or private agency.

ENTM 4960 SPECIAL PROBLEMS IN ENTOMOLOGY (1-3) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 3 credit hours.

ENTM 4980 UNDERGRADUATE RESEARCH (1-4) LAB. 2-8. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENTM 5120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 1. Pr. (BIOL 1030 or BIOL 1037) and (ENTM 3040 or ENTM 4020). Survey of insects, ticks, and mites of medical or veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 5220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Ecological interactions of insects and their environment, with emphasis on is herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 5300 INSECT DIVERSITY (4) LEC. 3. LAB. 1. Pr. ENTM 3040 or ENTM 4020. Survey of the biodiversity of insects, stressing taxon diagnostics.

ENTM 5330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

ENTM 5360 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 5370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 5500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 5660 FIGURE FUNDAMENTALS : SCIENTIFIC ILLUSTRATION (3) LEC/STU. 1. Scientific illustration and data visualization implemented through the Adobe creative cloud package. May count either ENTM 5660, APBT 5660, or ENTM 6660.

ENTM 5700 VECTOR ENTOMOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

ENTM 5820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Pr. STAT 2510. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

ENTM 5920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

ENTM 6120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Survey of insects, ticks, and mites of veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 6220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Departmental approval. Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 6300 INSECT DIVERSITY (4) LEC. 3. LAB. 1. Pr. ENTM 3040 or ENTM 4020. Survey of the biodiversity of insects, stressing taxon diagnostics.

ENTM 6330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

ENTM 6360 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 6370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 6440 INSECT MORPHOLOGY (5) LEC. 3. LAB. 6. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Comparative external anatomy and generalized internal structures of insects. Characteristics used in taxonomy will be emphasized. Credit will not be given for both ENTM 5440 and ENTM 6440.

ENTM 6500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 6660 FIGURE FUNDAMENTALS : SCIENTIFIC ILLUSTRATION (3) LEC. 2, LST. 1. Scientific illustration and data visualization implemented through the Adobe creative cloud package. May take either ENTM 5660, APBT 5660, or ENTM 6660.

ENTM 6700 VECTOR ENTOMOLOGY (3) LEC. 3. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

ENTM 6820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

ENTM 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

ENTM 7100 GENERAL TOXICOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 and CHEM 2030. Departmental approval. History, mechanism of action, metabolism, and structure activity relationship of natural and synthetic insecticides. Contemporary laboratory techniques in toxicology will be featured.

ENTM 7200 INSECT PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Departmental approval. Introduction to insect physiology stressing structure and function of each organ system. Methods used in physiological research will be emphasized.

ENTM 7230 PRACTICAL EVOLUTION (3) LEC. 3. Pr. BIOL 5800 or BIOL 6800. Students will learn evolutionary biology by making it happen, that is, by building and running simulation models. They will also learn of opportunities to apply evolutionary theory to practical problems in agriculture, public health and conservation.

ENTM 7900 DIRECTED STUDIES IN ENTOMOLOGY I (1-5) LEC. SU. Discussion groups on specific topics, assigned readings, on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

ENTM 7950 SEMINAR (1) SEM. 1. SU. Presentation and discussion of scientific literature of thesis research findings. Required of all M.S. candidates.

ENTM 7960 SPECIAL PROBLEMS IN ENTOMOLOGY (1-4) LAB. 2-8. Departmental approval. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

ENTM 7990 RESEARCH AND THESIS (1-10) MST. Topics may focus on technical laboratory problems or field research related to arthropod biology. Admission to the M.S. Program. Course may be repeated with change in topics.

ENTM 8900 DIRECTED STUDIES IN ENTOMOLOGY II (5) LEC. 5. Discussion groups on specific topics, assigned reading on laboratory problems or field research.

ENTM 8910 TEACHING PRACTICUM (1) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

ENTM 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Pr. ENTM 3040 and ENTM 4020 or (PLPA 3000 or PLPA 3003). Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

ENTM 8950 SEMINAR (1) LEC. 1. SU. Presentation and discussion of scientific literature or dissertation research findings. Required of all Ph.D. students.

ENTM 8960 ADVANCED SPECIAL PROBLEMS IN ENTOMOLOGY (1-4) LAB. 2-8. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

ENTM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Admission to the Ph.D. Program. Course may be repeated with change in topics.

Plant Pathology Courses

PLPA 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

PLPA 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH (1-4) IND/RES. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

PLPA 3000 GENERAL PLANT PATHOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Survey of plant diseases common in Alabama, including symptom recognition, pathogen biology and management of plant diseases. Course credit will not be given for both PLPA 3000 and PLPA 3003/3004.

PLPA 4960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-3) IND. Departmental approval. Supervised work on a project in plant pathology. Areas of study are: A. Mycology; B. Nematology; C. Virology; D. Bacteriology; E. Extension and Clinic Experience; F. Physiological and Molecular Approaches. Course may be repeated for a maximum of 3 credit hours.

PLPA 4980 UNDERGRADUATE RESEARCH (1-4) LAB. 2-8. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

PLPA 5050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Pr. PLPA 3000 or PLPA 3003. Approaches, techniques, and practical experience in diagnosis of plant diseases. Credit will not be given for both PLPA 5050 and PLPA 6050. Summer.

PLPA 5200 MYCOLOGY (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems with an emphasis on plant pathogens. Credit will only be given to one of the following: PLPA 5200 or 6200.

PLPA 5250 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 5300 PLANT-BACTERIAL INTERACTIONS (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. Credit will only be given to one of the following: PLPA 5300 or PLPA 6300.

PLPA 5330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

PLPA 5400 PLANT VIROLOGY (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Plant viruses are one of the major pathogens causing problems in plants. This course will cover the fundamentals of plant viruses such as infectious cycle, genome, structure, and evolution. The course will also introduce applied biotechnology based on virus-plant interaction. Credit will only be given to one of the following: PLPA 5400 or PLPA 6400.

PLPA 5500 PLANT NEMATOLOGY (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. Credit will only be given to one of the following: PLPA 5500 or PLPA 6500.

PLPA 5600 MOLECULAR PLANT-MICROBE INTERACTIONS (3) LEC. 3. Pr. BIOL 3000. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances. Introduces biochemical, molecular and cellular mechanisms by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli. Credit will only be given for one of the following courses: PLPA 5600 or PLPA 6600.

PLPA 5700 VECTOR ENTOMOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

PLPA 5800 OMICS IN AGRICULTURE (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 3000 or AGRI 3000. This course will introduce students to the recent advances in high-throughput technologies such as genomics, transcriptomics, metagenomics, metabolomics, phenomics, modeling, and digital agriculture and how these technologies can be applied to tackling new and old problems in agriculture and human health. Students will be able to gain hands-on experience in analyzing and interpreting datasets obtained using these technologies.

PLPA 5820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Pr. STAT 2510. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

PLPA 5920 INTERNSHIP (3) IND. 3. SU. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 6050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Experience with plant disease diagnosis procedures and the diagnosis of many common plant diseases. Summer.

PLPA 6200 MYCOLOGY (2) LEC. 1. LAB. 2. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems with an emphasis on plant pathogens. Graduate level standing or Departmental approval. Credit will only be given to one of the following: PLPA 5200 or PLPA 6200.

PLPA 6250 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. Pr. BIOL 3200. or prior approval of the instructor. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 6300 PLANT-BACTERIAL INTERACTIONS (2) LEC. 1. LAB. 2. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. Credit will only be given to one of the following: PLPA 5300 or PLPA 6300.

PLPA 6330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

PLPA 6400 PLANT VIROLOGY (2) LEC. 1. LAB. 2. Plant viruses are one of the major pathogens causing problems in plants. This course will cover the fundamentals of plant viruses such as infectious cycle, genome, structure, and evolution. The course will also introduce applied biotechnology based on virus-plant interaction. Credit will only be given to one of the following: PLPA 5400 or PLPA 6400.

PLPA 6500 PLANT NEMATOLOGY (2) LEC. 1. LAB. 2. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. Credit will only be given to one of the following: PLPA 5500 or PLPA 6500.

PLPA 6600 MOLECULAR PLANT-MICROBE INTERACTIONS (3) LEC. 3. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances, biochemical, molecular and cellular mechanism by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli. Credit will only be given for one of the following courses: PLPA 5600 or PLPA 6600.

PLPA 6700 VECTOR ENTOMOLOGY (3) LEC. 3. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

PLPA 6800 OMICS IN AGRICULTURE (3) LEC. 2. LAB. 2. This course will introduce students to the recent advances in high-throughput technologies such as genomics, transcriptomics, metagenomics, metabolomics, phenomics, modeling, and digital agriculture and how these technologies can be applied to tackling new and old problems in agriculture and human health. Students will be able to gain hands-on experience in analyzing and interpreting datasets obtained using these technologies.

PLPA 6820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

PLPA 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 7080 FIELD SURVEY OF PLANT PATHOLOGY (3) LEC. 1. LAB. 6. Practical aspects of plant diseases under field conditions, on-site visits via field trips; discussion of experimental design for field research. Summer.

PLPA 7860 PLANT DISEASE EPIDEMIOLOGY (2) LEC. 2. Pr. PLPA 3000. Aspects of plant disease epidemiology including disease assessment and temporal progress, pathogen spread, and yield loss determination.

PLPA 7861 PLANT DISEASE EPIDEMIOLOGY LABORATORY (2) LAB. 4. Coreq. PLPA 7860. Quantitative aspects of plant disease epidemiology including spatial and temporal modeling, and disease system simulation.

PLPA 7880 PLANT MICROBIAL ECOLOGY (3) LEC. 3. LAB. 0. Concepts in ecology of plant-associated microbes and their interactions with plants using molecular approaches.

PLPA 7881 PLANT MICROBIAL ECOLOGY LABORATORY (2) LAB. 4. This course will involve hands-on experience with genomic, metagenomic, transcriptomic datasets. Graduate standing in the College of Agriculture/COSAM.

PLPA 7900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research.

PLPA 7910 TEACHING PRACTICUM (1) LAB. 2. SU. Graduate level standing in PLPA or ENTM or Departmental approval. The teaching practicum will address the practical and heretical issues of laboratory learning and facilitating the skills of pedagogy. Course may be repeated for a maximum of 3 credit hours.

PLPA 7930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 2 credit hours.

PLPA 7950 SEMINAR IN PLANT PATHOLOGY (1) SEM. 1. SU. Departmental approval. Seminar presentations on current departmental research and current issues in plant pathology and related disciplines. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 7960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-4) LAB. 2-8. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

PLPA 7970 SPECIAL TOPICS IN PLANT PATHOLOGY (1-5) ST1. Advanced topics related to plant pathology. Course may be repeated for a maximum of 5 credit hours.

PLPA 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research and thesis on problems in plant pathology. Course may be repeated with change in topics.

PLPA 8880 MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Open discussion and article review on current topics and cutting-edge discoveries in the field of molecular plant pathology, covering the cellular mechanisms of plant interactions with, and immune responses against pathogens.

PLPA 8900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

PLPA 8910 TEACHING PRACTICUM (1) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

PLPA 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

PLPA 8950 SEMINAR (1) SEM. 1. SU. Departmental approval. Presentations and discussion of scientific literature or dissertation research findings. Required for al Ph.D. candidates. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 8960 ADVANCED SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-4) LAB. 2-8. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

PLPA 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research and dissertation on problems in plant pathology. Course may be repeated with change in topics.

Applied Biotechnology (APBT)

The applied biotechnology major requires 120 semester hours of course work, including 41 semester hours of the university core curriculum. All courses and related activities required for the major cover general biological and chemical sciences, theory and methodology of biotechnology, bioinformatics, microbiology, molecular biology, genetics/genomics, general plant pathology and physiology, general entomology and insect/plant physiology, pesticide toxicology, genetics, medical entomology, and cell biology. The minimum number of hours required for an undergraduate major is 30 hours of course work in the discipline or a closely allied field. Of these hours, a minimum of 16 must be taken in upper-division (numbered 3000 or above) courses in the major area. The curriculum is the combination of laboratory skills, applied coursework and the biotechnology internship experience which complete an approved academic program for earning a B.S. degree in Applied Biotechnology.

Freshman

Fall	Hours	Spring	Hours
MATH 1130 Pre-Calculus Trigonometry	3	BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory	4

CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
APBT 1000 Introduction to Applied Biotechnology	**1**	Core Fine Arts	3
COMM 1000 Public Speaking	3		
	14		**14**

Sophomore

Fall	Hours	Spring	Hours
BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory	4	CHEM 2030 Survey of Organic Chemistry ***or*** 2070 Organic Chemistry I	3
STAT 2510 Statistics for Biological and Health Sciences	3	CSES 2040 Basic Soils Science or ENTM 2040 Insects or ENTM/PLPA 2000 Pests and People	4
ECON 2020 Principles of Microeconomics	3	APBT 2950 Professional Development	1
Core Literature	3	PHYS 1000 Foundations of Physics	4
Free Electives	2	Core History I	3
		Free Electives	2
	15		**16**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
Select 4 credits of the following:	4	PLPA 3000 General Plan Pathology or ENTM 3040 General Entomology or CSES 3120 Principles of Weed Science	4	APBT 4920 High Impact Experiences ***or*** 4980 Undergraduate Research	3
BIOL 3020 Genomic Biology		**APBT 3100 Methods of Synthetic Biology**	**4**		
BIOL 3100 Plant Biology*		Core Humanities	3		
BIOL 3200 General Microbiology & BIOL 3201 General Microbiology Laboratory		**Professional Science core electives[1]**	**3**		
AGRI 3000 Agricultural Genetics	4				
BCHE 3200 Principles of Biochemistry ***or*** 5180 Biochemistry I	3				
Core History II	3				
Free Electives	2				
	16		**14**		**3**

Senior			
Fall	**Hours**	**Spring**	**Hours**
APBT 4100 Applied Biotechnology	**4**	**Professional Science core electives[1]**	**10**
Professional Science core electives[1]	**8**	Core Social Science	3
BIOL 4100 Cell Biology	3	UNIV 4AA0 Achieve the Creed	0
	15		**13**

Total Hours: 120

Six credits of advanced ROTC can be substituted for free electives.

CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041.

* CSES 5100 and BIOL 3020 may not both be taken for credit.

1 See advisor or DegreeWorks for approved list.

Entomolgy Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above)

Code	Title	Hours
ENTM 3040	General Entomology	4
Elective Courses - See advisor for approved course listing.		11
Total Hours		**15**

Plant Pathology Minor

15 semester hours in minor

Code	Title	Hours
PLPA 3000	**General Plant Pathology**	**4**
Elective Courses - See advisor for approved course listing.		11
Total Hours		**15**

School of Fisheries, Aquaculture and Aquatic Sciences

Fisheries science combines a general foundation in chemistry, mathematics and biological sciences with applied courses in the principles needed to manage fresh and saltwater aquatic resources. The degree is intended to equip students with a broad understanding of fundamental scientific principles needed to develop solutions for the increasing pressures on our aquatic resources and the need to provide safe, reliable food through aquaculture production. Through a sequence of courses, students specialize in emphasis areas of aquatic ecology, fisheries management, marine resources or aquaculture. The FISH pre-vet/pre-professional area of emphasis provides students with a broad base of scientific knowledge necessary for success in the College of Veterinary Medicine, other professional schools, or graduate school. Careers for graduates include work in environmental management, fisheries resource management, extension, and commercial aquaculture production, processing, and marketing.

Majors

- Fisheries, Aquaculture and Aquatic Sciences — Fisheries and Aquaculture Option (p. 257)
- Fisheries, Aquaculture and Aquatic Sciences — Marine Resources Management Option (p. 258)
- Fisheries, Aquaculture, and Aquatic Sciences — Pre-Professional Option (p. 259)

Minors

- Fisheries, Aquaculture, and Aquatic Science (p. 256)

Courses

FISH 1100 FISHERIES ORIENTATION (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of a future in fisheries.

FISH 1110 DIMENSIONS OF FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1) LEC. 1. Consideration of various aspects of fisheries, aquaculture, and aquatic sciences work, career options as related to individual interests, and career planning. Overview of the different research and extension areas of the School.

FISH 2000 GENERAL BIOLOGY OF FISHES AND AQUATIC ORGANISMS (1) LEC. 1. To introduce students to the anatomy and physiology of fishes, crustaceans, and mollusks to better prepare them to take advanced courses in the School of Fisheries, Aquaculture & Aquatic Sciences.

FISH 2020 GLOBAL AND REGIONAL PERSPECTIVES IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (2) LEC. 2. Overview of historical, biological, ecological, and social aspects of fisheries, aquaculture, and aquatic sciences, including the importance of water, biodiversity, fisheries management, and aquaculture, as well as how to determine reliability of sources, impacts of aquaculture, aquatic organism life cycles, and threatened and endangered species.

FISH 3950 CAREERS IN FISHERIES (1) LEC. 1. SU. Pr. FISH 2100. Consideration of various aspects of fisheries work, career options as related to individual interests, and career planning or departmental approval. Fall.

FISH 4100 INTRODUCTION TO FISHERIES SCIENCES (3) LEC. 2. LAB. 3. Departmental approval. Hands-on field activities and site visits related to aquatic ecology, fisheries biology, and aquaculture.

FISH 4900 DIRECTED STUDIES IN FISHERIES (1-4) IND. SU. Individualized in depth study on a particular subject under the guidance of a professor. May include directed reading and research. Course may be repeated for a maximum of 4 credit hours.

FISH 4920 INTERNSHIP (1-5) INT. SU. Departmental approval. Discipline-related learning while employed with cooperating private industry or public agency. Course may be repeated for a maximum of 5 credit hours.

FISH 4960 SPECIAL PROBLEMS (1-4) LEC. Departmental approval. Individual and group problems investigations in fisheries and allied aquacultures. Course may be repeated for a maximum of 4 credit hours.

FISH 4967 HONORS SPECIAL PROBLEMS (1-4) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 4 credit hours.

FISH 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FISH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

FISH 5210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 5215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 5220 WATER SCIENCE (3) LEC. 3. Pr. CHEM 1040. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems.

FISH 5230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 5240 HATCHERY MANAGEMENT (4) LEC. 2. LAB. 8. Pr. FISH 5210 or FISH 6210. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 5245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. One year of college-level Biology or departmental consent. Overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. Taught at Dauphin Island Sea Lab. May count either FISH 5245 or FISH 6245.

FISH 5250 AQUACULTURE PRODUCTION (4) LEC. 3. LAB. 4. Pr. FISH 5210. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.

FISH 5320 LIMNOLOGY (3) LEC. 3. Pr. CHEM 1040 and (BIOL 1030 or BIOL 1037). Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 5321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and (P/C FISH 5320 or P/C FISH 6320). Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 5380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 5410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 5440 FISH ANATOMY AND PHYSIOLOGY (4) LEC. 3. LAB. 4. Gross and microscopic fish anatomy.

FISH 5510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 5520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 5. LAB. 10. Pr. BIOL 1030 or BIOL 1037. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 5630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds.

FISH 5670 FISHERIES AND AQUACULTURES EXTENSION METHODS (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037 and CHEM 1040. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 5710 AQUATIC MICROBIOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 5725 MARINE ICHTHYOLOGY (6) LEC. 6. Pr. BIOL 3060. Departmental approval. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Admission to the Gulf Coast Research Laboratory.

FISH 5970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences. Course may be repeated for a maximum of 4 credit hours.

FISH 6210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Graduate level standing in FISH or departmental approval. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 6215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 6220 WATER SCIENCE (3) LEC. 3. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems.

FISH 6230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 6240 HATCHERY MANAGEMENT (4) LEC. 4. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 6245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. This course will provide students with an overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. Taught at Dauphin Island Sea Lab. May count either FISH 5245 or FISH 6245.

FISH 6250 AQUACULTURE PRODUCTION (4) LEC. 4. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.

FISH 6320 LIMNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 6321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (P/C FISH 5320 or P/C FISH 6320). Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 6410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 6425 MARINE FISH DISEASES (4) LEC. 4. Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases.

FISH 6440 FISH ANATOMY AND PHYSIOLOGY (4) LEC. 4. Gross and microscopic fish anatomy.

FISH 6510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 4. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 6520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 3. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 6630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years.

FISH 6650 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry.

FISH 6670 FISHERIES AND AQUACULTURE EXTENSION METHODS (2) LEC. 2. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 6710 AQUATIC MICROBIOLOGY (3) LEC. 3. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 6725 MARINE ICHTHYOLOGY (6) LEC. 6. General background in the biology of marine fishes and their taxonomy.

FISH 6970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences.

FISH 7100 ADVANCED PARASITE TAXONOMY (6) LEC. 2. LAB. 16. Departmental approval. This is a lab-based course for practicing parasitologists. The course instructs students on how to describe a metazoan parasite species.

FISH 7200 MARINE PARASITOLOGY (6) LEC. 2. LAB. 16. Departmental approval. This is an intensive lab-based course for marine parasitologists. Students will collect and identify marine/estuarine parasites of aquatic animals.

FISH 7230 WATER AND SEDIMENT QUALITY MANAGEMENT IN AQUACULTURE (4) LEC. 3. LAB. 3. Pr. FISH 6220. Departmental approval. Advanced treatment of water and sediment quality management in aquaculture. Analytical methods for soil and water quality.

FISH 7240 RESOURCE USE AND ENVIRONMENTAL ISSUES IN AQUACULTURE (2) LEC. 2. Resource use, environmental effects, and sustainability of aquaculture with emphasis on approaches to improving efficiency and reducing negative environmental effects.

FISH 7270 CRUSTACEAN AND MOLLUSCAN AQUACULTURE (4) LEC. 3. LAB. 3. Departmental approval. General biology and culture techniques of the major shrimp, crawfish and shellfish species cultured throughout the world.

FISH 7300 PATHOLOGY OF AQUATIC ORGANISMS (6) LEC. 2. LAB. 16. Departmental approval. Students gain appreciation for histopathological techniques and recognize basic pathological changes to tissues in aquatic organisms.

FISH 7330 RESERVOIR LIMNOLOGY (3) LEC. 2. LAB. 5. Departmental approval. Consideration of the ecological characteristics of reservoirs as they relate to modern concepts of ecosystem management. Even years.

FISH 7340 FISH ECOLOGY (3) LEC. 2. LAB. 3. Graduate level standing in FISH or departmental approval. Study of interactions among fish and their environment. Laboratory will emphasize critical literature reading and experimental approaches.

FISH 7350 META-ANALYSIS (3) LEC. 3. Meta-analysis is a quantitative approach for synthesizing results from diverse research studies (ecology, psychology, medicine, and education) that address a similar hypothesis. Effect sizes calculated from individual studies are combined to elucidate general patterns across studies.

FISH 7360 MANAGEMENT OF AQUATIC FLORA IN FISHERIES AND AQUACULTURE (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Role of aquatic vegetation in fish production, its utilization and control.

FISH 7380 ECOLOGY AND MANAGEMENT OF RIVERINE SYSTEMS (4) LEC. 3. LAB. 3. River systems within a landscape ecology and ecosystem management context. Laboratory sessions stress techniques for assessment and management. Even years.

FISH 7410 MOLECULAR DIAGNOSIS: PRINCIPLES AND APPLICATIONS (3) LEC. 3. Introduction to molecular biology techniques currently used in disease diagnosis.

FISH 7420 FISH DISEASES (3) LEC. 3. Pr. BIOL 3200. Viral, bacterial, fungal and parasitic diseases of fishes, including etiologic agents, geographical ranges, species susceptibility, clinical signs, clinical pathology, epidemiology and management.

FISH 7450 FISH PATHOLOGY (3) LEC. 2. LAB. 3. Departmental approval. Morphological and physiological changes in fish with infectious or non-infectious diseases. Even years.

FISH 7460 CLINICAL FISH DISEASE DIAGNOSIS (1-3) DSL/LEC. Pr. FISH 6410 or FISH 7420. Practical experience in necropsy of diseased fish. Identification of causative agents and prescription of appropriate disease control.

FISH 7530 FISH POPULATION DYNAMICS (3) LEC. 2. LAB. 4. Departmental approval. Derivation of fish population estimates, growth, recruitment and mortality; use of modeling techniques to assess exploited fish populations. Even years.

FISH 7540 QUANTITATIVE TECHNIQUES IN FISHERY ASSESSMENT (3) LEC. 2. LAB. 4. Departmental approval. Quantitative techniques to assess and manage fish populations in freshwater. The laboratory will analyze actual fisheries data using SAS on personal computers. Odd years.

FISH 7640 FISH NUTRITION (3) LEC. 3. Fundamental and applied aspects of fish nutrition, including nutrient requirements, physiology of food assimilation, feed preparation, and practical feeding.

FISH 7650 TRADITIONAL APPROACHES TO FISH GENETIC ENHANCEMENT (2) LEC. 2. Graduate level standing in FISH or departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, selective breeding, genetic management and inheritance.

FISH 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Graduate level standing in FISH or departmental approval. Principles and application of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies.

FISH 7715 ADVANCED MARINE ECOLOGY (2) LEC. 2. Departmental approval. Mechanisms that control distribution of plants and animals at scales ranging from individual organism to ecosystem

FISH 7725 MARINE BIOGEOCHEMICAL PROCESSES (2) LEC. 2. Departmental approval. Marine biogeochemical cycling of carbon, nitrogen, sulfur, phosphorus and metals, with emphasis on estuarine systems.

FISH 7750 BIOTECHNOLOGICAL APPROACHES TO FISH GENETICS (2) LEC. 2. Pr. FISH 7650. Departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, genetic management genetic engineering, genomic manipulation and genetic biotechnology.

FISH 7785 PHYSICAL OCEANOGRAPHY (4) LEC. 4. Departmental approval. Describes observed physical setting of the marine environment, and qualitatively explains how and why observed physical phenomena occur.

FISH 7800 PRINCIPLES OF ECOTOXICOLOGY (3) LEC. 3. Ecotoxicology-an interdisciplinary science studies the impacts of pollutants upon the structure and function of ecological systems. The broad scope of ecotoxicology requires a multidisciplinary approach of a variety of specialties, such as ecology, environmental chemistry, and applied biology.

FISH 7900 DIRECTED STUDIES IN FISHERIES I (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 7920 INTERNSHIP IN FISHERIES AND AQUACULTURE (1-10) INT. SU. Departmental approval. Field experience in aquaculture, fisheries or aquatic resource management on farm or with research, extension or aquatic management agency. Course may be repeated for a maximum of 10 credit hours.

FISH 7930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 7950 GRADUATE RESEARCH SEMINAR (1) SEM. 1. SU. Departmental approval. Oral presentation and discussion of research in the field of specialization.

FISH 7960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) IND. Individual or group project and research in consultation with faculty member on problem in fisheries, aquaculture, and/or aquatic sciences. Course may be repeated for a maximum of 9 credit hours.

FISH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FISH 8900 DIRECTED STUDIES IN FISHERIES II (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 8930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 8950 GRADUATE RESEARCH SEMINAR (1) SEM. 1. SU. Departmental approval. Acquaint students with current research and related activities.

FISH 8960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) IND. Individualized work and research in consultation with faculty member on problem in fisheries, aquaculture, and/or aquatic sciences. Course may be repeated for a maximum of 9 credit hours.

FISH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Fisheries, Aquaculture, and Aquatic Science Minor

Junior (03) classification is required.
15 semester hours in minor (minimum 12 hours at 4000-level or above)

Code	Title	Hours
Select from the following courses:		15
FISH 2000	General Biology of Fishes and Aquatic Organisms	
FISH 2020	Global and Regional Perspectives in Fisheries, Aquaculture, and Aquatic Sciences	
FISH 5210	Principles of Aquaculture	
FISH 5220	Water Science	
FISH 5240	Hatchery Management	
FISH 5250	Aquaculture Production	
FISH 5320	Limnology	
FISH 5440	Fish Anatomy and Physiology	
FISH 5630	Facilities for Aquaculture	
FISH 5380	General Ichthyology	
FISH 5410	Introduction to Fish Health	
FISH 5510	Fisheries Biology and Management	
FISH 5520	Small Impoundment Management	

FISH 5670	Fisheries and Aquacultures Extension Methods	
FISH 5970	Topics in Fisheries and Allied Aquacultures	
Total Hours		**15**

Fisheries, Aquaculture, and Aquatic Sciences — Fisheries and Aquaculture Option (FIFA)

The School of Fisheries, Aquaculture, and Aquatic Sciences (SFAAS) undergraduate program prepares students for productive careers in the private and public sectors in aquaculture, aquatic resource management and ecology, and fisheries biology and management. SFAAS offers three options within our B.S. program: i) Option in Fisheries and Aquaculture, ii) Option in Marine Resources Management, and iii) Pre-professional Option in Fisheries, Aquaculture, and Aquatic Sciences. Our undergraduate programs require a minimum of 120-122 credit hours depending on the option pursued. There are many required core classes (like other programs across campus) but more specialized courses are required for each of the three undergraduate B.S. options. We think such an approach creates opportunities for our undergraduate students to best utilize their undergraduate experience to take courses and pursue experiences that best support their undergraduate training.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History I	3	Core History II	3
BIOL 1020 Principles of Biology*	**3**	**BIOL 1030 Organismal Biology***	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
MATH 1130 Pre-Calculus Trigonometry	3	PHYS 1000 Foundations of Physics	4
FISH 1100 Fisheries Orientation*	1	FISH 1110 Dimensions of Fisheries, Aquaculture, and Aquatic Sciences	1
	14		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	**BIOL 3060 Ecology***	**4**
Humanities Core	3	Core Fine Arts	3
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
COMM 1000 Public Speaking	3	ECON 2020 Principles of Microeconomics	3
FISH 2000 Fish Biology	**1**	**FISH 2020 Global Perspectives in Fisheries**	**2**
	14		**16**

Junior

Fall	Hours	Spring	Hours
FISH 5220 Water Science	**3**	**FISH 5320 Limnology**	**3**
AGRI 3000 Agricultural Genetics	**4**	**FISH 5321 Limnology Laboratory**	**1**
STAT 2510 Statistics for Biological and Health Sciences	3	CHEM 2030 Survey of Organic Chemistry	3
Emphasis	3	Directed Science Elective[3]	4
Free Elective	3	Emphasis	3
	16		**14**

Senior

Fall	Hours	Spring	Hours
FISH 5380 General Ichthyology*	**4**	Emphasis	7
Emphasis	4	Free Electives	5
FISH 5510 Fisheries Biology and Management*	**4**	Core Social Science	3
Free Elective	4	UNIV 4AA0 Achieve the Creed	0
	16		**15**

Total Hours: 120

* Required Courses in Fisheries Major (courses in bold used to calculate GPA in major)
1 Student must take both courses in a sequence.
2 Student will chose from the following: ANTH 1000, GEOG 1010/GEOG 1017, PSYC 2010, SOCY 1000/SOCY 1007, or UNIV 2720.
3 Directed Science Electives: ANSC 3400, BIOL 3010, BIOL 3100, BIOL 3200 or Advisor approval.

Fisheries, Aquaculture, and Aquatic Sciences — Marine Resources Management Option (FIMR)

The School of Fisheries, Aquaculture, and Aquatic Sciences (SFAAS) undergraduate program prepares students for productive careers in the private and public sectors in aquaculture, aquatic resource management and ecology, and fisheries biology and management. SFAAS offers three options within our B.S. program: i) Option in Fisheries and Aquaculture, ii) Option in Marine Resources Management, and iii) Pre-professional Option in Fisheries, Aquaculture, and Aquatic Sciences. Our undergraduate programs require a minimum of 120-122 credit hours depending on the option pursued. There are many required core classes (like other programs across campus) but more specialized courses are required for each of the three undergraduate B.S. options. We think such an approach creates opportunities for our undergraduate students to best utilize their undergraduate experience to take courses and pursue experiences that best support their undergraduate training.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History I	3	Core History II	3
BIOL 1020 Principles of Biology*	**3**	**BIOL 1030 Organismal Biology***	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
MATH 1130 Pre-Calculus Trigonometry	3	PHYS 1000 Foundations of Physics	4
FISH 1100 Fisheries Orientation*	1	FISH 1110 Dimensions of Fisheries, Aquaculture, and Aquatic Sciences	1
	14		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core Fine Arts	3
Core Humanities	3	**BIOL 3060 Ecology***	**4**
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3

CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
COMM 1000 Public Speaking	3	ECON 2020 Principles of Microeconomics	3
FISH 2000 Fish Biology	**1**	**FISH 2020 Global Perspectives in Fisheries**	**2**
	14		**16**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
AGRI 3000 Agricultural Genetics	**4**	CHEM 2030 Survey of Organic Chemistry	3	**Off-campus Marine Science Emphasis classes***	**8-10**
Core Social Science	3	Directed Science Elective[2]	4		
STAT 2510 Statistics for Biological and Health Sciences	3	**BIOL 3040 Biology of Marine Systems**	**3**		
Emphasis	3	Emphasis	3		
	13		**13**		**8-10**

Senior

Fall	Hours	Spring	Hours
FISH 5380 General Ichthyology*	**4**	Emphasis	4
Emphasis	3	Free Electives	8
FISH 5510 Fisheries Biology and Management*	**4**	UNIV 4AA0 Achieve the Creed	0
Free Elective	4		
	15		**12**

Total Hours: 120-122

* Required Courses in Fisheries Major (courses in bold used to calculate GPA in major)
1 Student must take both courses in a sequence.
2 Directed Science Electives: BIOL 3010, BIOL 3020, BIOL 3030 or Advisor approval.

Fisheries, Aquaculture, and Aquatic Sciences — Pre-Professional Option (FIPV)

The School of Fisheries, Aquaculture, and Aquatic Sciences (SFAAS) undergraduate program prepares students for productive careers in the private and public sectors in aquaculture, aquatic resource management and ecology, and fisheries biology and management. SFAAS offers three options within our B.S. program: i) Option in Fisheries and Aquaculture, ii) Option in Marine Resources Management, and iii) Pre-professional Option in Fisheries, Aquaculture, and Aquatic Sciences. Our undergraduate programs require a minimum of 120-122 credit hours depending on the option pursued. There are many required core classes (like other programs across campus) but more specialized courses are required for each of the three undergraduate B.S. options. We think such an approach creates opportunities for our undergraduate students to best utilize their undergraduate experience to take courses and pursue experiences that best support their undergraduate training.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
BIOL 1020 Principles of Biology	**3**	CHEM 1040 Fundamental Chemistry II	3

BIOL 1021 Principles of Biology Laboratory	**1**	CHEM 1041 Fundamental Chemistry II Laboratory	1
CHEM 1030 Fundamentals Chemistry I	3	**BIOL 1030 Organismal Biology**	**3**
CHEM 1031 Fundamental Chemistry I Laboratory	1	**BIOL 1031 Organismal Biology Laboratory**	**1**
MATH 1130 Pre-Calculus Trigonometry	3	Core Humanities	3
FISH 1100 Fisheries Orientation	**1**	FISH 1110 Dimensions of Fisheries, Aquaculture, and Aquatic Sciences	1
	15		**15**

Sophomore

Fall	**Hours**	**Spring**	**Hours**
Core Literature	3	Core Social Science	3
ECON 2020 Principles of Microeconomics	3	**BIOL 3060 Ecology**	**4**
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
AGRI 3000 Agricultural Genetics	**4**	Fine Arts Core	3
FISH 2000 Fish Biology	**1**	**FISH 2020 Global Perspectives in Fisheries**	**2**
	15		**16**

Junior

Fall	**Hours**	**Spring**	**Hours**
FISH 5220 Water Science	**3**	Directed Science Elective[3]	4
Core History I[1]	3	Core History II[1]	3
PHYS 1500 General Physics I	4	STAT 2510 Statistics for Biological and Health Sciences	3
BCHE 3200 Principles of Biochemistry	3	COMM 1000 Public Speaking	3
Emphasis	3	Free Elective	2
	16		**15**

Senior

Fall	**Hours**	**Spring**	**Hours**
FISH 5380 General Ichthyology	**4**	**FISH 5320 Limnology**	**3**
FISH 5410 Introduction to Fish Health	**3**	**FISH 5321 Limnology Laboratory**	**1**
FISH 5510 Fisheries Biology and Management	**4**	Emphasis	3
Emphasis	3	Directed Science Elective	4
		Elective	3
		UNIV 4AA0 Achieve the Creed	0
	14		**14**

Total Hours: 120

1 Student must take both courses in a sequence.
2 Student will chose from the following: ANTH 1000, GEOG 1010/GEOG 1017, PSYC 2010, SOCY 1000/SOCY 1007, or UNIV 2720.
3 Direct Science Electives: ANSC 3400, BIOL 3010, BIOL 3100, BIOL 3200 or advisor approval.

Department of Horticulture

Courses prepare horticulture graduates for the following careers: nursery manager, landscape designer, landscape installer, landscape maintenance, interior landscaping, plant propagator, city or state horticulturist, extension horticulturist, horticulture writer, horticulture

teacher, florist shop manager, greenhouse manager, vegetable producer, orchard manager, chemical company representative, seed company representative, or retail garden center manager.

Four undergraduate tracks are available to students in horticulture: landscape horticulture, nursery and greenhouse science, pre-landscape architecture, and fruit and vegetable production. Horticulture offers masters' and doctoral degrees, which lead to professional positions.

Majors

- Agricultural Science (p. 264)
- Horticulture — Fruit and Vegetable Production Track (p. 266)
- Horticulture — Landscape Horticulture Track (p. 268)
- Horticulture — Nursery and Greenhouse Science Track (p. 269)
- Horticulture — Pre-Landscape Architecture Track (p. 270)

Minors

Horticulture (p. 265)

Courses

HORT 1010 INTRODUCTION TO HORTICULTURE (1) LEC. 1. Introduces scientific and practical aspects of pomology, olericulture, floriculture and landscape horticulture. Also presents the broad scope of career opportunities in the field of horticultural science. Fall.

HORT 2010 FRUIT AND NUT PRODUCTION (4) LEC. 2. LAB. 4. Introductory course in cultural practices and economics associated with commercial fruit and nut production. Fall.

HORT 2020 HORTICULTURE CROP PRODUCTION (3) LEC. 2. LAB. 3. Techniques of plant propagation and cultural methods for successful fruit, vegetable, and ornamental plant production. Fall.

HORT 2030 VEGETABLE PRODUCTION (3) LEC. 3. Principles, practices, establishment, production, maintenance, harvesting, storage and marketing of commercial vegetable crops. Fall and Spring.

HORT 2040 ORGANIC GARDENING (3) LEC. 3. Principles, production practices, maintenance, harvesting and marketing of organically and traditionally home-grown vegetables.

HORT 2060 HYDROPONICS: PRINCIPLES AND TECHNIQUES OF SOILLESS PLANT PRODUCTION (3) LEC. 3. This course is a survey of the science of hydroponic plant production and is focused on commercial and home vegetable crop production. Specific topics include plant growth and nutrition in hydroponic growing systems, challenges and opportunities, and system design. Fall.

HORT 2210 LANDSCAPE GARDENING (4) LEC. 2. LAB. 4. Principles of landscape gardening applied to residential and small-scale commercial grounds. Involves plant identification and use, basic landscape design, and landscape installation and management concepts.

HORT 2240 PLANT PROPAGATION (3) LEC. 2. LAB. 2. Pr. P/C BIOL 1030 or BIOL 1037. Basic principles and practices involved in the propagation of horticulture plants. Departmental approval. Spring.

HORT 2250 ART OF FLORAL DESIGN (3) LEC. 2. LAB. 2. Basic art principles and design elements and their use with flowers and foliage; history and utilization of flowers within society.

HORT 3000 GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1030. Growth and development of plants with concepts applied to the practice of Horticultural Science. Summer and Fall.

HORT 3110 A HISTORY OF GARDENS IN CULTURAL CONTEXT (3) LEC. 3. Heritage and traditions influencing the development of public and private garden styles, context, and function including cultural expressions, plant use, and impact of noted designers and horticulturists throughout history. Only taught in Study Abroad programs.

HORT 3200 WOODY LANDSCAPE PLANT IDENTIFICATION I (4) LEC. 2. LAB. 4. This course introduces students to the language of botany and the Southeastern palate of landscape plants with distinguished fall characteristics. Specific topics include taxonomy, morphology, plants with global popularity, cultivation practices, structural plantings, and use in the landscape. Fall.

HORT 3210 WOODY LANDSCAPE PLANT IDENTIFICATION II (4) LEC. 2. LAB. 4. This course introduces students to the language of botany and the Southeastern palate of landscape plants with distinguished spring characteristics. Specific topics include taxonomy, morphology, plants with global popularity, cultivation practices, structural plantings, and use in the landscape. Spring.

HORT 3220 ARBORICULTURE (4) LEC. 2. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Identification, culture and use of ornamental trees in landscape plantings. Fall.

HORT 3280 LANDSCAPE CONSTRUCTION (4) LEC. 2. LAB. 4. Principles and practices used in the interpretation and implementation of landscape construction and planting plans. Fall.

HORT 3840 STUDY/TRAVEL IN HORTICULTURE (1-10) AAB/FLD. Study of horticultural or fruit and vegetable science, landscape design, nursery and greenhouse management in U.S. or international location. Course may be repeated for a maximum of 10 credit hours.

HORT 3910 PROFESSIONAL LANDSCAPE (3) LEC. 3. Departmental approval. Field-based course designed for learning to prepare and compete in the NALP National Collegiate Landscape Competition. Spring.

HORT 3920 HORTICULTURE INTERNSHIP (1-4) INT. 1-4. Practical on-the-job training for selected commercial horticultural companies. Course may be repeated for a maximum of 8 credit hours.

HORT 3950 CAREERS IN HORTICULTURE (2) LEC. 2. Current developments and career opportunities in horticulture. Fall and Spring.

HORT 4000 PESTICIDE MANAGEMENT IN HORTICULTURE (3) LEC. 3. Pr. (ENTM 4020 or ENTM 3040) and PLPA 3000. Proper management of pesticides in horticulture; decision making skills in relation to control strategies; environmental issues relevant to horticulture; safety considerations; scouting and application techniques. Fall.

HORT 4100 HERBACEOUS ORNAMENTALS (4) LEC. 2. LAB. 4. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Identification, culture, and use of herbaceous annuals and perennials, bulbs, herbs, and ornamental grasses. Consideration of flower bed and border preparation, care and maintenance. Spring and Summer.

HORT 4250 INTERMEDIATE FRUIT & VEG PROD (3) LEC. 3. Pr. (HORT 2040 or HORT 2043) or HORT 2030. Intermediate horticulture course in which students apply knowledge gained in the classroom to hands-on fruit and vegetable gardening practices.

HORT 4270 INTERMEDIATE LANDSCAPE DESIGN (4) LEC. 2. LAB. 4. Pr. HORT 3210 or HORT 3220 or HORT 4100. A study of the design principles and elements and technical skills used to create a functional and aesthetically pleasing residential landscape design. Fall.

HORT 4300 COMPUTER AIDED PLANTING DESIGN (3) LEC. 3. Pr. HORT 4270. Graphic concepts relating to spatial visualization and communication and project cost estimation using computer aided drafting and project management software developed for landscape professionals. Spring.

HORT 4930 DIRECTED STUDIES (1-3) AAB/IND. Departmental approval. Directed Studies related to research, teaching or outreach educational programs in Horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 4970 SPECIAL TOPICS (1-3) IND. Principles, methods and techniques for understanding various horticultural disciplines. Course may be repeated for a maximum of 6 credit hours.

HORT 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

HORT 5100 HORTICULTURAL PLANT BREEDING (3) LEC. 3. Pr. (BIOL 3000 or CSES 3300 or AGRI 3000). This class will introduce students to traditional and modern technologies for breeding horticultural crops such as fruits, vegetables, and ornamental crops. Students will learn about the importance of plant breeding for horticultural crop improvement, mechanisms of traditional and modern breeding technologies, and biotechnologies with an emphasis on specific applications for horticultural crops. Credit will only be given for one of the following: HORT 5100 or HORT 6100.

HORT 5110 TREE FRUIT CULTURE (3) LEC. 3. Pr. HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Credit will only be given for one of the following courses: HORT 5110 or HORT 6110. Summer.

HORT 5120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Pr. HORT 3000. Principles and practices involved in the production and marketing of small fruits and pecans. Credit will only be given for one of the following courses: HORT 5120 or HORT 6120. Spring.

HORT 5130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and HORT 3000. Best management practices and quality of vegetable crops. Credit will only be given for one of the following: HORT 5130 or HORT 6130. Spring.

HORT 5140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. (PLPA 3000 or PLPA 3003) and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.

HORT 5150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Pr. HORT 3210 or HORT 3220 or Departmental approval. The following topics will be covered: financing, location, design, stocking, selling, personnel management, advertising and maintaining plants. May count either HORT 5150 or HORT 6150. Summer.

HORT 5200 CONTROLLED ENVIRONMENT AGRICULTURE (4) LEC. 3. LAB. 2. Pr. HORT 2060. This course will provide a thorough overview of the aerial factors that influence crop production in controlled environments. Credit will only be given for one of the following courses: HORT 5200 or HORT 6200.

HORT 5210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Pr. CSES 2040 and PLPA 3000. Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 5220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Pr. HORT 3000 and HORT 2240 and CSES 2040. Management, culture and economics of commercial greenhouse production. Fall.

HORT 5230 NURSERY MANAGEMENT (4) LEC. 2. LAB. 4. Pr. HORT 2240 and HORT 3000. Factors affecting plant production. Environmental issues related to facilities design and pesticide and nutrient management. Departmental approval. Spring.

HORT 5240 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 4. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens. Spring.

HORT 5330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/5333/6330/6336.

HORT 5910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Spring. Course may be repeated for a maximum of 8 credit hours.

HORT 6100 HORTICULTURAL PLANT BREEDING (3) LEC. 3. This class will introduce students to traditional and modern technologies for breeding horticultural crops such as fruits, vegetables, and ornamental crops. Students will learn about the importance of plant breeding for horticultural crop improvement, mechanisms of traditional and modern breeding technologies, and biotechnologies with an emphasis on specific applications for horticultural crops. Credit will only be given for one of the following: HORT 5100 or HORT 6100.

HORT 6110 TREE FRUIT CULTURE (3) LEC. 3. Manipulation of growth and development of tree fruit crops by cultural methods. Credit will only be given for one of the following courses: HORT 5110 or HORT 6110. Summer.

HORT 6120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Principles and practices involved in the production and marketing of small fruits and pecans. Credit will only be given for one of the following courses: HORT 5120 or HORT 6120. Spring.

HORT 6130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2. LAB. 2. Advanced course in best management practices and quality of vegetable crops. Credit will only be given for one of the following courses: HORT 5130 or HORT 6130. Spring.

HORT 6140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 2. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.

HORT 6150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Topics included: financing, location, design, stocking, selling, personnel management, advertising, and maintaining plants. Graduate students will evaluate garden centers and provide feedback for improvement. Summer.

HORT 6200 CONTROLLED ENVIRONMENT AGRICULTURE (4) LEC. 3. LAB. 2. This course will provide a thorough overview of the aerial factors that influence crop production in controlled environments. Credit will only be given for one of the following courses: HORT 5200 or HORT 6200.

HORT 6210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 6220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Management, culture and economics of commercial greenhouse production. Fall.

HORT 6230 NURSERY MANAGEMENT (4) LEC. 2. LAB. 4. Factors affecting plant production. Environmental issues related to facilities design and pesticide and nutrient management. Departmental approval. Spring.

HORT 6240 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 4. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens. Spring.

HORT 6330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/5333/6330/6336.

HORT 6910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Spring. Course may be repeated for a maximum of 8 credit hours.

HORT 7010 EXPERIMENTAL METHODS IN HORTICULTURE (3) LEC. 2. LAB. 2. Principles and methodologies of horticultural research, experimental design, preparation of project and grant proposals, and development of publication skills. Summer

HORT 7040 ADVANCED GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Plant growth and development from seed germination, through maturity and senescence. Spring.

HORT 7050 NUTRITIONAL REQUIREMENTS OF HORTICULTURAL PLANTS (3) LEC. 3. LAB. 2. Pr. HORT 3000. Nutritional requirements of horticulture crops and factors affecting these requirements. Departmental approval. Summer, odd years.

HORT 7070 PLANT BIOTECHNOLOGY (3) LEC. 3. Plant biotechnology, including plant tissue culture technologies, genetic transformation and applications for horticultural crop improvement.

HORT 7840 GRADUATE STUDY/TRAVEL IN HORTICULTURE (1-4) LEC. Departmental approval. Programmed activities to enhance national/international awareness and enable students to understand horticultural practices in diverse areas. Course may be repeated for a maximum of 8 credit hours.

HORT 7920 GRADUATE INTERNSHIP (1-4) INT. Departmental approval. Supervised professional experience in horticulture

HORT 7950 SEMINAR (1) SEM. SU. Graduate students are required to attend all seminars. Course may be repeated with change in topics.

HORT 7960 SPECIAL PROBLEMS (1-3) IND. 3. Conferences, problems and assigned readings in horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 7970 SPECIAL TOPICS IN HORTICULTURE (1-3) LEC. Principles, methods and techniques involved in gaining an understanding of different horticultural disciplines. Course may be repeated for a maximum of 3 credit hours.

HORT 7980 NON-THESIS RESEARCH (1-4) RES. 1-4. Research conducted as part of the Master of Agriculture degree. Course may be repeated for a maximum of 4 credit hours.

HORT 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

HORT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Agricultural Science (AGSC)

Freshman

Fall	Hours	Spring	Hours
ANSC 1000 Introduction to Animal Sciences	**4**	BIOL 1030 Organismal Biology	3
BIOL 1020 Principles of Biology	3	BIOL 1031 Organismal Biology Laboratory	1
BIOL 1021 Principles of Biology Laboratory	1	ENGL 1120 English Composition II	3

MATH 1130 Pre-Calculus Trigonometry	3	CHEM 1030 Fundamentals Chemistry I	3
ENGL 1100 English Composition I	3	CHEM 1031 Fundamental Chemistry I Laboratory	1
Core History I[1]	3	Core History II or Core Social Science[1]	3
	17		**14**

Sophomore

Fall	Hours	Spring	Hours
CSES 2040 Basic Soil Science	**4**	STAT 2510 Statistics for Biological and Health Sciences	3
POUL 1000 Introductory Poultry Science	3	CSES 2000 Basic Crop Science	4
Core Literature I[1]	3	Core Literature II or Humanities[1]	3
Core Social Science	3	COMM 1000 Public Speaking	3
HORT 2020 Horticulture Crop Production	3	ECON 2020 Principles of Microeconomics	3
	16		**16**

Junior

Fall	Hours	Spring	Hours
HORT 2210 Landscape Gardening	**4**	**CTCT 2100 Power Equipment Technology**	**3**
AGEC 3010 Agribusiness Marketing *or* 4000 Principles of Agribusiness Management[2]	**3**	PLPA 3000 General Plant Pathology	4
ENTM 4020 Economic Entomology	4	Agriculture Supporting Courses	6
Agriculture Supporting Course (3000-5000 level)	**4**	Directed Science Elective[3]	3
	15		**16**

Senior

Fall	Hours	Spring	Hours
CTCT 4030 Career and Technical Student Organizations	**3**	FISH 4100 Introduction to Fisheries Sciences	3
CTCT 4140 Agricultural Structure and Metal Fabrication Technology	3	**Agriculture Supporting Course (3000-5000 level)**	**4**
HORT 4000 Pesticide Management in Horticulture ***or*** CSES 3120 Principles of Weed Science	3	Directed Science Elective[3]	3
Electives	4	Core Fine Arts	3
		UNIV 4AA0 Achieve the Creed	0
	13		**13**

Total Hours: 120

1 All students must complete at least one literature course and a history sequence or a literature sequence and one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.

2 Only offered Fall term.

3 Approved directed science electives: BIOL 3010, BIOL 3100, BIOL 3200; CHEM 1040/CHEM 1041, CHEM 2030, CHEM 2070; BCHE 3200; HORT 3000; 6 hours of ROTC.

Horticulture Minor

16 semester hours in minor (minimum 9 hours at 3000-level or above)

Code	Title	Hours
Required Course (4 hours):		
HORT 1010	Introduction to Horticulture	1
HORT 2240	Plant Propagation	3
May select one from the following (3 hours):		
HORT 2010	Fruit and Nut Production	4
HORT 2030	Vegetable Production	3
HORT 2060	Hydroponics: Principles and Techniques of Soilless Plant Production	3
HORT 2210	Landscape Gardening	4
HORT 2250	Art of Floral Design	3
Select minimum of 9 hours from the following:		
HORT 3000	Growth and Development of Horticultural Plants	3
HORT 3110	A History of Gardens in Cultural Context	3
HORT 3200	Woody Landscape Plant Identification I	4
HORT 3210	Woody Landscape Plant Identification II	4
HORT 3220	Arboriculture	4
HORT 3280	Landscape Construction	4
HORT 4000	Pesticide Management in Horticulture	3
HORT 4100	Herbaceous Ornamentals	4
HORT 4250	Intermediate Fruit & Veg Prod	3
HORT 4270	Intermediate Landscape Design	4
HORT 4300	Computer Aided Planting Design	3
HORT 5110	Tree Fruit Culture	3
HORT 5120	Small Fruit and Pecan Culture	4
HORT 5130	Sustainable Vegetable Crop Production	3
HORT 5150	Retail Garden Center Management	3
HORT 5210	Landscape Bidding, Installation and Maintenance	4
HORT 5220	Greenhouse Management Science	4
HORT 5230	Nursery Management	4
HORT 5240	Public Garden Management	3
HORT 5910	Horticulture Practicum	4

Total required: 16 hours

Horticulture — Fruit and Vegetable Production Track (HRTB)

Freshman

Fall	Hours	Spring	Hours
HORT 1010 Introduction to Horticulture	**1**	BIOL 1030 Organismal Biology	3
BIOL 1020 Principles of Biology	3	BIOL 1031 Organismal Biology Laboratory	1
BIOL 1021 Principles of Biology Laboratory	1	ENGL 1120 English Composition II	3
Core Mathematics[1,2]	3	Core History ll or Core Social Science[3]	3
ENGL 1100 English Composition I	3	COMM 1000 Public Speaking	3

Core History I[3]	3	Core Fine Arts	3
	14		**16**

Sophomore

Fall	Hours	Spring	Hours
HORT 2010 Fruit and Nut Production	**4**	**HORT 2030 Vegetable Production**	**3**
Core Social Science	3	**HORT 2240 Plant Propagation**	**3**
Core Literature I[3]	3	CSES 2040 Basic Soil Science	4
CHEM 1030 Fundamentals Chemistry I	3	ECON 2020 Principles of Microeconomics ***or*** 2030 Principles of Macroeconomics	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	Elective	3
	14		**16**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
HORT 3000 Growth and Development of Horticultural Plants	**3**	**HORT 5120 Small Fruit and Pecan Culture[4]**	**4**	**HORT 5110 Tree Fruit Culture[5]**	**3**
Group 1 or 2[2,6]	**3**	**Group 1 or 2[2,6]**	**3**		
HORT 2060 Hydroponics: Principles and Techniques of Soilless Plant Production	3	**HORT 3950 Careers in Horticulture**	**2**		
ENTM 4020 Economic Entomology ***or*** 3040 General Entomology	4	PLPA 3000 General Plant Pathology	4		
		Core Literature II or Core Humanities[3]	3		
	13		**16**		**3**

Senior

Fall	Hours	Spring	Hours
Group 1 or 2[2,6]	**3**	**HORT 5130 Sustainable Vegetable Crop Production**	**3**
Group 1 or 2[6]	**4**	**HORT 5140 Post-Harvest Biology and Technology**	**3**
HORT 4000 Pesticide Management in Horticulture	**3**	**HORT 5910 Horticulture Practicum**	**4**
Elective	3	Electives	5
		UNIV 4AA0 Achieve the Creed	0
	13		**15**

Total Hours: 120

A minimum of 120 hours is required.

1 Any core MATH course, except MATH 1100 may be chosen.
2 Course may be 3 or 4 hours.
3 All students must complete at least one literature course and a history sequence OR a literature sequence and at least one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.
4 Even years only.

5 Odd years only.

6 **Group 1 (Business Emphasis)**: FLSP 1010 Elementary Spanish I (4); HORT 2210 Landscape Gardening (4); ACCT 2810 Fundamentals of Accounting (3) or ACCT 2110 Principles of Financial Accounting (3); AGEC 3010 Agribusiness Marketing (3); CSES 3150 Turfgrass Management (4); MKTG 3310 Principles of Marketing (3); FINC 3610 Principles of Business Finance (3); HORT 3920 Horticulture Internship (1-4); AGEC 4000 Principles of Agribusiness Management (3); AGEC 4070 Agricultural Law (3); HORT 4250 Intermediate Fruit and Vegetable Production (3); RSOC 5410 Extension Programs and Methods (3); HORT 5150 Retail Garden Center Management (3); HORT 5230 Nursery Management (4); HORT 5240 Public Gardens Management (3).
Group 2 (Science Emphasis): PHYS 1500 General Physics (4); PHYS 1510 General Physics II (4); MATH 1610 Calculus I (4); MATH 1620 Calculus II (4); CHEM 2070 & CHEM 2071 Organic Chemistry I & Lab (4); CHEM 2080 & CHEM 2081 Organic Chemistry II & Lab (4); STAT 2510 Statistics for Biological and Health Sciences (3); STAT 2710 Statistical Computing (1); AGRI 3000 Agricultural Genetics (4); BIOL 3000 Genetics (3); CHEM 3050 & CHEM 3051 Analytical Chemistry & Lab (4); CSES 3120 Principles of Weed Science (4); HORT 4930 Directed Study (3); HORT 4970 Special Topics (3); AGRI 5010 Analysis of Plant, Soil, and Animal Data (3); POUL 5160 Principles of Food Safety (3); BCHE 5180 & BCHE 5181 Biochemistry I & Lab (4); BCHE 5190 & BCHE 5191 Biochemistry II & Lab (4).

Horticulture — Landscape Horticulture Track (HRTB)

Freshman

Fall	Hours	Spring	Hours
HORT 1010 Introduction to Horticulture	**1**	BIOL 1030 Organismal Biology	3
Core Mathematics[1,2]	3	BIOL 1031 Organismal Biology Laboratory	1
ENGL 1100 English Composition I	3	CHEM 1030 Fundamentals Chemistry I	3
Core History I[3]	3	CHEM 1031 Fundamental Chemistry I Laboratory	1
BIOL 1020 Principles of Biology	3	ENGL 1120 English Composition II	3
BIOL 1021 Principles of Biology Laboratory	1	Core History ll or Core Social Science[3]	3
	14		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Literature I[3]	3	**HORT 2240 Plant Propagation**	**3**
HORT 3200 Woody Landscape Plant Identification I (Woody Landscape Plant Identification I)	**4**	**HORT 3210 Woody Landscape Plant Identification II (Woody Landscape Plant Identification II)**	**4**
ECON 2020 Principles of Microeconomics ***or*** 2030 Principles of Macroeconomics	3	Core Literature II or Core Humanities[3]	3
CSES 2040 Basic Soil Science	4	COMM 1000 Public Speaking	3
Core Social Science	3		
	17		**13**

Junior

Fall	Hours	Spring	Hours
HORT 4270 Intermediate Landscape Design	**4**	**HORT 4100 Herbaceous Ornamentals**	**4**
HORT 3280 Landscape Construction	**4**	**Group 1[2,4]**	**3**
ENTM 4020 Economic Entomology ***or*** 3040 General Entomology	4	HORT 3950 Careers in Horticulture	2
CSES 3150 Turfgrass Management	4	PLPA 3000 General Plant Pathology	4
		Core Fine Arts	3
	16		**16**

Senior

Fall	Hours	Spring	Hours
HORT 3000 Growth and Development of Horticultural Plants	**3**	**HORT 5210 Landscape Bidding, Installation and Maintenance**	**4**
Group 1[2,4]	**3**	**HORT 5910 Horticulture Practicum**	**4**
Group 1 or 2[2,4]	3	Group 1 or 2[2,4]	3
Electives	6	Electives	4
		UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

Note: A minimum of 120 hours is required.

1 Any core MATH course, except MATH 1100 may be chosen.

2 Course may be 3 or 4 hours.

3 All students must complete at least one literature course and a history sequence OR a literature sequence and at least one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.

4 **Group 1:** HORT 3110 People and Plants: A History of Gardens in the Cultural Context (3); HORT 3220 Arboriculture (4); HORT 3920 Horticulture Internship (1-4); HORT 4000 Pesticide Management in Horticulture (3); HORT 4300 Computer Aided Planting Design (3); HORT 5150 Retail Garden Center Management (3); HORT 5220 Greenhouse Management Science (4); HORT 5230 Nursery Management (4); HORT 5240 Public Gardens Management (3); HORT 5280 Advanced Landscape Design (3); BATM 3560 Turf Systems Irrigation Design (3); CSES 5160 Advanced Turfgrass Management (3).
Group 2: STAT 2510 Statistics for Biological and Health Sciences (3); ACCT 2810 Fundamentals of Accounting (3); HORT 4930 Directed Study (3); HORT 5120 Small Fruit and Pecan Culture (4); HORT 5110 Tree Fruit Culture (3); HORT 5130 Sustainable Vegetable Crop Production (3); CSES 3120 Principles of Weed Science (4); CTCT 2100 Power Equipment Technology (3); PLPA 5060 Plant Disease Management (4); FLSP 1010 Elementary Spanish I (4).

Horticulture — Nursery and Greenhouse Science Track (HRTB)

Freshman

Fall	Hours	Spring	Hours
HORT 1010 Introduction to Horticulture	**1**	BIOL 1030 Organismal Biology	3
Core Mathematics[1,2]	3	BIOL 1031 Organismal Biology Laboratory	1
BIOL 1020 Principles of Biology	3	CHEM 1030 Fundamentals Chemistry I	3
BIOL 1021 Principles of Biology Laboratory	1	CHEM 1031 Fundamental Chemistry I Laboratory	1
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History I[3]	3	Core History II or Core Social Science[3]	3
	14		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Literature I[3]	3	**HORT 2240 Plant Propagation**	**3**
HORT 3200 Woody Landscape Plant Identification I (Woody Landscape Plant Identification I)	**4**	**HORT 3210 Woody Landscape Plant Identification II (Woody Landscape Plant Identification II)**	**4**
ECON 2020 Principles of Microeconomics ***or*** 2030 Principles of Macroeconomics	3	Core Literature II or Core Humanities[3]	3
CSES 2040 Basic Soil Science	4	COMM 1000 Public Speaking	3

Core Social Science		3	Electives	3
		17		**16**

Junior

Fall	Hours		Spring	Hours	
HORT 3000 Growth and Development of Horticultural Plants		**3**	**HORT 4100 Herbaceous Ornamentals**		**4**
HORT 3950 Careers in Horticulture		**2**	**Group 1**[2,4]		**3**
Group 1[2,4]		**3**	PLPA 3000 General Plant Pathology		4
ENTM 4020 Economic Entomology ***or*** 3040 General Entomology		4	Core Fine Arts		3
HORT 2060 Hydroponics: Principles and Techniques of Soilless Plant Production		3			
		15			**14**

Senior

Fall	Hours		Spring	Hours	
HORT 5220 Greenhouse Management Science		**4**	**HORT 5910 Horticulture Practicum**		**4**
HORT 5230 Nursery Management		**4**	Group 1 or 2[2,4]		3
HORT 4000 Pesticide Management in Horticulture		3	Electives		9
Group 1 or 2[2,4]		3	UNIV 4AA0 Achieve the Creed		0
		14			**16**

Total Hours: 120

Note: A minimum of 120 hours is required.

1 Any core MATH course, except MATH 1100 may be chosen.

2 Course may be 3 or 4 hours.

3 All students must complete at least one literature course and a history sequence OR a literature sequence and at least one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.

4 **Group 1**: HORT 2010 Fruit and Nut Production (4); HORT 2210 Landscape Gardening (4); HORT 2250 Art of Floral Design (3); HORT 3220 Arboriculture (4); HORT 3310 People and Plants: A History of Gardens in the Cultural Context (3); HORT 3920 Horticulture Internship (1-4); HORT 4270 Intermediate Landscape Design (4); HORT 4930 Directed Study (3); HORT 5110 Tree Fruit Culture (3); HORT 5120 Small Fruit and Pecan Culture (4); HORT 5130 Sustainable Vegetable Production (3); HORT 5150 Retail Garden Center Management (3); HORT 5210 Landscape Bidding, Installation and Maintenance (4); HORT 5240 Public Gardens Management (3).
Group 2: FLSP 1010 Elementary Spanish I (4); CTCT 2100 Power Equipment Technology (3); STAT 2510 Statistics for Biological and Health Sciences (3); ACCT 2810 Fundamentals of Accounting (3) or ACCT 2110 Fundamentals of Financial Accounting (3); CSES 3120 Principles of Weed Science (4); BATM 3560 Turf Systems Irrigation Design (3); RSOC 4410 Extension Programs and Methods (3); PLPA 5060 Plant Disease Management (4); FORY 5650 Urban Forestry (3).

Horticulture — Pre-Landscape Architecture Track (HRTB)

Students who have successfully completed the first three years of the Pre-Landscape Architecture Emphasis and who have a minimum 2.8 cumulative GPA are eligible to apply to the Landscape Architecture Summer Design Studio. Students who have successfully completed the Summer Design Studio and who are approved by the Landscape Architecture Faculty Admissions Committee are eligible to make application to the Graduate School for the Master of Landscape Architecture Program upon the completion of the fourth year. Please see the Office of Academic Affairs in the College of Agriculture for further information.

Pre-Landscape Architecture Emphasis

Freshman

Fall	Hours	Spring	Hours
HORT 1010 Introduction to Horticulture	**1**	BIOL 1030 Organismal Biology	3
Core Mathematics[1,2]	3	BIOL 1031 Organismal Biology Laboratory	1
BIOL 1020 Principles of Biology	3	CHEM 1030 Fundamentals Chemistry I	3
BIOL 1021 Principles of Biology Laboratory	1	CHEM 1031 Fundamental Chemistry I Laboratory	1
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History I[3]	3	Core History II or Core Social Science[3]	3
	14		**14**

Sophomore

Fall	Hours	Spring	Hours
HORT 3000 Growth and Development of Horticultural Plants	**3**	**HORT 2240 Plant Propagation**	**3**
HORT 3200 Woody Landscape Plant Identification I (Woody Landscape Plant Identification I)	**4**	**HORT 3210 Woody Landscape Plant Identification II (Woody Landscape Plant Identification II)**	**4**
Core Literature I[3]	3	Core Literature II or Core Humanities[3]	3
ECON 2020 Principles of Microeconomics ***or*** 2030 Principles of Macroeconomics	3	COMM 1000 Public Speaking	3
CSES 2040 Basic Soil Science	4		
	17		**13**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
HORT 4270 Intermediate Landscape Design	**4**	**HORT 4100 Herbaceous Ornamentals**	**4**	LAND 5030 Landscape Design Methods	3
ENTM 4020 Economic Entomology ***or*** 3040 General Entomology	4	PLPA 3000 General Plant Pathology	4	LAND 5040 Landscape Issues & Practices	3
CSES 3150 Turfgrass Management	4	Core Social Science	3		
Core Fine Arts	3	HORT 5210 Landscape Bidding, Installation and Maintenance	4		
	15		**15**		**6**

Senior

Fall	Hours	Spring	Hours
LAND 5130 Studio I: Foundation Studio	5	LAND 5230 Studio II	5
LAND 5131 Fieldwork I	1	LAND 5231 Fieldwork II	1

LAND 5140 History, Theory, and Practice I: Landscape Architecture and Contemporary Urbanism	3	LAND 5240 History, Theory, and Practice II: Landscape Architecture and Contemporary Culture	3
LAND 5150 Construction I: Landform & Hydrology	3	LAND 5250 Construction II: Materials & Detailing	3
LAND 5160 Graphic Studies I	3	LAND 5290 Graphic Studies II	3
	15		**15**

Total Hours: 124

1 Any core MATH course, except MATH 1100 may be chosen.
2 Course may be 3 or 4 hours.
3 All students must complete at least one literature course and a history sequence OR a literature sequence and at least one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.

Department of Poultry Science

Students within the Department of Poultry Science learn about the food system from poultry production on the farm through processing and food safety to the manufacturing of poultry products for the consumer. The department houses the B.S. degree in poultry science, where two curriculum options are available. The traditional poultry production option prepares students to enter and advance within the poultry industry. The poultry science/pre-veterinary medicine option prepares students for professional schools (e.g., veterinary medicine, pharmacy, dental, or medical school). Enrollment in an internship, usually during the summer, is required for the B.S. degree in poultry science.

Majors

- Poultry Science — Production Option (p. 277)
- Poultry Science — Pre-Veterinary Medicine Option (p. 275)

Minors

- Poultry Science (p. 275)

Food Science Courses

FDSC 1000 INTRODUCTORY FOOD SCIENCE (3) LEC. 3. Overview of food science discipline including food selection, food composition, food safety and sanitation, food processing, packaging, commodity types, and food laws.

FDSC 4290 PROFESSIONAL DEVELOPMENT IN FOOD SCIENCE (1) LEC. 1. Preparing for careers; enhancing computer and communication skills; planning for professional advancement.

FDSC 4920 FOOD SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the food industry. Course may be repeated for a maximum of 9 credit hours.

FDSC 4960 SPECIAL PROBLEMS IN FOOD SCIENCE (1-3) IND. 2.50 GPA or departmental approval. Individual or group projects with a faculty member in food science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

FDSC 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Instruction and discussion of current topics associated with food science. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

FDSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FDSC 5660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 1. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 1. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 7430 FLAVOR CHEMISTRY (3) LEC. 3. Chemistry of flavor compounds; Analytical approaches and sensory evaluation to characterize flavor.

FDSC 7600 MOLECULAR PATHOGENESIS OF FOODBORNE PATHOGENS (3) LEC. 3. Pr. BIOL 6260 or VBMS 7460. This course covers a detailed description of major foodborne pathogens that affect human health and their pathogenesis. Lectures will detail how the pathogen's adherence and invasion, host dissemination, and host cell damage lead to pathogenesis.

FDSC 7730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. History and methods of sensory testing of food products, factors affecting results.

FDSC 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either POUL 7950 or FDSC 7950. Course may be repeated for a maximum of 3 credit hours.

FDSC 7960 SPECIAL PROBLEMS (1-4) IND/ST1. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 8 credit hours.

FDSC 7970 SPECIAL TOPICS IN FOOD SCIENCE (1-4) LEC. Instruction and discussion of current advanced topics associated with food science. Course may be repeated for a maximum of 8 credit hours.

FDSC 7980 NONTHESIS RESEARCH (1-4) RES. Departmental approval. enrolled as FDSG MAg student. Research conducted as part of the Master of Agriculture degree.

FDSC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

FDSC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

Poultry Science Courses

POUL 1000 INTRODUCTORY POULTRY SCIENCE (3) LEC. 3. Introduction to the poultry species and their commercial production, physiology, nutrition, and management.

POUL 2000 POULTRY AND EGG EVALUATION AND SELECTION (1) LAB. 1. A hands-on approach to poultry and egg evaluation based on the U.S. poultry and Egg guidelines and how to properly care for and handle the birds. Spring and Fall. Course may be repeated for a maximum of 4 credit hours.

POUL 2100 PROFESSIONAL DEVELOPMENT FOR ANIMAL AGRICULTURE, PRODUCTION, PROCESSING & FEED INDUSTRIES (1) LEC. 1. Development of professional skills and career preparation for students in animal agriculture.

POUL 3030 COMMERCIAL POULTRY PRODUCTION (4) LEC. 3. LAB. 3. The organization and management principles of the commercial poultry meat and egg production industries. Fall.

POUL 3060 POULTRY REPRODUCTION (3) LEC. 2. LAB. 2. Pr. POUL 3030. This course explores the reproductive physiology and endocrinology of poultry species, emphasizing genetics and management strategies impacting production, fertility, and hatchability in the industry. Students will also learn hatchery management and embryonic development of the chick.

POUL 3150 POULTRY PHYSIOLOGY (4) LEC. 3. LAB. 3. The physiological principles and anatomical characteristics of poultry species which directly interact with commercial management systems. Spring.

POUL 4920 POULTRY SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the poultry industry. Course may be repeated for a maximum of 9 credit hours.

POUL 4960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. 2.5 GPA or departmental approval. Individual or group projects with a faculty member in poultry science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

POUL 4970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Departmental approval. Instruction and discussion of selected current topics in poultry science. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

POUL 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

POUL 5020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 6020 or POUL 5020.

POUL 5030 ADVANCED COMMERCIAL POULTRY PRODUCTION (3) LEC. 3. Pr. POUL 3030 and POUL 3150 and POUL 5050 and POUL 5110. The course covers the major principles of the integrated poultry industry, including the interactions and interrelationships between business segments in the poultry industry.

POUL 5050 POULTRY FEEDING (3) LEC. 3. Pr. ANSC 3410. The application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 and POUL 6050.

POUL 5070 ANIMAL WELFARE (3) LEC. 3. Pr. (POUL 1000 or ANSC 1000) and (POUL 3150 or ANSC 3600). This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, wildlife, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

POUL 5080 POULTRY HEALTH (3) LEC. 3. Pr. BIOL 3200 and POUL 3150. Study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. May count either POUL 5080 or POUL 6080.

POUL 5110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Pr. POUL 3030 and (CHEM 1110 or CHEM 1030). The course focuses on poultry processing and related aspects. Students will learn the effects of live production, feed withdrawal and haul on poultry processing and quality as well as pre- and post-harvest food safety, USDA regulations, Halal and Kosher standards. May count either POUL 5110 or POUL 6110.

POUL 5140 POULTRY FURTHER PROCESSING AND PRODUCTS (3) LEC. 2. LAB. 3. Pr. CHEM 1110 or CHEM 1030. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. May count either POUL 5140 or POUL 6140.

POUL 5160 PRINCIPLES OF FOOD SAFETY (3) LEC. 3. Pr. BIOL 3200. Study of the identification and control of physical, chemical, and microbiological hazards in the food industry. Introduction to Hazard Analysis and Critical Control Points (HACCP). May count either POUL 5160 or POUL 6160.

POUL 6020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 5020 or POUL 6020.

POUL 6030 ADVANCED COMMERCIAL POULTRY PRODUCTION (3) LEC. 3. The course covers the major principles of the integrated poultry industry, including the interactions and interrelationships between business segments in the poultry industry. Graduate student standing.

POUL 6050 ADVANCED POULTRY FEEDING (3) LEC. 3. An advanced study and review of the literature on the application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 or POUL 6050.

POUL 6070 ANIMAL WELFARE (3) LEC. 3. This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, wildlife, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

POUL 6080 ADVANCED POULTRY HEALTH (3) LEC. 3. Departmental approval. An advanced study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. May count either POUL 5080 or POUL 6080.

POUL 6110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Students will acquire strong knowledge on each step of poultry processing from hanging to chilling and transportation. The course will cover topics on food safety (pre- and post-harvest), spoilage, antimicrobial interventions, USDA regulations as well as Halal and Kosher standards. May count either POUL 5110 or POUL 6110.

POUL 6140 POULTRY FURTHER PROCESSING AND PRODUCTS (3) LEC. 2. LAB. 3. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. May count either POUL 5140 or POUL 6140.

POUL 6160 ADVANCED PRINCIPLES OF FOOD SAFETY (3) LEC. 3. Advanced study of the identification and control of physical, chemical, and microbiological hazards in the food industry. Introduction to Hazard Analysis and Critical Control Points (HACCP). May count either POUL 5160 or POUL 6160.

POUL 7100 SUPERVISED INVESTIGATION (1-4) IND. Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either FDSC 7950 or POUL 7950. Course may be repeated for a maximum of 3 credit hours.

POUL 7960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. Critical analysis of classic and current research in poultry science, including literary research and/or data analysis. Course may be repeated for a maximum of 6 credit hours.

POUL 7970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Instruction and discussion of current advanced topics associated with poultry science. Course may be repeated for a maximum of 8 credit hours.

POUL 7980 NON-THESIS RESEARCH (1-4) RES. Departmental approval. enrolled as POUL MAg student. Research conducted as part of the Master of Agricultural degree.

POUL 7990 RESEARCH AND THESIS (1-10) MST. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

POUL 8100 GI SYSTEMS AND NUTRIENT UTILIZATION (3) LEC. 3. Pr. POUL 5050. Structure of feedstuffs and strategy in nutrient recovery from the gastrointestinal systems of fowl, swine, and ruminants.

POUL 8960 SPECIAL PROBLEMS (1-4) IND. A) Nutrition, B) Physiology, C) Health, D) Microbiology, E) Processing, F) Product Safety and Quality, G) Teaching, H) Immunonutrition. Course may be repeated with change in topic. Departmental approval.

POUL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

Poultry Science Minor

17 semester hours in minor (minimum 13 hours at 3000-level or above)

Code	Title	Hours
POUL 1000	Introductory Poultry Science	3
POUL 3030	Commercial Poultry Production	4
POUL 2100	Professional Development for Animal Agriculture, Production, Processing & Feed Industries	1
3 Elective Courses - See advisor for approved course listing.		9
Total Hours		**17**

Poultry Science — Pre-Veterinary Medicine Option (POPV)

This option is designed to develop the technical, analytical, and communication skills, as well as provide the broad scientific foundation, needed for success in post-graduate degree programs, such as the Doctor of Veterinary Medicine, Master of Science, Doctor of Philosophy or other post-graduate professional degrees. Completion of this option will also prepare graduates for technical and research positions in the poultry and allied industries. Courses listed for the first six semesters satisfy requirements for admission to the College of Veterinary Medicine. Completion of the remaining requirements entitles the student to a B.S. degree in poultry science.

Poultry Science/Pre-Veterinary Medicine Option

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
POUL 1000 Introductory Poultry Science	**3**	ENGL 1100 English Composition I	3
MATH 1610 Calculus I	4	Core Fine Arts	3
		Core Social Science	3
	15		**17**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
POUL 3030 Commercial Poultry Production	**4**	**POUL 3150 Poultry Physiology**	**4**
ENGL 1120 English Composition II	3	ECON 2020 Principles of Microeconomics	3
POUL 2100 Professional Development for Animal Agriculture, Production, Processing & Feed Industries	**1**	COMM 1000 Public Speaking	3
Core History 1	3	Core History 2	3
	15		**17**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
AGRI 3000 Agricultural Genetics	**4**	**BIOL 3200 General Microbiology**	**3**	**POUL 4920 Poultry Science Internship**	**3**
BCHE 3200 Principles of Biochemistry	**3**	**BIOL 3201 General Microbiology Laboratory**	**1**		
ANSC 3410 Animal Metabolism and Nutrition	3	**BIOL 4100 Cell Biology**	**3**		
Core Literature	3	PHYS 1500 General Physics I	4		
Core Humanity	3	ANSC 3420 Applied Animal Feeding and Nutrition	3		
	16		**14**		**3**

Senior

Fall	Hours	Spring	Hours
POUL 5050 Poultry Feeding	**3**	**POUL 3060 Poultry Reproduction**	**3**

POUL 5110 Poultry Processing	**3**	**POUL 5160 Principles of Food Safety**	**3**
POUL 5080 Poultry Health	**3**	**POUL 5030 Advanced Commercial Poultry Production**	**3**
STAT 2510 Statistics for Biological and Health Sciences	3	UNIV 4AA0 Achieve the Creed	0
Science Elective[1]	3	Free Elective or ROTC	3
	15		**12**

Total Hours: 124

[1] For the science elective, select from ANSC 3600, BIOL 3010, BIOL 4000, BIOL 5020, BIOL 5110, BIOL 5240, BIOL 5500, BIOL 5600, or PHYS 1510.

Poultry Science — Production Option (POPP)

This option is designed to develop technical, analytical, communication, business, and management skills needed for advancement to leadership positions in poultry production and allied agricultural industries. Graduates will be able to apply their knowledge of science, economics, business, and ethics to identify, analyze and responsibly address challenges associated with modern poultry production. Relevant courses in poultry processing, products, and business are also included in this curriculum option.

Poultry Production Option

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
POUL 1000 Introductory Poultry Science	**3**	ENGL 1120 English Composition II	3
FDSC 1000 Introductory Food Science	3	ECON 2020 Principles of Microeconomics	3
ENGL 1100 English Composition I	3	STAT 2510 Statistics for Biological and Health Sciences	3
MATH 1130 Pre-Calculus Trigonometry	3	Core Social Science	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	CHEM 2030 Survey of Organic Chemistry	3
BIOL 1020 Principles of Biology	3	**POUL 3150 Poultry Physiology**	**4**
BIOL 1021 Principles of Biology Laboratory	1	COMM 1000 Public Speaking	3
ACCT 2810 Fundamentals Of Accounting	3	Core History 1	3
POUL 3030 Commercial Poultry Production	**4**	Core Fine Arts	3

POUL 2100 Professional Development for Animal Agriculture, Production, Processing & Feed Industries	**1**		
	15		**16**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
BIOL 3200 General Microbiology	3	**POUL 3060 Poultry Reproduction**	**3**	**POUL 4920 Poultry Science Internship**	**3**
BIOL 3201 General Microbiology Laboratory	1	**POUL 5140 Poultry Further Processing and Products**	**3**		
ANSC 3410 Animal Metabolism and Nutrition	3	POUL 5020 Principles of Animal Feed Manufacturing	3		
POUL 5110 Poultry Processing	**3**	COMM 2410 Small Group Communication	3		
Core History 2	3	AGEC 3010/MKTG 3310 Agribusiness Marketing ***or*** MKTG 3310 Principles of Marketing	3		
Core Humanity	3				
	16		**15**		**3**

Senior

Fall	Hours	Spring	Hours
POUL 5050 Poultry Feeding	**3**	**POUL 5160 Principles of Food Safety**	**3**
POUL 5080 Poultry Health	**3**	**POUL 5030 Advanced Commercial Poultry Production**	**3**
BATM 5140 Commercial Poultry & Livestock Housing	3	General Elective or ROTC	6
AGEC 4000/MNGT 3810 Principles of Agribusiness Management ***or*** MNGT 3810 Management Foundations	3	UNIV 4AA0 Achieve the Creed	0
AGEC 4040/FINC 3810 Agribusiness Finance ***or*** FINC 3810 Foundations of Business Finance	3		
	15		**12**

Total Hours: 124

General Agriculture

- Agricultural Communication (p. 278)

Agricultural Communications (AGCM)

The Agricultural Communications program is designed to produce graduates who possess exceptional communication skills meshed with a strong science-based background in agriculture and natural resources. This degree enables graduates to communicate vital information related to science, agriculture, natural resources, food and the environment to diverse audiences. Agricultural Communications graduates are prepared to work in the public and private sectors—from corporations to government agencies to nonprofits—pursuing a variety of careers including: writers, photographers, graphic designers, Web developers and managers,

videographers, electronic/digital media producers, marketing specialists, public relations practitioners, publishers, researchers, distance education specialists, overseas development workers, extension educators and managers and editors of magazines and other printed or online news venues. Graduates work throughout corporate America, institutions of higher learning, government agencies, medical technology operations, lobbyist and advocacy groups, non-profits and research organizations in the public and private sector. This combination of technical subject matter knowledge and communication skills is not found in other curricula. The program also prepares students for graduate and professional schools, including law school.

Curriculum in Agricultural Communications

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
BIOL 1020 Principles of Biology, 1021 Principles of Biology Laboratory, ***or*** CSES 1010 Soils and Life	4	BIOL 1030 Organismal Biology, 1031 Organismal Biology Laboratory, ***or*** CSES 1020 Crops and Life	4
COMM 1000 Public Speaking	3	Core History I	3
AGRI 1080 Agricultural Communications	**3**	Core Social Science	3
JRNL 1000 Foundations of Journalism	**3**	MATH 1120 Pre-Calculus Algebra	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
CMJN 2100 Concepts in Communications and Journalism	**3**	Forestry, Crop & Soil, Horticulture, Plant Pathology, or Parks & Recreation Group[1]	3
PRCM 2400 Foundations of Public Relations	**3**	**JRNL 2210 Newswriting**	**3**
Directed Elective 1[2]	3	ECON 2020 Principles of Microeconomics	3
Animal, Poultry, or Fisheries; or Entomology Group[1]	3	Directed Elective 2[2]	3
Food, Environment, and Society Group[3]	3	Core Literature	3
	15		**15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
Agricultural Policy/Leadership/Law Group[4]	3	Free Electives 2	3	**AGRI 4920 Internship in Agricultural Communication and Leadership**	**3**
Directed Elective 3[2]	3	**Choose Three (3) Credit Hours from Among: MDIA 3360 Audio Storytelling, JRNL 3010 Broadcast and Digital News Production, JRNL 3410 Photojournalism, JRSP 3410 Intro to Sports Video Production**	**3**		
Free Electives 1	3	Ag Support 1[5]	3		

JRNL 3510 Multimedia Journalism, 3220 Magazine and Feature Writing, *or* 3020 Broadcast Digital News Reporting	**3**	Ag Support 2[5]	3
JRNL 3470 Editing and Design *or* ENGL 4030 Document Design in Technical and Professional Communication	**3**	AGRI 4970 Special Topics in Agricultural Communication and Leadership	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
Ag Support 3[5]	3	UNIV 4AA0 Achieve the Creed	0
Choose Three (3) Credit Hours from Among: MDIA 3360 Audio Storytelling, JRNL 3010 Broadcast and Digital News Production, JRNL 3410 Photojournalism, JRSP 3410 Intro to Sports Video Production	**3**	AG Support 5[5]	3
Ag Support 4[5]	3	**AGRI 4940 Agricultural Communications Capstone**	**3**
Core Humanities	3	Core Fine Arts	3
Core History II		Free Electives 3	4
	12		**13**

Total Hours: 120

1 For the "Animal, Poultry, or Fisheries Sciences; Entomology" group, select any course within the following: ANSC, POUL, FDSC, FISH, APBT, or ENTM
For the "Forestry, Crop & Soil, Horticulture, Plant Pathology, or Parks and Recreation" group, select any course within the following: FOEN, FORY, FOWS, CSES, HORT, PLPA, NATR, PARK, or WILD

2 See academic advisor for guidance on directed electives.

3 For the "Food, Environment, and Society" group, select from: RSOC 2090 Food Systems: Policy, Production, and Practice; ROSOC 3560 Environment, Society, & Justice; FOWS 2030 Intro to Environ Education; PARK 2010 Introduction to Nature-Based Recreation and Management; NATR 2050 People and the Environment; WILD 1400 Biodiversity in a Changing World; WILD 3280 Wildlife Ecology, Conservation, and Management; or HIST 3590 Issues in Food and Agriculture.

4 For the "Agricultural Policy/Leadership/Law" group, select from: AGEC 3300 Agricultural Policies and Trade; AGEC 4070 Agricultural Law; AGRI 3800 Leading People and Teams in Agriculture; AGRI 5840 Leading Organizational and Community Change in Agriculture;

5 Students are encouraged to pursue a minor in the College of Agriculture if feasible, but for this group may choose any course from among the following: AGRI, AGEC, ANSC, APBT, BATM, BSEN, CSES, ENTM, ENVI, FISH, FDSC, HORT, PLPA, POUL, or RSOC.

Majors

Minors

Agricultural Leadership Studies Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above)

Code	Title	Hours
Required Courses		**6**
AGRI 3800	Leading People and Teams in Agriculture	
AGRI 5840	Leading Organizational and Community Change in Agriculture	
Choose two courses (6 hours) from the list below:		**6**
AGEC 1000	Global Issues in Food, Agriculture, Development, and Environment	
AGEC 4000	Principles of Agribusiness Management	
RSOC 2090	Food Systems: Policy, Production, and Practice	
RSOC 3560	Environment, Society, and Justice	
RSOC 3620	Community Organization	
RSOC 5410	Extension Programs and Methods	
POLI 2100	State Government and Policy	
Elective Course (3 credit hours) - See advisor for guidance.		**3**
Total Hours		**15**

College of Architecture, Design and Construction

DAWN FINLEY, *Dean*
DAVID HINSON, *Associate Dean for Graduate Studies and Research*
C. BEN FARROW*, Associate Dean for Academic Affairs and International Programs*

THE COLLEGE OF ARCHITECTURE, DESIGN AND CONSTRUCTION (CADC) is committed to preparing professionals in the design and construction industries through professional undergraduate programs in the academic areas of architecture, building science, environmental design, graphic design, industrial design, interior architecture, and landscape architecture and through graduate professional programs in building science, industrial design, architecture/public interest design option, landscape architecture, and real estate development. Collaboration, community engagement, innovation, global connection and critical practice are core values intertwined in all of the programs at the College of Architecture, Design and Construction. Whether working with nationally respected corporations in the School of Industrial and Graphic Design, associating with major construction companies in the McWhorter School of Building Science, or building facilities to accommodate the needs of some of the state's underserved citizens in the School of Architecture, Planning and Landscape Architecture's Rural Studio, CADC students learn in unique and flexible settings from innovative faculty and through progressive pedagogical models.

The College of Architecture, Design and Construction maintains the right to limit enrollment in all programs and may retain student work for exhibition or for records and accreditation purposes. CADC students in the professional programs are required to pay the CADC Professional Fee during each semester of the professional curriculum.

Minors

- Environmental Design (p. 341)
- History of Architecture and the Built Environment (p. 343)
- Industrial and Graphic Design Processes (p. 307)
- Real Estate Development (p. 390)

Graduate Programs

- Building Construction — Graduate Certificates, MBC, PhD (p. 1560)
- Industrial Design — MID (p. 1687)
- Landscape Architecture — MLA (p. 1700)
- Real Estate Development — MRED (p. 1757)
- Architecture – Public Interest Design Option — MS (p. 1552)

Architecture Courses

ARCH 1000 CAREERS IN DESIGN AND CONSTRUCTION (1) LEC. 1, LST. 1. Introduction to the environmental design and construction professions and the curricula in the chosen field.

ARCH 1010 INTRODUCTION TO ARCHITECTURE DESIGN (6) LEC/STU. 12. Coreq. ARCH 1060. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1020 INTRODUCTION TO ARCHITECTURE DESIGN II (6) LEC. 6, LST. 12. Pr. ARCH 1010 and ARCH 1000 and ARCH 1060. Coreq. ARCH 1420. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1060 VISUAL COMMUNICATION (2) LEC/STU. 2. Coreq. ARCH 1010. Introduction to graphic communication. Focus on developing graphic skills for the purpose of explaining form and communicating ideas via exercises in drafting, sketching, and diagramming.

ARCH 1420 INTRODUCTION TO DIGITAL MEDIA (3) LEC. 3, LST. 0. Pr. ARCH 1060. Coreq. ARCH 1020. Introduction to the principles of 2-D and 3-D digital media and how these principles are utilized in architectural design.

ARCH 2010 STUDIO I (6) LEC. 2, LST. 10. Pr. ARCH 1020 and ARCH 1420. Basic issues of architectural design centered around the thoughtful creation of exterior and interior space. Studies of light, material, texture, proportion, scale, and site are integrated into each project.

ARCH 2020 STUDIO II (6) LEC. 2, LST. 10. Pr. ARCH 2010. Fundamental design process skills including observation, analysis, and synthesis.

ARCH 2110 HISTORY OF WORLD ARCHITECTURE I (3) LEC. 3. Pr. ARCH 1020. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2210 ENVIRONMENTAL CONTROLS I (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2220 ENVIRONMENTAL CONTROLS II (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2600 THE ART OF ARCHITECTURE, PLACE, AND CULTURE (3) LEC. 3. The interrelationship of art, architecture, place, and culture with emphasis on the art of architecture from a global multicultural perspective. Illustrated lecture, readings, and essays.

ARCH 3010 STUDIO III (6) LEC. 2, LST. 10. Pr. ARCH 2020 and ARCH 3110. Builds on ARCH 2010 and 2020. The process of making architecture through critical inquiry and investigation. The physical, social, ethical contexts that inform the design of every building.

ARCH 3020 STUDIO IV (6) LEC. 2, AAB/LST. 10. Pr. ARCH 3010 or ARIA 3020. Builds on ARCH 3010 and adds an emphasis on the integration of construction tectonics in the development of architectural form.

ARCH 3110 HISTORY OF WORLD ARCHITECTURE II (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117. Introduction to key European buildings and towns from the Bronze Age to the Enlightenment. Examines how societal beliefs and practices influence the making of architecture.

ARCH 3120 HISTORY OF MODERN ARCHITECTURE (3) LEC. 3. Pr. ARCH 3110. The history of architecture, 1850-present, with an emphasis on the rise of the modern movement in Europe and the U.S.

ARCH 3320 MATERIALS AND METHODS OF CONSTRUCTION I (3) LEC. 3. Pr. ARCH 1020. The properties and potential design function of materials used in contemporary construction, with an emphasis on foundation systems, wood, and masonry.

ARCH 3410 DESSEIN ELECTIVES (3) LEC. 3. Explorations in the art of representation. Complete descriptions of specific courses and their prerequisites are available from the School of Architecture, Planning and Landscape Architecture Course may be repeated for a maximum of 9 credit hours.

ARCH 3500 SEMINAR IN METHODS AND PROCESSES (3) LEC. 3. The tools and techniques available to the design professional including specific design specializations, and design methodologies. Descriptions of specific seminars are available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3600 SEMINAR IN CONTEMPORARY ISSUES (3) LEC. 3. Pr. ARCH 2020. Investigation of significant topics that present opportunities and constraints to architectural thought and practice. Course may be repeated for a maximum of 9 credit hours.

ARCH 3700 SEMINAR IN HISTORY AND THEORY (3) LEC. 3. Pr. ARCH 2010. Investigation of theories, schools or periods to examine the potential and limitations of architecture. Descriptions of specific seminars available from School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3800 SEMINAR IN ASPECTS OF DESIGN (3) LEC. 3. Pr. ARCH 2020. Study of aspects of architectural design, such as form, space, style, meaning, perception, culture. Descriptions of specific seminars available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 4010 STUDIO V (6) LEC. 2, LST. 10. Pr. (ARCH 3010 or ARIA 3020) and BSCI 3440. The comprehensive design of buildings, building complexes, and spaces in an urban context. Lectures emphasize urban issues, research methods. Programming and analysis will parallel studio projects of increasing complexity.

ARCH 4020 STUDIO VI (6) LEC. 2, AAB/LST. 10. Pr. ARCH 4010 or ARIA 4020. The design of buildings, building complexes, and spaces with emphasis on the integration of building systems and tectonic development.

ARCH 4110 HISTORY OF URBAN ARCHITECTURE (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117 and ARCH 3110. The course surveys the history of the physical and formal manifestations of the urban environment from its inception to our days.

ARCH 4320 MATERIALS AND METHODS OF CONSTRUCTION II (3) LEC. 3. Pr. ARCH 3320. Properties and potential design applications of materials used in contemporary construction, with an emphasis on steel and concrete, roofing, glass and glazing, cladding, and interior finishes.

ARCH 4500 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. ARCH 3020 or ARIA 3020. Architects' legal responsibilities, frameworks of professional practice, office organization, business planning, marketing, project delivery, internship and professional ethics and leadership.

ARCH 4900 DIRECTED STUDIES (1-6) AAB. Development of an area of special interest through independent study. Evaluation of the work may be by faculty jury. School approval. Course may be repeated for a maximum of 6 credit hours.

ARCH 4910 RURAL STUDIO COMPLETION (0) DSL/LEC. Completion of construction project for ARCH 4120 Elective Studio. This studio is based in the School's remote facilities in Newbern, AL.

ARCH 4920 PROFESSIONAL INTERNSHIP (1-3) INT. Departmental approval. Application of principles and theories in a professional setting. Course may be repeated for a maximum of 9 credit hours.

ARCH 4960 SPECIAL PROBLEMS (1-6) LEC. Special problems Course may be repeated for a maximum of 6 credit hours.

ARCH 5010 STUDIO VII (6) LEC. 2, AAB/LST. 10. Pr. ARCH 4020 or ARIA 4020. Advanced problem-solving in the synthesis of previous design experiences. Development of a comprehensive design project.

ARCH 5020 THESIS STUDIO (6) LEC. 6, AAB/LST. 13. Pr. ARCH 5010 and ARCH 5990. Exploration and development of an architectural project under the direction of a faculty member.

ARCH 5100 TEACHING METHODS (1) LEC. 1.

ARCH 5240 BEING THERE (1) LEC. 1. Course may be repeated for a maximum of 2 credit hours.

ARCH 5340 METHODS IN COMMUNITY BASED LEARNING (3) LEC. 3.

ARCH 5990 THESIS RESEARCH (3) LEC. 3. Pr. ARCH 4020. Coreq. ARCH 5010. The tools, techniques, and strategies required to select, develop, refine, write, and present a thesis argument.

ARCH 5991 THESIS RESEARCH (1) LEC. 1. Pr. ARCH 5990. Expansion on the individual thesis argument and research begun in ARCH 5990 in parallel with the development of their thesis design project in ARCH 5020.

ARCH 7010 FALL STUDIO (6) STU. 12. This is one of three design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a schematic, client-driven architectural proposal.

ARCH 7020 SPRING STUDIO (6) STU. 12. This is one of three design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7030 SUMMER STUDIO (6) STU. 12. This is one of three design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7110 SEMINAR IN COLLABORATIVE DESIGN METHODS AND PROCESS (3) SEM. 3. Introduction to the core theories of collaboration within interdisciplinary design and construction project teams teams and community-based client groups. Students develop an understanding of the fundamentals of collaborative process design, principles negotiation, communication across disciplines, and conflict resolution.

ARCH 7120 SEMINAR IN DESIGN TECTONICS (3) SEM. 3. Taught as a series of workshops, this course provides the disciplinary framework necessary to apply technical research methods when evaluating options and reconciling the implications of design development decisions across systems and scales.

ARCH 7130 SEMINAR IN PROJECT COMMUNICATIONS (3) SEM. 3. This course provides the disciplinary framework necessary to develop all project documentation required for project construction, delivery, record keeping, as well as future research and analysis.

ARCH 7210 EXECUTIVE ISSUES: DISCIPLINARY FRAMEWORK (3) SEM. 3. Taught as a series “overlay” lectures and workshops. Provides the disciplinary framework to apply case study research methods when evaluating options and reconciling the implications of schematic design decisions across systems/scales.

ARCH 7220 EXECUTIVE ISSUES: RESEARCH METHODS (3) SEM. 3. Taught as a series "overlay" lectures and workshops. Provides the disciplinary framework necessary to apply case study research methods when evaluating options and reconciling the implications of design development decisions across systems/scales.

Building Science Courses

BSCI 1100 INTRODUCTION TO CONSTRUCTION (3) LEC. 3. Introduction to construction industry and education, current issues, and career opportunities.

BSCI 2200 CONSTRUCTION DOCUMENTS (3) LEC. 2. LAB. 3. Pr. BSCI 2300. Reading and interpreting working drawings, specifications, shop drawings, and digital 3D models for use in estimating and administrating various types of construction projects.

BSCI 2300 CONSTRUCTION METHODS AND MATERIALS (3) LEC. 3. Materials, methods and construction equipment used in the construction of buildings.

BSCI 2400 STRUCTURE OF BUILDINGS I (3) LEC. 3. Pr. (PHYS 1500 or PHYS 1600) and (MATH 1610 or MATH 1150 or (MATH 1120 and MATH 1130)). Principles of mechanics and materials behavior related to building structures. Includes force systems, frame analysis, gravity load tracing, wind and seismic resistance for concrete and steel buildings.

BSCI 3200 CONSTRUCTION COMMUNICATION (3) LEC. 3. Overview of communication skills and tools required to succeed as a construction manager. Oral communication, written communication, ethics, visual literacy, and video capture in the context of construction risk management.

BSCI 3300 FIELD SURVEYING (2) LEC. 1. LAB. 6. Surveying techniques, construction layout, use of equipment, and dimensional controls for buildings. Surveying camp, a concentrated, 10 working day course held during breaks.

BSCI 3400 STRUCTURES FOR ARCHITECTS II (3) LEC. 3. Pr. BSCI 2400. Primary and secondary member design, connection design, temporary bracing/shoring, and steel shop drawing review.

BSCI 3440 STRUCTURE OF BUILDINGS II (3) LEC. 3. Pr. BSCI 2400. Principles of static equilibrium and materials behavior related to building structures. Includes force systems, frame analysis, section properties, stress, basic design of structural elements in buildings.

BSCI 3450 STRUCTURES FOR ARCHITECTS III (3) LEC. 3. Pr. BSCI 3400. Introduction to the design of reinforced concrete and related formwork including beams, columns, slabs, footings, retaining walls, and pre-stressed members.

BSCI 3500 CONSTRUCTION AND INFORMATION TECHNOLOGY I (3) LEC. 2. LAB. 2. To explore, discover and create applications of information communication technology (ICT) for Construction Processes.

BSCI 3600 ESTIMATING AND COSTING (4) LEC. 3. LAB. 3. BSCI Major. Introduction to construction estimating for CSI Divisions 1-33. Students perform quanity take-of (QTO), pricing, and preparation for a commercial construction project using computer-based techniques.

BSCI 3660 PRECONSTRUCTION AND PROJECT MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BSCI 3600. Project(s) simulation as a context to discuss, negotiated procurement, pre-construction services in the alternative delivery environment and construction phase management procedures.

BSCI 3700 CONSTRUCTION SAFETY (3) LEC. 3. Construction safety, including OSHA guidelines, accident investigation, and the creating of construction safety plans and worker training program.

BSCI 3800 CONTRACTING BUSINESS (4) LEC. 4. Pr. BSCI 3600. Construction-specific look at the business functions associated with the industry; includes organizational structures, construction finance, risk analysis, construction contracts, project delivery, and associated documents with these functions.

BSCI 4200 RESIDENTIAL CONSTRUCTION (3) LEC. 3. Provides an overview of residential construction and development practices and professional issues including: local ordinances and codes, land use law, financing practices, architect-builder relationship, spec homes vs. custom homes, etc.

BSCI 4300 PRINCIPLES OF CONSTRUCTION & DESIGN (3) LEC. 3. Provides a basic overview of the design and construction process with a focus on project planning and management practices which relate to interactions between thearchitect, constructor, and project developer. Includes: aspects of the roles and responsibilities of the designer and contractor, design process, pre-construction and construction phase contractor activities.

BSCI 4350 CONSTRUCTION PROJECT ANALYSIS (3) LEC. 3. Pr. BSCI 3660. Analysis of methods, materials and equipment used to construct projects. Methods used to assure the quality of construction projects.

BSCI 4360 SERVICE LEARNING IN CONSTRUCTION (2-3) LEC. 2. LAB. 2. Pr. BSCI 3700 and BSCI 3660. Application of Construction Management-relevant knowledge to real-life situations through active participation in a directed community service experience. Course may be repeated for a maximum of 3 credit hours.

BSCI 4410 PROBLEMS IN CONSTRUCTION MEANS AND METHODS (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Solving challenging problems encountered in construction processes, including form work, scaffolding, framing, steel erection, rigging, lifting, safety,and site management.

BSCI 4420 MANAGEMENT FOR CONSTRUCTION SUPERINTENDENTS (3) LEC. 1. LAB. 4. Pr. BSCI 3660. Senior Standing in Building Science. Development of expanded management strategies for construction superintendents including field conditions analysis, direction of tradesmen, communication skills, and project hoisting and equipment.

BSCI 4500 INFORMATION AND COMMUNICATION TECHNOLOGY FOR CONSTRUCTION II (3) LEC. 2. LAB. 2. To recognize, experiment and practice the applications of advanced information and communication technology (ICT) for Construction Processes.

BSCI 4610 SCHEDULING AND FIELD OPERATIONS (4) LEC. 4. Pr. BSCI 3660. The third of a sequence of three project controls classes; an in-depth study of construction project sequencing and scheduling, jobsite cost control measures, construction cash flow analysis, and a variety of leadership and management issues associated with field operations.

BSCI 4700 MECHANICAL SYSTEMS IN BUILDINGS (3) LEC. 2. LAB. 2. Pr. BSCI 3500 and BSCI 3600. Overview of the plumbing and mechanical systems of buildings. Basic design, sustainability concepts, systems, installation and testing are covered.

BSCI 4710 MECHANICAL CONSTRUCTION ESTIMATING AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BSCI 4700. Advance study of mechanical construction industry. Study and application of design principles, estimating and management techniques used in the industry.

BSCI 4750 ELECTRICAL SYSTEMS IN BUILDINGS (3) LEC. 3. Pr. BSCI 3500. Electrical systems commonly used in buildings; basic theory and design concepts, with emphasis on lighting and electrical distribution equipment and its installation.

BSCI 4850 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Pr. BSCI 3660. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages, and dispute resolution.

BSCI 4860 ADVANCED CONSTRUCTION INFORMATION TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Exploration and creation of advanced applications of Information and Communication Technology (ICT) for planning, decision making, projects monitoring, and controls.

BSCI 4870 CONSTRUCTION HISTORY (3) LEC. 3. Survey of historic construction projects to analyze how and why buildings and structures were constructed in the way they were.

BSCI 4880 CONSTRUCTION EQUIPMENT MANAGEMENT (3) LEC. 3. Pr. BSCI 3660. Construction equipment management and ownership. Equipment acquisition and disposition options, production costs and productivity, cost analysis and control, management staffing and responsibilities.

BSCI 4890 LEAN CONSTRUCTION PRINCIPLES AND PRACTICES (3) LEC. 3. Pr. BSCI 3660. This course provides an understanding of lean construction principles involving lean design, assembly, supply, production and work processes.

BSCI 4960 SPECIAL PROBLEMS (1-6) IND. Special problems in construction topics. Course may be repeated for a maximum of 6 credit hours.

BSCI 4990 BUILDING SCIENCE THESIS (4) LAB. 12. Individual project demonstrating mastery of curriculum content through the application of skills/knowledge to a theoretical construction company and project. Requires a written thesis and oral defense of work.

BSCI 5430 SITE & EARTHWORK CONSTRUCTION (3) LEC. 3. Pr. BSCI 3660. This course provides a general overview of means and methods associated with sitework-related construction through evaluation of Earthwork Operations, Equipment Selection and Productivity, Optimizing crew and productivity, Cost Estimating, Risks related Sitework-Related Projects, Concrete Construction, Erosion and Sediment Control, and an overview of Bridge and Highway Construction.

BSCI 5450 BUILDING GREAT STRUCTURES (3) LEC. 3. Departmental approval. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 5460 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Pr. BSCI 3660. Departmental approval. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. May count either BSCI 5460 or BSCI 6460.

BSCI 5470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 3. Departmental consent. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 5810 SERVICE LEARNING IN CONSTRUCTION MANAGEMENT - STUDY ABROAD OR STUDY AWAY (3) LEC. 1. LAB. 4. Pr. BSCI 3700. Departmental approval. Application of Construction Management-relevant knowledge to real-life situations through active participation in a directed community service experience at an international or domestic location. Repeatable with instructor permission.

BSCI 5830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 5840 MULTI-CULTURAL ISSUES IN CONSTRUCTION (3) LEC. 3.

BSCI 5920 INTERNSHIP IN CONSTRUCTION MANAGEMENT (0) INT. SU. Professional work experience in a construction management position. Students participating in BSCI 5920/6920 are expected to work in a full-time, 40 hour/week, construction management job. Course may be repeated for a maximum of 10 credit hours.

BSCI 5960 SPECIAL PROBLEMS (1-6) AAB. Departmental approval. Special problems in construction topics. Offered only at the discretion of the department head. Course may be repeated for a maximum of 6 credit hours.

BSCI 5970 SPECIAL TOPICS IN CONSTRUCTION (1-3) AAB. 1-3. Departmental approval. Special topics in construction focuses on topics in Building Science that are in addition to the regular curriculum. Offered only at the discretion of the department head. Course may be repeated for a maximum of 6 credit hours.

BSCI 6430 SITE & EARTHWORK CONSTRUCTION (3) LEC. 3. Pr. BSCI 7020. This course provides an overview of sitework-related construction through evaluation of Earthwork Operations, Equipment Selection and Productivity, Optimizing crew and productivity, Cost Estimating, Risks related Sitework-Related Projects, Concrete Construction, Erosion and Sediment Control, and an overview of Bridge and Highway Construction.

BSCI 6450 BUILDING GREAT STRUCTURES (3) LEC. 3. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 6460 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Departmental approval. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. May count either BSCI 5460 or BSCI 6460.

BSCI 6470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 3. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 6810 SERVICE LEARNING IN CONSTRUCTION MANAGEMENT - STUDY ABROAD OR STUDY AWAY (3) LEC. 1. LAB. 4. Pr. BSCI 7020. Departmental approval. Application of Construction Management-relevant knowledge to real-life situations through active participation in a directed community service experience at an international or domestic location. Repeatable with instructor approval. Must complete Construction Safety elective course prior to taking this course. Course may be repeated for a maximum of 6 credit hours.

BSCI 6830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 6840 MULTI-CULTURAL ISSUES IN CONSTRUCTION LABOR (3) LEC. 3.

BSCI 6920 INTERNSHIP IN CONSTRUCTION MANAGEMENT (0) INT. SU. Professional work experience in a construction management position. Students participating in BSCI 5920/6920 are expected to work in a full-time, 40 hour/week, construction management job. Course may be repeated for a maximum of 10 credit hours.

BSCI 6960 SPECIAL PROBLEMS IN CONSTRUCTION (1-5) AAB. Departmental approval. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 5 credit hours.

BSCI 6970 SPECIAL TOPICS IN CONSTRUCTION (1-3) AAB. Departmental approval. Special topics in construction focuses on topics in Building Science that are in addition to the regular curriculum. Course may be repeated for a maximum of 3 credit hours.

BSCI 7010 CONSTRUCTION LABOR AND PRODUCTIVITY (3) LEC. 3. Departmental approval. Construction labor issues, productivity measurement, and productivity improvement in the construction industry. Includes reading, research, and an out of class project.

BSCI 7020 INTEGRATED BUILDING PROCESSES I (3) LEC. 3. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability.

BSCI 7030 CONSTRUCTION INFORMATION MANAGEMENT (3) LEC. 3. Applications of advanced information technology in construction.

BSCI 7040 INTEGRATED BUILDING PROCESSES II (3) LEC. 3. Departmental approval. Construction project delivery, from pre-construction service through ownership. Topics include project management, pre-construction services, pre-planning, procurement, site utilization, subcontracts, commissioning, closeout, building operation, and long-term ownership.

BSCI 7050 EXECUTIVE ISSUES IN CONSTRUCTION (3) LEC. 3. Construction industry executives will present 6 to 10 topics that represent a cross-section of significant management issues.

BSCI 7060 RESEARCH METHODS IN BUILDING SCIENCE (3) LEC. 3. A study of the academic research process, with an emphasis on defining research problems in construction and the development of a research proposal.

BSCI 7100 GRADUATE ELECTIVE IN PROJECT MANAGEMENT: PROJECT MANAGEMENT AND SCHEDULING (3) LEC. 3. This course develops advanced student knowledge and skills in construction business facets such as delivery, contracts and financial management; and develops tactile skills in producing advanced construction schedules in current software applications. Credit will not be given for both BSCI 7100 and BSCI 7106. Course may be repeated with change in topics.

BSCI 7110 CONSTRUCTION CONTRACTING BUSINESS (3) LEC. 3. Business functions associated with construction industry; organizational structure, construction finance; risk analysis, construction contracts, project delivery, and associated documents. Admission to Certificate in Construction Management.

BSCI 7120 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages and dispute resolution. Admission to Certificate in Construction Management.

BSCI 7130 BUILDING CONSTRUCTION SUSTAINABILITY (3) DSL. Students must be admitted to the Executive Technical Certificate in Construction Management. The role of sustainable practices & processes in the construction industry. Role of built environment in consuming resources. Minimizing construction waste. Standards for sustainable construction.

BSCI 7140 STRUCTURAL SYSTEMS OF BUILDINGS (3) LEC. 3. Students must be admitted to the Executive Technical Certificate in Construction Management. Role of structural systems of buildings. Forces in buildings. Temporary structures in construction. Common failure models of structures.

BSCI 7150 HEAVY CIVIL CONSTRUCTION (3) LEC. 3. Students must be admitted to the Executive Integrated Processes Certificate in Construction Management. Principles of heavy civil construction including budget, planning, excavation, haul, equipment, temporary structures and types of projects involved.

BSCI 7200 ELECTIVES IN CONSTRUCTION LABOR (3) LEC. 3. Departmental approval. Special course offerings related to construction labor topics. Course may be repeated with change in topic.

BSCI 7300 ELECTIVES IN INFORMATION TECHNOLOGY AND INNOVATION (3) LEC. 3. Departmental approval. Special course offerings related to information technology, innovation, and robotics in construction. Course may be repeated with change in topic.

BSCI 7900 DIRECTED READING IN CONST (1-3) IND. Departmental approval. Individually proposed exploration of a construction industry related topic not covered in existing course offerings. Students must prepare a written proposal of the topic. Course may be repeated for a maximum of 3 credit hours.

BSCI 7950 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability. Course may be repeated for a maximum of 3 credit hours.

BSCI 7980 CAPSTONE PROJECT (3) LAB. 6. Departmental approval. Independent exploration of an approved topic with final written report of findings and an oral defense of the work. Specific capstone project requirements are established by the supervising committee and vary based on the chosen topic.

BSCI 8060 ADVANCED RESEARCH METHODS IN BUILDING SCIENCE-I (3) LEC. 3. Current areas and topics of research in building construction, study of academic research process, defining a research problem, develop effective search and analytical evaluation skills of published literature, analyze research products and write a comprehensive review of literature, and understand ethical principles and methods to successfully carry out research projects. The course is designed to provide a comprehensive introduction to the doctoral research process and methods used in building construction research.

BSCI 8070 ADVANCED RESEARCH METHODS IN BUILDING SCIENCE-II (3) LEC. 3. A study of the practical skills necessary to produce and disseminate doctoral level research in Building Construction. The course is designed to provide comprehensive knowledge about research design and selecting an appropriate methodology, qualitative, quantitative and mixed data collection and analysis methods appropriate for Building Construction research, research validation techniques, and technical writing strategies appropriate for a PhD dissertation.

BSCI 8950 DISSERTATION SEMINAR (1) LEC. 1. Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking; and preparation of students to develop pedagogical skills. Departmental Permission Required. Course may be repeated for a maximum of 6 credit hours.

BSCI 8990 RESEARCH AND DISSERTATION (1-10) LEC. 1-10. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

Environmental Design Courses

ENVD 2000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2007 HONORS ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2010 INTRODUCTION TO DESIGN AND DESIGN METHODS (3) LEC. 3. Introduces students to the importance of design and basic design methods.

ENVD 2040 DESIGN, INVENTION AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.

ENVD 2047 HONORS DESIGN, INVENTION, AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.

ENVD 2100 ENVIRONMENTAL DESIGN WORKSHOP I (6) LAB. 6. Pr. ENVD 2000. Departmental approval. Focus on general technical skill set for environmental design foundations. Digital media introduction, structure and fabrication techniques, design communication development.

ENVD 2200 READINGS IN LANDSCAPE ARCHITECTURE (3) SEM. 3. Investigates the idea of landscape through a range of texts, images, and built works that have helped form, and continue to shape, our understanding of the landscape. First year of B.ENVD.

ENVD 3000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES II (3) LEC. 3. Pr. ENVD 2100. Departmental approval. Advanced knowledge of design, construction and planning disciplines and practice. National/global environmental design issues, focus on interdisciplinary concepts, hybrid practices, & sustainability.

ENVD 3100 CIVIC ENGAGEMENT AND RESEARCH METHODS (3) LEC. 3. Pr. ENVD 3000. Departmental approval. Civic engagement and research methods for environmental design. This is a research prep course to develop research methods, projects, and community partnerships for summer ENVD 4100 workshop capstone.

ENVD 3200 SYSTEMS IN BUILT ENVIRONMENT I (3) SEM. 2.5. Pr. ENVD 2100. Focus on research of different systems in built environments, and different research methods that can be used in design in order to understand and represent them.

ENVD 3300 SYSTEMS IN BUILT ENVIRONMENT II (3) SEM. 2.5. Pr. ENVD 2100. Focuses on application of research from design and construction disciplines in built environment through testing and prototyping, thus exploring potential for application in a larger context.

ENVD 4000 ELEMENTS OF URBAN DESIGN (3) LEC. 3. Pr. ENVD 2100 or ARCH 2010 or LAND 2110. ENVD 4000 provides environmental design students with an introduction to urban design theories, methods and processes through combination of lectures and on-site instruction.

ENVD 4010 ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4017 HONORS ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4100 ENVIRONMENTAL DESIGN WORKSHOP II - CAPSTONE (6) LEC. 6. Pr. ENVD 3100. Environmental design knowledge & technical skill set using principles of collaboration, leadership & effectiveness training, hands-on experience, civic engagement & design communication skills.

ENVD 4500 PROFESSIONAL PRACTICE (3) SEM. 3. Pr. ENVD 3000. Enable students to learn elements of professional communication; create persuasive portfolio of their work; and to seek, and prepare for, internship and job opportunities.

ENVD 4900 DIRECTED STUDIES (3) IND. 3. Pr. ENVD 2100. Highly focused study (design research, design research application) in an area of interest to student that is approved by, and supervised by, a faculty member with such expertise. Must be in Junior or Senior status. Course may be repeated for a maximum of 6 credit hours.

ENVD 4920 INTERNSHIP IN ENVIRONMENTAL DESIGN (1) INT. 1. SU. Faculty Approval. Internship in the areas of environmental design, as approved by faculty supervisor.

ENVD 4970 SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3. Topics include: digital production, portfolio making and design thinking. Course may be repeated for a maximum of 9 credit hours.

ENVD 4977 HONORS SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3. Topics include: digital production, portfolio making and design thinking. Course may be repeated for a maximum of 9 credit hours.

ENVD 5030 STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) SEM. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

ENVD 5037 HONORS STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) LEC. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

Graphic Design Courses

GDES 1110 FOUNDATION DRAWING (4) STU. 8. Coreq. GDES 1210. PGDE majors only; school approval. Representational drawing with various media. Emphasis on accurate observation, pictorial organization, depiction of space as well as on concept development and creativity.

GDES 1210 FOUNDATION DESIGN I (4) LEC. 1, STU. 6. Coreq. GDES 1110. PGDE majors only; school approval. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.

GDES 1220 FOUNDATION DESIGN II (4) LEC. 1, STU. 6. Pr. GDES 1210. Elements and principles of design with emphasis on basic three dimensional design. Emphasis on spatial organization, color, and media exploration, planning and craft.

GDES 2210 GRAPHIC PROCESSES (4) LEC. 1, STU. 6. Pr. GDES 1110 and GDES 1220 and (ARTS 2100 and ARTS 2150). Coreq. GDES 2220. Design and production processes, preparation of design for printing, paper, copyright, electronic techniques, and related subjects. School approval.

GDES 2220 TYPOGRAPHICS I (4) LEC. 1, STU. 6. Pr. GDES 1110 and GDES 1220 and (ARTS 2100 and ARTS 2150). Coreq. GDES 2210. Historical development and practical applications of typography for design, layout, and other contemporary formats. School approval.

GDES 2230 INTRODUCTION TO GRAPHIC DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Design, layout, and image-making procedures for creative problem-solving in graphic design, with emphasis on presentation, creativity, and visualization. School approval. Portfolio review required.

GDES 3110 ELEMENTS & PRINCIPLES OF DESIGN I: FORM AND COMPOSITION (3) LEC. 3. Pr. INDD 1120. This course will expose students to a variety of design methods, and their applicability to non-design disciplines, highlighting the parallel between critical thinking and design thinking.

GDES 3120 ELEMENTS & PRINCIPLES OF DESIGN II: TYPOGRAPHY AND IMAGE (3) LEC. 3. Pr. INDD 1120. This course will teach the basic concepts and vocabulary of typography with an emphasis on the expressive potential of typography when combined with imagery in layout form.

GDES 3130 GRAPHIC DESIGN LITERACY: MESSAGE, CONTEXT, MEANING (3) LEC. 3. Pr. INDD 1120. This course is a seminar that prepares students to participate actively and confidently in conversations about visual communications. Students investigate the historical bases of graphic design as well as examine contemporary issues informing the practice of graphic design. Seminar members read and discuss case studies and design criticism, and apply analytical approaches to examples of contemporary design through oral presentations and written arguments.

GDES 3140 DESIGN THINKING: INTRODUCTION TO DIGITAL SCREEN MEDIA (3) LEC. 3. Application of design thinking (focus on experience of the user) in the context of screen-based (computers, web applications, phones) design. Projects may include the redesign of an existing website, design concept for a new mobile application, and a new video game concept.

GDES 3147 HONORS DESIGN THINKING: INTRODUCTION TO DIGITAL SCREEN MEDIA (3) LEC. 3. Application of design thinking (focus on experience of the user) in the context of screen-based (computers, web applications, phones) design. Projects may include the redesign of an existing website, design concept for a new mobile application, and a new video game concept.

GDES 3210 PHOTO DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Traditional black and white film photography that covers covers technical aspects of the 35mm camera and film and basic darkroom procedures for black and white film and and basic darkroom procedures for black and white film and an awareness of the aesthetics and semantics associated with photographic imagery.

GDES 3220 PHOTO COMMUNICATIONS (4) STU. 8. Photography as applied communication such as advertising, editorial photography, and annual report photography. Emphasis on advanced technological and studio techniques.

GDES 3240 INTERACTIVE MEDIA (4) STU. 8. Pr. GDES 2230. Exploration of the technical and conceptual aspects of Web site design and motion graphics through a series of problem-solving processes. Emphasis on the research and development of effective graphic interfaces and information architecture.

GDES 3250 TYPOGRAPHICS II (4) STU. 8. Pr. GDES 2230. Experimental application of typography for design and layout, exploring contemporary techniques. Historical understanding expected. Emphasis on presentation and visualization of concepts.

GDES 3260 KINETIC TYPOGRAPHY (4) LEC. 4. Pr. GDES 2230. Focuses on how motion affects meaning and how new meaning can be developed through time, space, and sound.

GDES 3710 GRAPHIC DESIGN HISTORY (4) LEC. 4. Pr. GDES 2210 and GDES 2220. History of graphic design, with emphasis on social and cultural contexts, symbolic application, formal characteristics, and significant movements.

GDES 3910 GRAPHIC DESIGN INTERNSHIP PRACTICUM (2) LEC. 2. Pr. GDES 2210 and GDES 2220. Acceptance into the GDES program. Focuses on the professional practices of Graphic Design through portfolio creation and presentation, resume and cover letter writing and the tactics of searching for an internship.

GDES 3920 GRAPHIC DESIGN INTERNSHIP (4) INT. 4. Pr. GDES 2230. a fifteen-week period working full time as a staff member with an approved internship sponsor under the direction of a supervising art director.

GDES 4240 GRAPHIC DESIGN I (4) STU. 8. Pr. GDES 3240. Application of communicative procedures and skills necessary to convey messages by means of graphic presentation: problem solving in corporate identity, advertising design, self promotion, etc. Development of student's individual style.

GDES 4250 GRAPHIC DESIGN II (4) STU. 8. Pr. GDES 4240. Development of individual style in communication via graphic graphic presentation, with emphasis on problem-solving in publication design, self-promotion, large-format design, and layout.

GDES 4270 ADVANCED INTERACTIVE MEDIA (4) STU. 8. Pr. GDES 3240. Focuses on the principles and methodologies used throughout the interactive design industry for creating screen-based dynamic media. Students develop a conceptural framework for real world applications, exploring industrial, social and cultural issues.

GDES 4640 IMAGE I (4) STU. 8. Pr. GDES 2230. Application of illustration techniques and concepts to various graphic formats. Development of personal skills and individual style.

GDES 4650 IMAGE II (4) STU. 8. Pr. GDES 2230. Exploration of two dimensional and three dimensional imaging techniques and concepts. Development of personal skills and an individual style.

GDES 4900 DIRECTED STUDIES FOR GRAPHIC DESIGN (2-3) AAB. Pr. GDES 2210 and GDES 2220. Directed Studies in Graphic Design focuses on individualized study in Graphic Design. Student must have a 3.0 average in GDES course curriculum and departmental approval. Topics may include Graphic Design, Imaging, Web Design. Course may be repeated for a maximum of 9 credit hours.

GDES 4970 SPECIAL TOPICS FOR GRAPHIC DESIGN (4) LEC. 1. Pr. GDES 2230 and GDES 3710. Special Topics in Graphic Design focuses on topics in graphic design that are additional to the regular curriculum. Specific course topics are developed by the instructor. Student must have a 3.0 average in GDES GDES course curriculum. Course may be repeated for a maximum of 12 credit hours.

GDES 4990 SENIOR PROJECT FOR GRAPHIC DES (5) STU. 10. Pr. GDES 4250. Coreq. GDES 4991. A directed terminal studio project with choice of subject and medium. Project will be exhibited and a faculty committee will award a letter grade. Must be taken in student’s final semester.

GDES 4991 RESEARCH, WRITING AND PRESENTATION (1) LEC. 1. Pr. GDES 4250. Coreq. GDES 4990. Addresses research, writing and presentation requirement associated with the student's terminal studio project. Must be taken in student's final semester.

Industrial Design Courses

INDD 1120 INDUSTRIAL DESIGN IN MODERN SOCIETY (3) LEC. 3. Survey of design and its impact upon modern society. Review of methods, products, marketing, patents, education, and career opportunities.

INDD 1127 HONORS INDUSTRIAL DESIGN IN MODERN SOCIETY (3) LEC. 3. Survey of design and its impact upon modern society. Review of methods, products, marketing, patents, education, and career opportunities.

INDD 1310 SYNTHESIS OF DRAWING (10) LEC. 3, LST. 12. Developing mechanical and production design drawings, with in-depth study of perspective systems. Product design communication with emphasis on drawing, development, and presentation.

INDD 1320 PROTOTYPE FABRICATION (3) LEC. 2. LAB. 2. Coreq. INDD 1310. Fabrication of three-dimensional models utilizing various materials and machineries. Includes model making, creative modeling, study models, presentation models, mock-ups and prototypes.

INDD 1400 CAREERS IN INDUSTRIAL DESIGN (2) LEC. 2. Survey of careers in the field of industrial design demonstrated through case studies, product examples and biographies.

INDD 2110 TWO DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, LST. 10. Transference of abstract principles of design to fabrication of simple tools. Emphasis on expression of functional objects.

INDD 2120 COMPUTER AND DESIGN COMMUNICATIONS (3) LEC. 2. LAB. 2. Alternative modes of communicating design ideas via computer. Executing design ideas for two-dimensional design fundamentals and mechanical design drawings.

INDD 2130 PRESENTATION RENDERING (3) LEC. 2. LAB. 2. Concept development using drawing and rendering skills with different media for ideas communication and presentation.

INDD 2210 THREE DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, AAB/LST. 10. Pr. INDD 2110. Analysis of design fundamentals through three dimensional form. Analyzing function, utility, convenience, safety, maintenance and sustainable design.

INDD 2220 ANTHROPOMETRY (3) LEC. 3. Pr. INDD 2110. Body measurements, movements and human capacity in relation to design with introduction to ergonomy and human physiology as it relates to design. School approval.

INDD 2230 HISTORY OF INDUSTRIAL DESIGN (3) LEC. 3. Pr. INDD 2110. Survey humankind's production of artifacts, from prehistory to present. Emphasis on ideas that mass produced artifacts mirror history and everyday culture.

INDD 3110 EXHIBIT AND PACKAGING (6) LEC. 1, LST. 8. Pr. INDD 2210. Display systems using models, concepts development, rendering, packaging, identity programs and professional presentations.

INDD 3120 INDUSTRIAL DESIGN METHODS (3) LEC. 3. Pr. INDD 2210. Introduction to design management. Design methods and organizational procedures in analysis and solutions of design problems. Surveying philosophies and theories of design.

INDD 3130 BASIC PHOTOGRAPHY FOR INDUSTRIAL DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2210. Photography in design and art environments. Techniques of developing, printing and enlarging. Lighting techniques for portfolio photography, including lighting, studio photography, composition.

INDD 3150 DESIGN THINKING: INTRODUCTION TO PRODUCT SOLUTIONS (3) LEC. 2. LAB. 1. Application of design thinking (focus on experience of the user) in the context of product design. Students will deconstruct a design of an existing product and create a design concept for a new product. Introduces innovation in physical products and services through collaborative and creative approaches to critical and strategic thinking with focus on the user. Course may be repeated for a maximum of 6 credit hours.

INDD 3157 HONORS DESIGN THINKING: INTRODUCTION TO PRODUCT SOLUTIONS (3) LST. Application of design thinking (focus on experience of the user) in the context of product design. Students will deconstruct a design of an existing product and create a design concept for a new product. Introduces innovation in physical products and services through collaborative and creative approaches to critical and strategic thinking with focus on the user. Course may be repeated for a maximum of 6 credit hours.

INDD 3210 PRODUCT DESIGN (6) LEC. 2, AAB/LST. 10. Pr. INDD 3110. Product design utilizing design methodology from proposal to working pre-prototype, including planning, research, development, model-making, manufacturing and documentation.

INDD 3220 MATERIALS AND TECHNOLOGY (3) LEC. 3. Pr. INDD 3120. Characteristics and utility of materials such as plastic, metal, and ceramics in manufacture and the study of machine/tool processes used by industry.

INDD 3230 ADVANCED COMPUTER AIDED DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2120. Introduction to CAD software emphasizing three-dimensional modeling. Students will learn drawing functions. Concepts of three-dimensional relationship of objects discussed.

INDD 4110 ADVANCED PRODUCT DESIGN (6) LEC. 2, AAB/LST. 10. Pr. INDD 3120 and INDD 3210. Design or redesign of products and systems of advanced complexity.

INDD 4210 INDUSTRIAL DESIGN THESIS (6) LEC. 2, AAB/LST. 10. Pr. INDD 4110. Product design projects involving all design phases; including planning, research, development, finalization, specification, and documentation.

INDD 4220 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Business aspects of industrial design, including property, design contract, letters of agreement, business planning and design marketing.

INDD 4907 HONORS READING (1-3) LEC. Course may be repeated for a maximum of 3 credit hours.

INDD 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

INDD 5120 PROFESSIONAL PORTFOLIO (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Design and development of a portfolio and promotional material presenting the student's work to entry-level professional standards.

INDD 5960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 6010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3. A survey of humankind's production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 6030 CASE STUDIES IN DESIGN (3) LEC. 3. Design projects undertaken by industry studied by examination of artifacts and records, and by class discussions. Focus on the socio-cultural relevancy of the artifacts.

INDD 6120 PORTFOLIO (3) LEC. 3. Preparation of professional portfolio for graduation and employment.

INDD 6960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 7010 DESIGN ORIENTATION (3) LEC. 3. Introduction to the Industrial Design graduate program: degree options, study directions, research methods, and areas. Students are required to develop a research/project proposal.

INDD 7020 COMPUTER/INDUSTRIAL DESIGN (3) LEC. 3. Synthesizing studies in research, analysis, and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7610 PRINCIPLES OF INDUSTRIAL DESIGN (3) LEC. 3. Detailed study of the communication principles of form qualities with emphasis of these aesthetic principles to the technical and human factors of artifacts.

INDD 7620 DESIGN MANAGEMENT (3) LEC. 3. Detailed study of the industrial design project management and development with emphasis on the interrelational management concepts of research, product planning, production and marketing.

INDD 7630 HUMAN FACTORS IN DESIGN (3) LEC. 3. Theoretical and empirical examination of human factors (Anthropometrics, Biotechnology, Engineering Psychology, Behavioral Cybermetics, Ergonomics) as applied to man-machine environmental systems.

INDD 7640 AESTHETICS IN DESIGN (3) LEC. 3. Aesthetics in the context of the designed environment encompassing: non-verbal communication; object language semiotics; gestalt and perception systems; information aesthetics, and consumer product safety.

INDD 7650 DESIGN THEORIES (3) LEC. 3. Examination of design theories and philosophies related to technical artifacts in man-machine systems. Comparative studies of unifying theories in art, science, design, technology and the humanities.

INDD 7660 INDUSTRIAL DESIGN METHODOLOGY (3) LEC. 3. Industrial design methodologies and specific methods employed in research, analysis, synthesis, and evaluation in comprehensive design problems.

INDD 7670 SYSTEMS DESIGN (3) LEC. 3. Systems approach and interdisciplinary team work to design problems inquires into details of sub-systems, components and parts, with emphasis on the relation of the performance of technical systems to optional human factor effects.

INDD 7910 INDUSTRY PRACTICUM (5) AAB/STU. 5. This course will demand the application of acquired skill to the resolution of product design based issues within an industry collaboration studio over the period of one semester.

INDD 7980 NON-THESIS DESIGN (3) STU. 3. Synthesizing studies in research, analysis and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7990 DESIGN THESIS (1-5) AAB/RES. Credit to be arranged. Course may be repeated with a change in topic.

Interior Architecture Courses

ARIA 2150 ELEMENTS OF INTERIOR ARCH I (3) LEC. 3. The theory of design principles, aesthetics and concepts. Graphic drawings and models of interior spaces explored. Projects outside of class.

ARIA 2160 ELEMENTS OF INTERIOR ARCHITECTURE II (3) LEC. 3. The theory of design principles, aesthetics and concepts. Graphic drawings and models of interior spaces explored. Projects outside of class.

ARIA 3020 STUDIO 4A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10. Pr. ARCH 2020. Parallels Architecture Studio 4, but with an emphasis on interior architecture with exploration of detail and accommodation.

ARIA 4020 STUDIO 6A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10. Pr. ARCH 3020 and ARCH 3320 and (ARCH 2110 or ARCH 2117) and BSCI 3440. Parallels Architecture Studio 6, with emphasis on the development of interior architecture and spaces within an urban context. Consideration will be given to adaptive reuse.

ARIA 4030 INTERIOR ARCHITECTURE THESIS (6) LEC. 3, LST. 10. Pr. ARIA 4020. Coreq. ARIA 4080. Interior design project of the student's choice, under the direction of a faculty member.

ARIA 4080 INTERIOR ARCHITECTURE THESIS RESEARCH (2) LEC. 2. Pr. ARIA 4020. Research and writing of thesis documents, to include programming, site, and case studies.

ARIA 4450 INTERIOR ARCHITECTURE PROFESSIONAL PRACTICE (2) LEC. 2. Pr. ARIA 4020. Prepares student to enter professional office with an understanding of the skills, concepts and technical knowledge expected.

ARIA 4680 HISTORY AND THEORY OF INTERIOR ARCHITECTURE (3) LEC. 3. Pr. ARIA 4020. The theory and history of interior spaces, their social, material, and aesthetic development and their artifacts.

Landscape Architecture Courses

LAND 1110 STUDIO I (4) LEC. 3. LAB. 1. Foundation course introduces studio culture, principles and processes of visual design, and the tools and techniques of landscape architectural design.

LAND 1160 GRAPHIC STUDIES I (2) LEC. 1. LAB. 1. Coreq. LAND 1110. Focuses on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage.

LAND 1210 STUDIO II (4) LEC. 3. LAB. 1. Pr. LAND 1110. Foundation course builds fundamental design process skills by exploring terrain and ecology through design exercises on small sites.

LAND 1260 GRAPHIC STUDIES II (2) LEC. 1. LAB. 1. Pr. LAND 1160. Introduces integrated analog-digital workflows. Focus on digital methods and tools: photomontage, diagramming, and presentation assembly; digital modeling, analysis, and rendering.

LAND 2110 PLANTS AND CONSTRUCTION WORKSHOP I (5) LEC. 4. LAB. 1. Pr. LAND 1210. Uses a field- and project- based approach to engage the medium of landscape architecture (plants, land, soils, and materials).

LAND 2120 FIELDWORK I (1) FLD. 1. Pr. LAND 1210. Coreq. LAND 2110. Advances program focus on landscape experience. Introduces techniques and tools for site reconnaissance: direct measurement, observation, evaluation, and synthesis.

LAND 2140 HISTORY, THEORY, AND PRACTICE I (3) LEC. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 2210 PLANTS AND CONSTRUCTION WORKSHOP II (5) LEC. 4. LAB. 1. Pr. LAND 2110. Focuses on landscape expression, experience, and cycles, including plant ephemerality, material assemblies, maintenance, performance, and choreography of landscape experience.

LAND 2220 FIELDWORK II (1) FLD. 1. Coreq. LAND 2210. Considers phenological and environmental cycles, expression of plants, materials, and atmospheres to strengthen relationships between design intention and physical expression.

LAND 2240 HISTORY, THEORY, AND PRACTICE II (3) LEC. 3. Pr. LAND 2140. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 3110 STUDIO III (5) LEC. 4. LAB. 1. Pr. LAND 2210. Advanced studio introduces design research processes to investigate eco-cultural relationships between regional and urban scales with emphasis on landscape networks.

LAND 3120 FIELDWORK III (1) FLD. 1. Pr. LAND 2220. Coreq. LAND 3110. Expand techniques and tools for site reconnaissance: multiple site visits to develop skills, deepen inventories, and contextualize design projects.

LAND 3160 DYNAMIC SYSTEMS I (3) LEC. 3. Pr. LAND 2240. Establishes ecological theories as a framework for analysis of urban conditions and as a tool for decision-making and design.

LAND 3210 STUDIO IV (5) LEC. 4. LAB. 1. Pr. LAND 3110. Junior studio focused on processes to support design at multiple scales for resilient landscapes that integrate aesthetics, program, and performance.

LAND 3220 FIELDWORK IV (1) FLD. 1. Pr. LAND 3120. Coreq. LAND 3210. Expand techniques and tools for mapping large scale landscape systems. Develop documentation skills using aerial photogrammetry and advanced site visualization.

LAND 4110 STUDIO V (5) LEC. 4, LST. 1. Pr. LAND 3210. Comprehensive studio synthesizes skills toward landscape activism and engagement in cultural contexts of urban, ex-urban, or rural sites and systems.

LAND 4120 FIELDWORK V (1) FLD. 1. Pr. LAND 3220. Coreq. LAND 4110. Apply comprehensive site reconnaissance skills to gather landscape intelligence. Engage community representatives to contextualize studio work.

LAND 4210 STUDIO VI (5) LEC. 4, LST. 1. Pr. LAND 4110. Comprehensive studio helps students develop sophisticated design research. Students create new work and critically evaluate its theoretical context.

LAND 4220 FIELDWORK VI (1) FLD. 1. Coreq. LAND 4210. Use broad skills, techniques, and thinking about site reconnaissance to frame design projects. Gather and synthesize comprehensive landscape intelligence.

LAND 4240 PROFESSIONAL PRACTICE (3) SEM. 3. Surveys development and ethics of the landscape architecture profession, businesses, and practices, to help students plot their futures.

LAND 4410 SEMINAR ON LANDSCAPE MATTER (3) SEM. Departmental approval. Seminar which explores material considerations in landscape, such as material selection and performance, material assemblies, landform and grading, or designing with plants and ecological communities, as they relate to the discipline of landscape architecture and are not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4420 SEMINAR ON LANDSCAPE ADVOCACY (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of landscape advocacy, such as public interest design, community outreach, and public engagement, as they relate to the discipline of landscape architecture and are not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4430 SEMINAR ON LANDSCAPE THOUGHT (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of landscape history, landscape theory, critique, or associated discourse as it relates to the discipline of Landscape Architecture and is not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4440 SEMINAR ON LANDSCAPE REPRESENTATION (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of Landscape Representation, Graphic Communication, and/or Drawing as it relates to the discipline of Landscape Architecture and is not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4450 SEMINAR ON LANDSCAPE RESEARCH (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of Landscape Research as it relates to the discipline of Landscape Architecture and is not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4900 DIRECTED STUDIES (1-3) IND. Departmental approval. Opportunity for students to work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours.

LAND 4920 PROFESSIONAL INTERNSHIP (1-3) INT. SU. Departmental approval. Opportunity for students to develop expertise in professional practice under the guidance of professionals. This includes but is not limited to site design, construction documentation, client/community presentations, and project management. Course may be repeated for a maximum of 3 credit hours.

LAND 4970 SPECIAL TOPICS IN LANDSCAPE ARCHITECTURE (3) LEC/SEM. Departmental approval. Study of a topic of special interest in landscape architecture beyond current program course offerings. Course may be repeated for a maximum of 9 credit hours.

LAND 5030 LANDSCAPE DESIGN METHODS (3) LEC. 9. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 5040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 9. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 5130 STUDIO I: FOUNDATION STUDIO (5) STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 5131 FIELDWORK I (1) FLD. 1. Field studies and travel related to studio. May count either LAND 5131 or LAND 6131.

LAND 5140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) SEM. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 5147 HONORS HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) SEM. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 5150 CONSTRUCTION I: LANDFORM & HYDROLOGY (3) LEC. 3. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management.

LAND 5160 GRAPHIC STUDIES I (2-3) LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 5230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May count either LAND 5230 or 6230.

LAND 5231 FIELDWORK II (1) FLD. 1. Field studies and travel related to studio. Departmental approval. May count either LAND 5231 or LAND 6231.

LAND 5240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 5250 CONSTRUCTION II: MATERIALS & DETAILING (3) LEC. 3. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 5260 GRAPHIC STUDIES III (3) SEM. 3. Pr. LAND 5150. Departmental approval. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 5270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 5290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 5330 STUDIO III (5) LEC. 5. Pr. (LAND 5230 or LAND 6230) or (P/C LAND 5331 or P/C LAND 6331). Departmental approval. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 5331 FIELDWORK III (1) FLD. 1. SU. Pr. (LAND 6230 or LAND 5230) or (P/C LAND 5330 or P/C LAND 6330). Departmental approval. Field studies and travel related to studio.

LAND 5340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 5240. Departmental approval. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture.

LAND 5350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 5360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 5367 HONORS DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 5370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 5380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, starts, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 5410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 5940 FIELDWORK ABROAD (3-6) AAB. Landscape architectural fieldwork conducted in locations outside the United States. Course may be repeated for a maximum of 9 credit hours.

LAND 6030 LANDSCAPE DESIGN METHODS (3) LEC. 3. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 6040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 3. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 6130 STUDIO I: FOUNDATION STUDIO (5) AAB/STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 6131 FIELDWORK I (1) AAB/FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) AAB/SEM. 3. Pr. LAND 5230 or LAND 6230. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 6150 CONSTRUCTION I: LANDFORM & HYDROLOGY (3) LEC. 3. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management.

LAND 6160 GRAPHIC STUDIES I (2-3) AAB/LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 6170 GRAPHIC STUDIES II (3) LEC. 3. Departmental approval. Graphic and communication theories and skills in a variety of media. Photoshop, Illustrator, Indesign and AutoCAD.

LAND 6230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May either LAND 5230 or 6230.

LAND 6231 FIELDWORK II (1) FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 6250 CONSTRUCTION II: MATERIALS & DETAILING (3) LEC. 3. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 6270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 6290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 6330 STUDIO III (5) LEC. 5. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 5331 and LAND 6331. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 6331 FIELD STUDIES III (1) FLD. 1. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 5330 and LAND 6330. Field studies and travel related to studio.

LAND 6340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 6240. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture. Departmental approval

LAND 6350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 6360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 6370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 6380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, strata, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 6410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 6940 FIELDWORK ABROAD (3-6) AAB. Landscape architectural fieldwork conducted in locations outside the United States. Course may be repeated for a maximum of 9 credit hours.

LAND 7130 STUDIO IV (5) AAB/STU. 5. Departmental approval. Investigates design strategies and techniques for generating new resilient cultural and environmental practices within complex dynamic conditions.

LAND 7131 FIELDWORK IV (1) AAB/FLD. 1. Pr. P/C LAND 5230. Departmental approval. Coreq. LAND 7130. Field studies and travel related to studio.

LAND 7140 URBAN STUDIES II: GLOBAL URBANISM (3) LEC. 3. Departmental approval. Examines the major global drivers of urban change, contemporary theories of international urban design, geography and cultural theory.

LAND 7170 PLANTS II (2-3) AAB/LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant ephemerality, functionality, and phenology. Course may be repeated for a maximum of 3 credit hours.

LAND 7190 RESEARCH BY DESIGN: FRAMEWORKS, METHODS, AND STRATEGIES (3) SEM. 3. Design is not just about solving problems, but figuring out which questions to ask in the first place. This course guides students through the iterative process of situating, identifying, framing, and testing a student-chosen trend, topic, or question.

LAND 7230 STUDIO V: COMPREHENSIVE STUDIO (5) STU. 5. Pr. LAND 5230. The first part of a two-semester research studio which involves creating a new body of work within a theoretical context and then critically appraising this work and its theoretical framework.

LAND 7231 FIELDWORK V (1) FLD. 1. Coreq. LAND 7230. Course is directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Emphasizes first-hand experiences of the landscape where careful observation and analysis occur; and introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7240 THEORIES AND PRACTICES (3) SEM. 3. Departmental approval. This is a reading, writing, and discussion seminar that examines the idea that the development of a democratic, civic, diverse social ecology can create more resilient and sustainable communities.

LAND 7250 CONTEMPORARY ISSUES IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Pr. LAND 5230. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7270 CONSTRUCTION III: REGENERATIVE TECHNOLOGIES (2-3) LEC. Introduces issues of land contamination and explores remediative and regenerative technologies as design strategies towards new productive futures. Course may be repeated for a maximum of 3 credit hours.

LAND 7280 DYNAMIC SYSTEMS II: REGIONAL ECOLOGIES (3) LEC. 3. This lecture/field laboratory course examines conditions of regional ecologies at multiple scales and explores possible public and private responses to these issues.

LAND 7290 GRAPHIC STUDIES III (3) SEM. 3. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 7330 STUDIO VI: COMPREHENSIVE STUDIO (5) STU. 12. Pr. LAND 5230 or LAND 6230. A culmination of a design research project that ends in a public review and exhibition.

LAND 7331 FIELDWORK VI (1) FLD. 15. Coreq. LAND 7330. Directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Gets students out of the classroom and emphasizes first-hand experiences of the landscape where careful observation and analysis occur. Introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7340 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course surveys the development and ethics of the profession of landscape architecture and presents an overview of the business and practice of the profession.

LAND 7410 SEMINAR ON HISTORY AND THEORY (3) LEC. 3. Departmental approval. Opportunity for students to further develop expertise expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7420 SEMINAR ON COMMUNITY OUTREACH (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7430 SEMINAR ON HYDROLOGY (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7440 SEMINAR ON LANDSCAPE COMMUNICATION (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7450 SEMINAR ON LANDSCAPE RESEARCH (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7470 LANDSCAPE ARCHITECTURE INTERNSHIP (3) PRA. 3. By approval of Chair of Landscape Architecture. A practical, professional, full-time, curriculum-related work experience in the industry of landscape architecture. Under joint supervision of employer and university. Course may be repeated for a maximum of 9 credit hours.

LAND 7900 DIRECTED STUDIES (1-3) AAB. An individual student can pursue an area of research beyond the required curriculum. Departmental approval; MLA II standing. Course may be repeated for a maximum of 9 credit hours.

LAND 7960 SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7970 SPECIAL TOPICS (1-6) AAB. Groups of student work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours. ADDITIONAL PREREQUISITES: Departmental approval; MLA I standing.

LAND 7992 RESEARCH SUMMARY (1) LEC. 1.

Real Estate Development Courses

RDEV 7120 FIELD STUDIES (1-3) LEC. 1-3. This course provides students with the opportunity to visit real estate development firms and ongoing projects. Course may be repeated for a maximum of 6 credit hours.

RDEV 7130 PRINCIPLES OF REAL ESTATE DEVELOPMENT (3) LEC. 3. An introduction to theory and practice as applied to fundamental topics in real property law, real estate markets, valuation, investment analysis and property financing as they effect various topics in real estate development.

RDEV 7140 REAL PROPERTY ANALYSIS (3) LEC. 3. This is a case study course, providing an overview of key concepts in real estate development and real property analysis.

RDEV 7230 REAL ESTATE MARKET ANALYSIS (3) LEC. 3. This class will provide concentrated study in real estate markets. Critical components of the course will include the study of the link between the Property and Asset Markets.

RDEV 7240 BUILDING DESIGN AND CONSTRUCTION PRINCIPLES (3) LEC. 3. This course will illustrate some of the building design and construction principles that real estate development professions engage in their practice every day.

RDEV 7340 SITE PLANNING AND INFRASTRUCTURE DEVELOPMENT (3) LEC. 3. This course examines the role that site selection and infrastructure development play in the sustainable conceptualization, feasibiltiy, and implementation of a real estate development project.

RDEV 7350 REAL ESTATE INVESTMENT ANALYSIS (3) LEC. 3. This class will provide concentration study in real estate investment.

RDEV 7430 REAL ESTATE PROJECT MANAGEMENT (3) LEC. 3. This course examines the real estate development process from conceptualization to actualization.

RDEV 7440 REAL ESTATE CONTRACT NEGOTIATIONS (1) LEC. 1. This course will teach the basic skills necessary to become an effective negotiator. The course will include planning and preparing necessary elements for contract negotiation. Additionally, the communications skills necessary to forward the negotiation agenda will be addressed.

RDEV 7530 REAL ESTATE CAPITAL MARKETS (3) LEC. 3. This class will provide an in-depth look at the fundamental principles and practices as applied to the financing of residential and commercial real estate.

RDEV 7540 REAL ESTATE DEVELOPMENT LAW (3) LEC. 3. This course examines the legal issues related to acquisition, planning, design, entitlement, construction, development financing, property management, accounting, taxation, reversion, and estate planning.

RDEV 7630 REAL ESTATE DEVELOPMENT CAPSTONE PROJECT (5) DSL. 5. This Capstone Project seeks to develop an appreciation of real estate development process and the critical roles played by the design, planning, and construction industries

School of Industrial and Graphic Design

The School of Industrial and Graphic Design (SIGD) offers the only NASAD-accredited programs in the state of Alabama. The B.F.A. in graphic design focuses on visual communication with an emphasis in typography, branding, UI/UX, publication, motion, illustration, packaging, app, and wayfinding design. The bachelor of industrial design program is known for product innovation, point of purchase design, marketing design, commercial environments and branding. The Master of Industrial Design prepares students to shape a sustainable future by designing products and systems that consider human interaction, manufacturability, profitability, and environmental impact.

In addition, SIGD offers a Bachelor of Science in Industrial Design Studies for students who would like to pursue a Master of Industrial Design but do not have a design background. Another option for students is the minor in industrial and graphic design processes which equips students from diverse disciplines to work more effectively to advance design innovation within an organization.

Majors

- Graphic Design (p. 305)
- Industrial Design (p. 307)

Minors

- Industrial and Graphic Design Processes (p. 307)

Graphic Design Courses

GDES 1110 FOUNDATION DRAWING (4) STU. 8. Coreq. GDES 1210. PGDE majors only; school approval. Representational drawing with various media. Emphasis on accurate observation, pictorial organization, depiction of space as well as on concept development and creativity.

GDES 1210 FOUNDATION DESIGN I (4) LEC. 1, STU. 6. Coreq. GDES 1110. PGDE majors only; school approval. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.

GDES 1220 FOUNDATION DESIGN II (4) LEC. 1, STU. 6. Pr. GDES 1210. Elements and principles of design with emphasis on basic three dimensional design. Emphasis on spatial organization, color, and media exploration, planning and craft.

GDES 2210 GRAPHIC PROCESSES (4) LEC. 1, STU. 6. Pr. GDES 1110 and GDES 1220 and (ARTS 2100 and ARTS 2150). Coreq. GDES 2220. Design and production processes, preparation of design for printing, paper, copyright, electronic techniques, and related subjects. School approval.

GDES 2220 TYPOGRAPHICS I (4) LEC. 1, STU. 6. Pr. GDES 1110 and GDES 1220 and (ARTS 2100 and ARTS 2150). Coreq. GDES 2210. Historical development and practical applications of typography for design, layout, and other contemporary formats. School approval.

GDES 2230 INTRODUCTION TO GRAPHIC DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Design, layout, and image-making procedures for creative problem-solving in graphic design, with emphasis on presentation, creativity, and visualization. School approval. Portfolio review required.

GDES 3110 ELEMENTS & PRINCIPLES OF DESIGN I: FORM AND COMPOSITION (3) LEC. 3. Pr. INDD 1120. This course will expose students to a variety of design methods, and their applicability to non-design disciplines, highlighting the parallel between critical thinking and design thinking.

GDES 3120 ELEMENTS & PRINCIPLES OF DESIGN II: TYPOGRAPHY AND IMAGE (3) LEC. 3. Pr. INDD 1120. This course will teach the basic concepts and vocabulary of typography with an emphasis on the expressive potential of typography when combined with imagery in layout form.

GDES 3130 GRAPHIC DESIGN LITERACY: MESSAGE, CONTEXT, MEANING (3) LEC. 3. Pr. INDD 1120. This course is a seminar that prepares students to participate actively and confidently in conversations about visual communications. Students investigate the historical bases of graphic design as well as examine contemporary issues informing the practice of graphic design. Seminar members read and discuss case studies and design criticism, and apply analytical approaches to examples of contemporary design through oral presentations and written arguments.

GDES 3140 DESIGN THINKING: INTRODUCTION TO DIGITAL SCREEN MEDIA (3) LEC. 3. Application of design thinking (focus on experience of the user) in the context of screen-based (computers, web applications, phones) design. Projects may include the redesign of an existing website, design concept for a new mobile application, and a new video game concept.

GDES 3147 HONORS DESIGN THINKING: INTRODUCTION TO DIGITAL SCREEN MEDIA (3) LEC. 3. Application of design thinking (focus on experience of the user) in the context of screen-based (computers, web applications, phones) design. Projects may include the redesign of an existing website, design concept for a new mobile application, and a new video game concept.

GDES 3210 PHOTO DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Traditional black and white film photography that covers covers technical aspects of the 35mm camera and film and basic darkroom procedures for black and white film and and basic darkroom procedures for black and white film and an awareness of the aesthetics and semantics associated with photographic imagery.

GDES 3220 PHOTO COMMUNICATIONS (4) STU. 8. Photography as applied communication such as advertising, editorial photography, and annual report photography. Emphasis on advanced technological and studio techniques.

GDES 3240 INTERACTIVE MEDIA (4) STU. 8. Pr. GDES 2230. Exploration of the technical and conceptual aspects of Web site design and motion graphics through a series of problem-solving processes. Emphasis on the research and development of effective graphic interfaces and information architecture.

GDES 3250 TYPOGRAPHICS II (4) STU. 8. Pr. GDES 2230. Experimental application of typography for design and layout, exploring contemporary techniques. Historical understanding expected. Emphasis on presentation and visualization of concepts.

GDES 3260 KINETIC TYPOGRAPHY (4) LEC. 4. Pr. GDES 2230. Focuses on how motion affects meaning and how new meaning can be developed through time, space, and sound.

GDES 3710 GRAPHIC DESIGN HISTORY (4) LEC. 4. Pr. GDES 2210 and GDES 2220. History of graphic design, with emphasis on social and cultural contexts, symbolic application, formal characteristics, and significant movements.

GDES 3910 GRAPHIC DESIGN INTERNSHIP PRACTICUM (2) LEC. 2. Pr. GDES 2210 and GDES 2220. Acceptance into the GDES program. Focuses on the professional practices of Graphic Design through portfolio creation and presentation, resume and cover letter writing and the tactics of searching for an internship.

GDES 3920 GRAPHIC DESIGN INTERNSHIP (4) INT. 4. Pr. GDES 2230. a fifteen-week period working full time as a staff member with an approved internship sponsor under the direction of a supervising art director.

GDES 4240 GRAPHIC DESIGN I (4) STU. 8. Pr. GDES 3240. Application of communicative procedures and skills necessary to convey messages by means of graphic presentation: problem solving in corporate identity, advertising design, self promotion, etc. Development of student's individual style.

GDES 4250 GRAPHIC DESIGN II (4) STU. 8. Pr. GDES 4240. Development of individual style in communication via graphic graphic presentation, with emphasis on problem-solving in publication design, self-promotion, large-format design, and layout.

GDES 4270 ADVANCED INTERACTIVE MEDIA (4) STU. 8. Pr. GDES 3240. Focuses on the principles and methodologies used throughout the interactive design industry for creating screen-based dynamic media. Students develop a conceptural framework for real world applications, exploring industrial, social and cultural issues.

GDES 4640 IMAGE I (4) STU. 8. Pr. GDES 2230. Application of illustration techniques and concepts to various graphic formats. Development of personal skills and individual style.

GDES 4650 IMAGE II (4) STU. 8. Pr. GDES 2230. Exploration of two dimensional and three dimensional imaging techniques and concepts. Development of personal skills and an individual style.

GDES 4900 DIRECTED STUDIES FOR GRAPHIC DESIGN (2-3) AAB. Pr. GDES 2210 and GDES 2220. Directed Studies in Graphic Design focuses on individualized study in Graphic Design. Student must have a 3.0 average in GDES course curriculum and departmental approval. Topics may include Graphic Design, Imaging, Web Design. Course may be repeated for a maximum of 9 credit hours.

GDES 4970 SPECIAL TOPICS FOR GRAPHIC DESIGN (4) LEC. 1. Pr. GDES 2230 and GDES 3710. Special Topics in Graphic Design focuses on topics in graphic design that are additional to the regular curriculum. Specific course topics are developed by the instructor. Student must have a 3.0 average in GDES GDES course curriculum. Course may be repeated for a maximum of 12 credit hours.

GDES 4990 SENIOR PROJECT FOR GRAPHIC DES (5) STU. 10. Pr. GDES 4250. Coreq. GDES 4991. A directed terminal studio project with choice of subject and medium. Project will be exhibited and a faculty committee will award a letter grade. Must be taken in student's final semester.

GDES 4991 RESEARCH, WRITING AND PRESENTATION (1) LEC. 1. Pr. GDES 4250. Coreq. GDES 4990. Addresses research, writing and presentation requirement associated with the student's terminal studio project. Must be taken in student's final semester.

Industrial Design Courses

INDD 1120 INDUSTRIAL DESIGN IN MODERN SOCIETY (3) LEC. 3. Survey of design and its impact upon modern society. Review of methods, products, marketing, patents, education, and career opportunities.

INDD 1127 HONORS INDUSTRIAL DESIGN IN MODERN SOCIETY (3) LEC. 3. Survey of design and its impact upon modern society. Review of methods, products, marketing, patents, education, and career opportunities.

INDD 1310 SYNTHESIS OF DRAWING (10) LEC. 3, LST. 12. Developing mechanical and production design drawings, with in-depth study of perspective systems. Product design communication with emphasis on drawing, development, and presentation.

INDD 1320 PROTOTYPE FABRICATION (3) LEC. 2. LAB. 2. Coreq. INDD 1310. Fabrication of three-dimensional models utilizing various materials and machineries. Includes model making, creative modeling, study models, presentation models, mock-ups and prototypes.

INDD 1400 CAREERS IN INDUSTRIAL DESIGN (2) LEC. 2. Survey of careers in the field of industrial design demonstrated through case studies, product examples and biographies.

INDD 2110 TWO DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, LST. 10. Transference of abstract principles of design to fabrication of simple tools. Emphasis on expression of functional objects.

INDD 2120 COMPUTER AND DESIGN COMMUNICATIONS (3) LEC. 2. LAB. 2. Alternative modes of communicating design ideas via computer. Executing design ideas for two-dimensional design fundamentals and mechanical design drawings.

INDD 2130 PRESENTATION RENDERING (3) LEC. 2. LAB. 2. Concept development using drawing and rendering skills with different media for ideas communication and presentation.

INDD 2210 THREE DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, AAB/LST. 10. Pr. INDD 2110. Analysis of design fundamentals through three dimensional form. Analyzing function, utility, convenience, safety, maintenance and sustainable design.

INDD 2220 ANTHROPOMETRY (3) LEC. 3. Pr. INDD 2110. Body measurements, movements and human capacity in relation to design with introduction to ergonomy and human physiology as it relates to design. School approval.

INDD 2230 HISTORY OF INDUSTRIAL DESIGN (3) LEC. 3. Pr. INDD 2110. Survey humankind's production of artifacts, from prehistory to present. Emphasis on ideas that mass produced artifacts mirror history and everyday culture.

INDD 3110 EXHIBIT AND PACKAGING (6) LEC. 1, LST. 8. Pr. INDD 2210. Display systems using models, concepts development, rendering, packaging, identity programs and professional presentations.

INDD 3120 INDUSTRIAL DESIGN METHODS (3) LEC. 3. Pr. INDD 2210. Introduction to design management. Design methods and organizational procedures in analysis and solutions of design problems. Surveying philosophies and theories of design.

INDD 3130 BASIC PHOTOGRAPHY FOR INDUSTRIAL DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2210. Photography in design and art environments. Techniques of developing, printing and enlarging. Lighting techniques for portfolio photography, including lighting, studio photography, composition.

INDD 3150 DESIGN THINKING: INTRODUCTION TO PRODUCT SOLUTIONS (3) LEC. 2. LAB. 1. Application of design thinking (focus on experience of the user) in the context of product design. Students will deconstruct a design of an existing product and create a design concept for a new product. Introduces innovation in physical products and services through collaborative and creative approaches to critical and strategic thinking with focus on the user. Course may be repeated for a maximum of 6 credit hours.

INDD 3157 HONORS DESIGN THINKING: INTRODUCTION TO PRODUCT SOLUTIONS (3) LST. Application of design thinking (focus on experience of the user) in the context of product design. Students will deconstruct a design of an existing product and create a design concept for a new product. Introduces innovation in physical products and services through collaborative and creative approaches to critical and strategic thinking with focus on the user. Course may be repeated for a maximum of 6 credit hours.

INDD 3210 PRODUCT DESIGN (6) LEC. 2, AAB/LST. 10. Pr. INDD 3110. Product design utilizing design methodology from proposal to working pre-prototype, including planning, research, development, model-making, manufacturing and documentation.

INDD 3220 MATERIALS AND TECHNOLOGY (3) LEC. 3. Pr. INDD 3120. Characteristics and utility of materials such as plastic, metal, and ceramics in manufacture and the study of machine/tool processes used by industry.

INDD 3230 ADVANCED COMPUTER AIDED DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2120. Introduction to CAD software emphasizing three-dimensional modeling. Students will learn drawing functions. Concepts of three-dimensional relationship of objects discussed.

INDD 4110 ADVANCED PRODUCT DESIGN (6) LEC. 2, AAB/LST. 10. Pr. INDD 3120 and INDD 3210. Design or redesign of products and systems of advanced complexity.

INDD 4210 INDUSTRIAL DESIGN THESIS (6) LEC. 2, AAB/LST. 10. Pr. INDD 4110. Product design projects involving all design phases; including planning, research, development, finalization, specification, and documentation.

INDD 4220 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Business aspects of industrial design, including property, design contract, letters of agreement, business planning and design marketing.

INDD 4907 HONORS READING (1-3) LEC. Course may be repeated for a maximum of 3 credit hours.

INDD 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

INDD 5120 PROFESSIONAL PORTFOLIO (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Design and development of a portfolio and promotional material presenting the student's work to entry-level professional standards.

INDD 5960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 6010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3. A survey of humankind's production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 6030 CASE STUDIES IN DESIGN (3) LEC. 3. Design projects undertaken by industry studied by examination of artifacts and records, and by class discussions. Focus on the socio-cultural relevancy of the artifacts.

INDD 6120 PORTFOLIO (3) LEC. 3. Preparation of professional portfolio for graduation and employment.

INDD 6960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 7010 DESIGN ORIENTATION (3) LEC. 3. Introduction to the Industrial Design graduate program: degree options, study directions, research methods, and areas. Students are required to develop a research/project proposal.

INDD 7020 COMPUTER/INDUSTRIAL DESIGN (3) LEC. 3. Synthesizing studies in research, analysis, and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7610 PRINCIPLES OF INDUSTRIAL DESIGN (3) LEC. 3. Detailed study of the communication principles of form qualities with emphasis of these aesthetic principles to the technical and human factors of artifacts.

INDD 7620 DESIGN MANAGEMENT (3) LEC. 3. Detailed study of the industrial design project management and development with emphasis on the interrelational management concepts of research, product planning, production and marketing.

INDD 7630 HUMAN FACTORS IN DESIGN (3) LEC. 3. Theoretical and empirical examination of human factors (Anthropometrics, Biotechnology, Engineering Psychology, Behavioral Cybermetics, Ergonomics) as applied to man-machine environmental systems.

INDD 7640 AESTHETICS IN DESIGN (3) LEC. 3. Aesthetics in the context of the designed environment encompassing: non-verbal communication; object language semiotics; gestalt and perception systems; information aesthetics, and consumer product safety.

INDD 7650 DESIGN THEORIES (3) LEC. 3. Examination of design theories and philosophies related to technical artifacts in man-machine systems. Comparative studies of unifying theories in art, science, design, technology and the humanities.

INDD 7660 INDUSTRIAL DESIGN METHODOLOGY (3) LEC. 3. Industrial design methodologies and specific methods employed in research, analysis, synthesis, and evaluation in comprehensive design problems.

INDD 7670 SYSTEMS DESIGN (3) LEC. 3. Systems approach and interdisciplinary team work to design problems inquires into details of sub-systems, components and parts, with emphasis on the relation of the performance of technical systems to optional human factor effects.

INDD 7910 INDUSTRY PRACTICUM (5) AAB/STU. 5. This course will demand the application of acquired skill to the resolution of product design based issues within an industry collaboration studio over the period of one semester.

INDD 7980 NON-THESIS DESIGN (3) STU. 3. Synthesizing studies in research, analysis and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7990 DESIGN THESIS (1-5) AAB/RES. Credit to be arranged. Course may be repeated with a change in topic.

Graphic Design (GDES)

The Graphic Design program in the School of Industrial and Graphic Design prepares students to practice visual communication in a competitive global environment. Graphic Design students follow a curriculum that provides variety and depth in all aspects of the field, supported by Fine Arts electives. Varied career opportunities range from the development of strategies to implement large-scale communications campaigns, to the design of effective communication products such as magazines, logo and identity development, interactive media, web design, packaging, exhibitions, illustration, and environmental graphics. Graphic design students have excellent opportunities for internship experiences as a result of well-established relationships with regional, national and international companies and firms.

The Graphic Design program maintains the right to limit freshmen and transfer enrollment. **Admission into the BFA in Graphic Design is selective, is limited, and is based on a multiple step process.** Admission criteria can be found below the curriculum model.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
GDES 1110 Foundation Drawing	**4**	Core Science I	4
GDES 1210 Foundation Design I	**4**	**GDES 1220 Foundation Design II**[2]	**4**
ARTS 2100 Foundations of Art History I	3	ARTS 2150 Foundations of Art History II	3
	14		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Literature I (Humanities)	3	Core Literature	3
Core History (Social Science)	3	**GDES 3710 Graphic Design History (or Core Social Science)**	**4**
GDES 2210 Graphic Processes[2]	**4**	**GDES 2230 Introduction to Graphic Design**[2]	**4**
GDES 2220 Typographics I	**4**	**Art History/Art/Design Elective**	**3**
3000-Level Art History	3	**Art History/Art/Design Elective**	**3**
	17		**17**

Junior

Fall	Hours	Spring	Hours
Core Math	3-4	Social Science	3
Core Science with lab	4	**GDES 3210 Photo Design**[1]	**4**
Core Social Science (or GDES 3710 if not yet completed)	3	**GDES 4240 Graphic Design I**[2]	**4**

GDES 3240 Interactive Media[2]	**4**	**Art History/Art/Design Elective**	**3**
		Art History/Art/Design Elective	**3**
	14-15		**17**

Senior

Fall	**Hours**	**Spring**	**Hours**
Social Science	3	Core Humanities (Philosophy)	3
Core Fine Arts (Humanities)	3	**Graphic Design Electives**	**4**
GDES 4250 Graphic Design II[2]	**4**	**GDES 4991 Research, Writing and Presentation**	**1**
Graphic Design Electives	**4**	**GDES 4990 Senior Project for Graphic Des**[2]	**5**
Elective	3	UNIV 4AA0 Achieve the Creed	0
	17		**13**

Total Hours: 123-124

See advisor for approved course listing.

1 GDES 4640 or GDES 3220 can be substituted for GDES 3210.
2 Professional Fee Charged

Acceptance and Progression into the Professional Graphic Design Program

1. **Application for Pre-Graphic Design:** Once accepted to Auburn University, students will be designated as Pre-Graphic Design (PGDE) for the first year of the curriculum.
2. **PGDE to GDES second year level Courses:** After completing the first year level Pre-Graphic Design curriculum, an admission process based on GPA ranking admits qualified students into the Graphic Design second year level program for the GDES 2210 and GDES 2220 courses. Pre-Graphic Design students must complete at least 24 semester hours of credit including: GDES 1110 Foundation Drawing; GDES 1210 Foundation Design I; GDES 1220 Foundation Design II; ARTS 2100 Foundations of Art History I; ARTS 2150 Foundations of Art History II; and at least 6 hours of coursework counting toward the University Core Curriculum. The formula GPA for entrance to the second level of the pre-Graphic Design program will be calculated on the above listed courses only. (The two highest Core grades will be utilized in the event that more than two core classes have been completed.) Students will be ranked by formula GPA, and the top students will be selected. These students will be notified and then registered in the next level courses - GDES 2210 Graphic Processes and GDES 2220 Typographics I, by the CADC Office of Student Services. Students who are not accepted can reapply in following semesters. In the event of a tie, the numeric grade earned in GDES 1220, Foundation Design II, will be used to break the tie. Students who earn a D or F in a formula course may repeat the class per Auburn University policy, and the subsequent grade will be averaged with the D or F to determine the formula grade. Students may not repeat a course in which the student earned a C or better for purposes of the formula GPA.
3. **B.F.A. in Graphic Design Entrance Review:** All probationary second-year level GDES students who have achieved a minimum 2.50 GPA in GDES 2210 and GDES 2220 are eligible to apply through a portfolio review process for GDES 2230. The Graphic Design Review Committee will conduct an entrance review at the end of each fall, spring, and summer semester. To advance to GDES 2230, it is required that students submit a portfolio of work from GDES 2210 and GDES 2220, and a one-page typewritten statement of intent. The portfolio will consist of 6 projects from the two courses (no more than four projects from one course). The statement of intent should include reasons for choosing the Graphic Design major and address career goals. The Graphic Design Review Committee will evaluate the student's portfolio and written statement in terms of the individual student's skills, artistic perception, conceptualization, and professionalism. Upon successful admission by portfolio review, the student will be required to purchase a laptop computer that meets minimum requirements.

Due to prerequisites within the Graphic Design curriculum, all required Graphic Design classes in the Graphic Design major must be completed with a grade of C or better. In the event a C is received in a required course, then the student will be asked to meet with the Graphic Design student advisor. If a grade of D or F is received in any required coursework, a review may be required by the Graphic Design program chair, and the student will be required to repeat the course before continuing in the program.

Students receiving a second C, D, or F in required courses will be reviewed for continuance by a committee of graphic design faculty to determine the student's ability to meet the requirements of the GDES professional degree program.

Transfer Students for Graphic Design

A student must have a minimum cumulative unadjusted GPA of 2.8 (on a 4.0 scale) on all collegiate work attempted and apply for admission with the university admissions office. If accepted for admission they are eligible to declare Pre-Graphic Design and begin the first-year curriculum.

Industrial and Graphic Design Processes Minor

Professionals in today's economy are frequently required to implement design innovation as a part of creating and sustaining a competitive advantage. The Industrial and Graphic Design Processes Minor equips students from diverse disciplines to work more effectively to advance design innovation within an organization. Through this program, students learn how to participate in the creative problem-solving process, explore multiple modes of visual communication, examine the roles that design plays in shaping modern culture, and better recognize opportunities to employ design as an innovation catalyst within industry.

Any student not enrolled as an INDD or GDES major may earn a minor in Industrial and Graphic Design Processes by completing designated classes within the School of Industrial and Graphic Design (SIGD). Students must have a cumulative GPA of 2.0 or higher in these courses to earn the minor. Students must first consult with an academic advisor from the College of Architecture, Design and Construction (CADC) to declare their intention of pursuing the minor of Industrial and Graphic Design Processes prior to enrolling in any INDD or GDES courses.

Code	Title	Hours
Fall or Spring Prerequisite: The following course is required to begin a minor in Industrial and Graphic Design Processes: (3 credit hours)		
INDD 1120	Industrial Design in Modern Society	3
Summer Coursework: Following the completion of INDD1120, students may select a minimum of 12 credit hours from the courses listed below:		12
INDD 2230	History of Industrial Design	
INDD 3120	Industrial Design Methods	
INDD 3130	Basic Photography for Industrial Design	
INDD 3220	Materials and Technology	
INDD 4220	Professional Practice	
GDES 3110	Elements & Principles of Design I: Form and Composition	
GDES 3120	Elements & Principles of Design II: Typography and Image	
GDES 3130	Graphic Design Literacy: Message, Context, Meaning	
Total Hours		**15**

For those students who are not accepted to the Professional Program in Graphic Design but who complete all application requirements for the Professional GDES Program, up to six hours total from Foundation Design 1 (GDES 1210) and Foundation Design 2 (GDES 1220) may be counted toward the Minor in Industrial and Graphic Design Processes. Note that hours toward the minor cannot be double counted toward other Auburn degrees.

Industrial Design (INDD)

Students of Industrial Design (INDD) learn the basic principles of design, engineering, human factors, marketing and sociology. They acquire such technical skills as computer-aided design and drafting, prototype fabrication, photography, sketching and graphics techniques. Students are introduced to design methods, color theory, product planning, visual communication, materials, manufacturing methods, consumer psychology and environmental studies. The four and a half year (nine semester) curriculum, accredited by the National Association of Schools of Art and Design, leads to the professional Bachelor of Industrial Design degree. Graduates will qualify for industrial design and user experience positions within corporate and consultant offices and in various industries. Motivated students will be considered for admission to the Graduate Program in industrial design. Students are encouraged to pursue internships during their time in the curriculum.

The required INDD First Year Studio summer coursework is offered to students in good standing who meet the following criteria: completion of 24 credit hours of university work or approval of the School Head. Students are not required to have completed the INDD freshman model curriculum before enrolling in the summer semester INDD First Year Studio. The First Year Studio summer coursework is only offered in the summer semester.

Admission into the INDD Professional Program (starting fall semester after summer studio) is selective and limited. Admission criteria can be found below the curriculum model.

Freshman

Fall	Hours	Spring	Hours	Summer	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3	**INDD 1310 Synthesis of Drawing 2**	**10**
HIST 1210/1217 Technology and Civilization I	3	HIST 1220/1227 Technology And Civilization II	3	**INDD 1320 Prototype Fabrication**	**3**
Core Mathematics	3	Core Science	4	**INDD 1400 Careers in Industrial Design**	**2**
INDD 1120 Industrial Design in Modern Society[1]	**3**	Core Fine Arts (Humanities)	3	After successful completion of this studio sequence, the top 45 students, based on grade point averages accumulated during the summer semester, are allowed to proceed into the fall semester industrial design professional program.	
Free Elective	1				
	13		**13**		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Science	4	Core Social Science	3
INDD 2110 Two Dimensional Industrial Design Principles[2]	**6**	Study Abroad- optional	
INDD 2120 Computer and Design Communications	**3**	**INDD 2210 Three Dimensional Industrial Design Principles[2]**	**6**
INDD 2130 Presentation Rendering	**3**	**INDD 2220 Anthropometry**	**3**
		INDD 2230 History of Industrial Design	**3**
	16		**15**

Junior

Fall	Hours	Spring	Hours
Core Humanities	3	Core Social Science	3
INDD 3110 Exhibit and Packaging[2]	**6**	**INDD 3210 Product Design[2]**	**6**
INDD 3120 Industrial Design Methods	**3**	**INDD 3220 Materials and Technology**	**3**
INDD 3130 Basic Photography for Industrial Design	**3**	**INDD 3230 Advanced Computer Aided Design**	**3**
	15		**15**

Senior

Fall	Hours	Spring	Hours
Core Literature (Humanities)	3	Core Humanities (Philosophy)	3

INDD 4110 Advanced Product Design[2]	**6**	**INDD 4210 Industrial Design Thesis**[2]	**6**
INDD 5120 Professional Portfolio	**3**	**INDD 4220 Professional Practice**	**3**
		UNIV 4AA0 Achieve the Creed	0
	12		**12**

Total Hours: 126

1 INDD 1120 is offered in both fall and spring semesters of each year.
2 Professional Fee Charged

Acceptance and Progression in the Professional Industrial Design Program

The department maintains the right to select the most highly qualified students from the INDD First Year Studio summer coursework for admission to and for continuation in the INDD professional program. The top forty-five students with an average above 70-percent, based on grade point averages accumulated in INDD 1310 during the INDD First Year Studio summer semester, are allowed to proceed into the Fall semester industrial design professional program. There is no prerequisite experience in drawing, design, or model fabrication to qualify for the First Year Summer Design Studio. Students not admitted into the professional INDD program may retake the summer studio coursework in subsequent years and are re-ranked against new applicants and available resources in that year level. The department reserves the right to retain original work accomplished as part of course instruction.

After a student is accepted into the Professional Industrial Design program, the student must make at least a grade of C or higher in studio courses to matriculate through the professional program. Grades below C in studio courses 1310 through 4210 must be repeated. Design courses must be taken in sequence unless otherwise approved by the School Head.

McWhorter School of Building Science

With a storied tradition of blending practical and professional construction education principles, the McWhorter School of Building Science has earned the distinction of being one of the largest and most respected construction management programs in the United States. The Bachelor of Science in Building Construction focuses on preparing students for management positions within the construction industry including specialized training in estimating, scheduling, project management, safety, surveying, sustainable construction, and structures. In addition to the undergraduate program, the McWhorter School of Building Science also offers a Master of Building Construction (MBC) as well as a PhD in building construction.

Majors

- Building Science (p. 314)
- Real Estate Development (p. 390)

Courses

BSCI 1100 INTRODUCTION TO CONSTRUCTION (3) LEC. 3. Introduction to construction industry and education, current issues, and career opportunities.

BSCI 2200 CONSTRUCTION DOCUMENTS (3) LEC. 2. LAB. 3. Pr. BSCI 2300. Reading and interpreting working drawings, specifications, shop drawings, and digital 3D models for use in estimating and administrating various types of construction projects.

BSCI 2300 CONSTRUCTION METHODS AND MATERIALS (3) LEC. 3. Materials, methods and construction equipment used in the construction of buildings.

BSCI 2400 STRUCTURE OF BUILDINGS I (3) LEC. 3. Pr. (PHYS 1500 or PHYS 1600) and (MATH 1610 or MATH 1150 or (MATH 1120 and MATH 1130)). Principles of mechanics and materials behavior related to building structures. Includes force systems, frame analysis, gravity load tracing, wind and seismic resistance for concrete and steel buildings.

BSCI 3200 CONSTRUCTION COMMUNICATION (3) LEC. 3. Overview of communication skills and tools required to succeed as a construction manager. Oral communication, written communication, ethics, visual literacy, and video capture in the context of construction risk management.

BSCI 3300 FIELD SURVEYING (2) LEC. 1. LAB. 6. Surveying techniques, construction layout, use of equipment, and dimensional controls for buildings. Surveying camp, a concentrated, 10 working day course held during breaks.

BSCI 3400 STRUCTURES FOR ARCHITECTS II (3) LEC. 3. Pr. BSCI 2400. Primary and secondary member design, connection design, temporary bracing/shoring, and steel shop drawing review.

BSCI 3440 STRUCTURE OF BUILDINGS II (3) LEC. 3. Pr. BSCI 2400. Principles of static equilibrium and materials behavior related to building structures. Includes force systems, frame analysis, section properties, stress, basic design of structural elements in buildings.

BSCI 3450 STRUCTURES FOR ARCHITECTS III (3) LEC. 3. Pr. BSCI 3400. Introduction to the design of reinforced concrete and related formwork including beams, columns, slabs, footings, retaining walls, and pre-stressed members.

BSCI 3500 CONSTRUCTION AND INFORMATION TECHNOLOGY I (3) LEC. 2. LAB. 2. To explore, discover and create applications of information communication technology (ICT) for Construction Processes.

BSCI 3600 ESTIMATING AND COSTING (4) LEC. 3. LAB. 3. BSCI Major. Introduction to construction estimating for CSI Divisions 1-33. Students perform quanity take-of (QTO), pricing, and preparation for a commercial construction project using computer-based techniques.

BSCI 3660 PRECONSTRUCTION AND PROJECT MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BSCI 3600. Project(s) simulation as a context to discuss, negotiated procurement, pre-construction services in the alternative delivery environment and construction phase management procedures.

BSCI 3700 CONSTRUCTION SAFETY (3) LEC. 3. Construction safety, including OSHA guidelines, accident investigation, and the creating of construction safety plans and worker training program.

BSCI 3800 CONTRACTING BUSINESS (4) LEC. 4. Pr. BSCI 3600. Construction-specific look at the business functions associated with the industry; includes organizational structures, construction finance, risk analysis, construction contracts, project delivery, and associated documents with these functions.

BSCI 4200 RESIDENTIAL CONSTRUCTION (3) LEC. 3. Provides an overview of residential construction and development practices and professional issues including: local ordinances and codes, land use law, financing practices, architect-builder relationship, spec homes vs. custom homes, etc.

BSCI 4300 PRINCIPLES OF CONSTRUCTION & DESIGN (3) LEC. 3. Provides a basic overview of the design and construction process with a focus on project planning and management practices which relate to interactions between thearchitect, constructor, and project developer. Includes: aspects of the roles and responsibilities of the designer and contractor, design process, pre-construction and construction phase contractor activities.

BSCI 4350 CONSTRUCTION PROJECT ANALYSIS (3) LEC. 3. Pr. BSCI 3660. Analysis of methods, materials and equipment used to construct projects. Methods used to assure the quality of construction projects.

BSCI 4360 SERVICE LEARNING IN CONSTRUCTION (2-3) LEC. 2. LAB. 2. Pr. BSCI 3700 and BSCI 3660. Application of Construction Management-relevant knowledge to real-life situations through active participation in a directed community service experience. Course may be repeated for a maximum of 3 credit hours.

BSCI 4410 PROBLEMS IN CONSTRUCTION MEANS AND METHODS (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Solving challenging problems encountered in construction processes, including form work, scaffolding, framing, steel erection, rigging, lifting, safety,and site management.

BSCI 4420 MANAGEMENT FOR CONSTRUCTION SUPERINTENDENTS (3) LEC. 1. LAB. 4. Pr. BSCI 3660. Senior Standing in Building Science. Development of expanded management strategies for construction superintendents including field conditions analysis, direction of tradesmen, communication skills, and project hoisting and equipment.

BSCI 4500 INFORMATION AND COMMUNICATION TECHNOLOGY FOR CONSTRUCTION II (3) LEC. 2. LAB. 2. To recognize, experiment and practice the applications of advanced information and communication technology (ICT) for Construction Processes.

BSCI 4610 SCHEDULING AND FIELD OPERATIONS (4) LEC. 4. Pr. BSCI 3660. The third of a sequence of three project controls classes; an in-depth study of construction project sequencing and scheduling, jobsite cost control measures, construction cash flow analysis, and a variety of leadership and management issues associated with field operations.

BSCI 4700 MECHANICAL SYSTEMS IN BUILDINGS (3) LEC. 2. LAB. 2. Pr. BSCI 3500 and BSCI 3600. Overview of the plumbing and mechanical systems of buildings. Basic design, sustainability concepts, systems, installation and testing are covered.

BSCI 4710 MECHANICAL CONSTRUCTION ESTIMATING AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BSCI 4700. Advance study of mechanical construction industry. Study and application of design principles, estimating and management techniques used in the industry.

BSCI 4750 ELECTRICAL SYSTEMS IN BUILDINGS (3) LEC. 3. Pr. BSCI 3500. Electrical systems commonly used in buildings; basic theory and design concepts, with emphasis on lighting and electrical distribution equipment and its installation.

BSCI 4850 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Pr. BSCI 3660. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages, and dispute resolution.

BSCI 4860 ADVANCED CONSTRUCTION INFORMATION TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Exploration and creation of advanced applications of Information and Communication Technology (ICT) for planning, decision making, projects monitoring, and controls.

BSCI 4870 CONSTRUCTION HISTORY (3) LEC. 3. Survey of historic construction projects to analyze how and why buildings and structures were constructed in the way they were.

BSCI 4880 CONSTRUCTION EQUIPMENT MANAGEMENT (3) LEC. 3. Pr. BSCI 3660. Construction equipment management and ownership. Equipment acquisition and disposition options, production costs and productivity, cost analysis and control, management staffing and responsibilities.

BSCI 4890 LEAN CONSTRUCTION PRINCIPLES AND PRACTICES (3) LEC. 3. Pr. BSCI 3660. This course provides an understanding of lean construction principles involving lean design, assembly, supply, production and work processes.

BSCI 4960 SPECIAL PROBLEMS (1-6) IND. Special problems in construction topics. Course may be repeated for a maximum of 6 credit hours.

BSCI 4990 BUILDING SCIENCE THESIS (4) LAB. 12. Individual project demonstrating mastery of curriculum content through the application of skills/knowledge to a theoretical construction company and project. Requires a written thesis and oral defense of work.

BSCI 5430 SITE & EARTHWORK CONSTRUCTION (3) LEC. 3. Pr. BSCI 3660. This course provides a general overview of means and methods associated with sitework-related construction through evaluation of Earthwork Operations, Equipment Selection and Productivity, Optimizing crew and productivity, Cost Estimating, Risks related Sitework-Related Projects, Concrete Construction, Erosion and Sediment Control, and an overview of Bridge and Highway Construction.

BSCI 5450 BUILDING GREAT STRUCTURES (3) LEC. 3. Departmental approval. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 5460 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Pr. BSCI 3660. Departmental approval. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. May count either BSCI 5460 or BSCI 6460.

BSCI 5470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 3. Departmental consent. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 5810 SERVICE LEARNING IN CONSTRUCTION MANAGEMENT - STUDY ABROAD OR STUDY AWAY (3) LEC. 1. LAB. 4. Pr. BSCI 3700. Departmental approval. Application of Construction Management-relevant knowledge to real-life situations through active participation in a directed community service experience at an international or domestic location. Repeatable with instructor permission.

BSCI 5830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 5840 MULTI-CULTURAL ISSUES IN CONSTRUCTION (3) LEC. 3.

BSCI 5920 INTERNSHIP IN CONSTRUCTION MANAGEMENT (0) INT. SU. Professional work experience in a construction management position. Students participating in BSCI 5920/6920 are expected to work in a full-time, 40 hour/week, construction management job. Course may be repeated for a maximum of 10 credit hours.

BSCI 5960 SPECIAL PROBLEMS (1-6) AAB. Departmental approval. Special problems in construction topics. Offered only at the discretion of the department head. Course may be repeated for a maximum of 6 credit hours.

BSCI 5970 SPECIAL TOPICS IN CONSTRUCTION (1-3) AAB. 1-3. Departmental approval. Special topics in construction focuses on topics in Building Science that are in addition to the regular curriculum. Offered only at the discretion of the department head. Course may be repeated for a maximum of 6 credit hours.

BSCI 6430 SITE & EARTHWORK CONSTRUCTION (3) LEC. 3. Pr. BSCI 7020. This course provides an overview of sitework-related construction through evaluation of Earthwork Operations, Equipment Selection and Productivity, Optimizing crew and productivity, Cost Estimating, Risks related Sitework-Related Projects, Concrete Construction, Erosion and Sediment Control, and an overview of Bridge and Highway Construction.

BSCI 6450 BUILDING GREAT STRUCTURES (3) LEC. 3. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 6460 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Departmental approval. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. May count either BSCI 5460 or BSCI 6460.

BSCI 6470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 3. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 6810 SERVICE LEARNING IN CONSTRUCTION MANAGEMENT - STUDY ABROAD OR STUDY AWAY (3) LEC. 1. LAB. 4. Pr. BSCI 7020. Departmental approval. Application of Construction Management-relevant knowledge to real-life situations through active participation in a directed community service experience at an international or domestic location. Repeatable with instructor approval. Must complete Construction Safety elective course prior to taking this course. Course may be repeated for a maximum of 6 credit hours.

BSCI 6830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 6840 MULTI-CULTURAL ISSUES IN CONSTRUCTION LABOR (3) LEC. 3.

BSCI 6920 INTERNSHIP IN CONSTRUCTION MANAGEMENT (0) INT. SU. Professional work experience in a construction management position. Students participating in BSCI 5920/6920 are expected to work in a full-time, 40 hour/week, construction management job. Course may be repeated for a maximum of 10 credit hours.

BSCI 6960 SPECIAL PROBLEMS IN CONSTRUCTION (1-5) AAB. Departmental approval. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 5 credit hours.

BSCI 6970 SPECIAL TOPICS IN CONSTRUCTION (1-3) AAB. Departmental approval. Special topics in construction focuses on topics in Building Science that are in addition to the regular curriculum. Course may be repeated for a maximum of 3 credit hours.

BSCI 7010 CONSTRUCTION LABOR AND PRODUCTIVITY (3) LEC. 3. Departmental approval. Construction labor issues, productivity measurement, and productivity improvement in the construction industry. Includes reading, research, and an out of class project.

BSCI 7020 INTEGRATED BUILDING PROCESSES I (3) LEC. 3. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability.

BSCI 7030 CONSTRUCTION INFORMATION MANAGEMENT (3) LEC. 3. Applications of advanced information technology in construction.

BSCI 7040 INTEGRATED BUILDING PROCESSES II (3) LEC. 3. Departmental approval. Construction project delivery, from pre-construction service through ownership. Topics include project management, pre-construction services, pre-planning, procurement, site utilization, subcontracts, commissioning, closeout, building operation, and long-term ownership.

BSCI 7050 EXECUTIVE ISSUES IN CONSTRUCTION (3) LEC. 3. Construction industry executives will present 6 to 10 topics that represent a cross-section of significant management issues.

BSCI 7060 RESEARCH METHODS IN BUILDING SCIENCE (3) LEC. 3. A study of the academic research process, with an emphasis on defining research problems in construction and the development of a research proposal.

BSCI 7100 GRADUATE ELECTIVE IN PROJECT MANAGEMENT: PROJECT MANAGEMENT AND SCHEDULING (3) LEC. 3. This course develops advanced student knowledge and skills in construction business facets such as delivery, contracts and financial management; and develops tactile skills in producing advanced construction schedules in current software applications. Credit will not be given for both BSCI 7100 and BSCI 7106. Course may be repeated with change in topics.

BSCI 7110 CONSTRUCTION CONTRACTING BUSINESS (3) LEC. 3. Business functions associated with construction industry; organizational structure, construction finance; risk analysis, construction contracts, project delivery, and associated documents. Admission to Certificate in Construction Management.

BSCI 7120 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages and dispute resolution. Admission to Certificate in Construction Management.

BSCI 7130 BUILDING CONSTRUCTION SUSTAINABILITY (3) DSL. Students must be admitted to the Executive Technical Certificate in Construction Management. The role of sustainable practices & processes in the construction industry. Role of built environment in consuming resources. Minimizing construction waste. Standards for sustainable construction.

BSCI 7140 STRUCTURAL SYSTEMS OF BUILDINGS (3) LEC. 3. Students must be admitted to the Executive Technical Certificate in Construction Management. Role of structural systems of buildings. Forces in buildings. Temporary structures in construction. Common failure models of structures.

BSCI 7150 HEAVY CIVIL CONSTRUCTION (3) LEC. 3. Students must be admitted to the Executive Integrated Processes Certificate in Construction Management. Principles of heavy civil construction including budget, planning, excavation, haul, equipment, temporary structures and types of projects involved.

BSCI 7200 ELECTIVES IN CONSTRUCTION LABOR (3) LEC. 3. Departmental approval. Special course offerings related to construction labor topics. Course may be repeated with change in topic.

BSCI 7300 ELECTIVES IN INFORMATION TECHNOLOGY AND INNOVATION (3) LEC. 3. Departmental approval. Special course offerings related to information technology, innovation, and robotics in construction. Course may be repeated with change in topic.

BSCI 7900 DIRECTED READING IN CONST (1-3) IND. Departmental approval. Individually proposed exploration of a construction industry related topic not covered in existing course offerings. Students must prepare a written proposal of the topic. Course may be repeated for a maximum of 3 credit hours.

BSCI 7950 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability. Course may be repeated for a maximum of 3 credit hours.

BSCI 7980 CAPSTONE PROJECT (3) LAB. 6. Departmental approval. Independent exploration of an approved topic with final written report of findings and an oral defense of the work. Specific capstone project requirements are established by the supervising committee and vary based on the chosen topic.

BSCI 8060 ADVANCED RESEARCH METHODS IN BUILDING SCIENCE-I (3) LEC. 3. Current areas and topics of research in building construction, study of academic research process, defining a research problem, develop effective search and analytical evaluation skills of published literature, analyze research products and write a comprehensive review of literature, and understand ethical principles and methods to successfully carry out research projects. The course is designed to provide a comprehensive introduction to the doctoral research process and methods used in building construction research.

BSCI 8070 ADVANCED RESEARCH METHODS IN BUILDING SCIENCE-II (3) LEC. 3. A study of the practical skills necessary to produce and disseminate doctoral level research in Building Construction. The course is designed to provide comprehensive knowledge about research design and selecting an appropriate methodology, qualitative, quantitative and mixed data collection and analysis methods appropriate for Building Construction research, research validation techniques, and technical writing strategies appropriate for a PhD dissertation.

BSCI 8950 DISSERTATION SEMINAR (1) LEC. 1. Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking; and preparation of students to develop pedagogical skills. Departmental Permission Required. Course may be repeated for a maximum of 6 credit hours.

BSCI 8990 RESEARCH AND DISSERTATION (1-10) LEC. 1-10. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

Building Science (BSCI)

Auburn's Bachelor of Science in Building Construction (BSCI) Program is a four-year ACCE accredited program focused on construction management including specialized training in estimating, scheduling, project management, safety, surveying, sustainable construction, and structures. The Building Construction Program is unique due to its leading-edge information technology applications emphasis. This combination provides graduates a comprehensive foundation for success. International study opportunities allow students to have exposure to global practices in construction science. Admission criteria can be found below the curriculum model.

Freshman

Fall	Hours	Spring	Hours
BSCI 1100 Introduction to Construction	**3**	**BSCI 2300 Construction Methods and Materials**	**3**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Fine Arts Core	3	History 2	3
History 1	3	PHYS 1500 General Physics I	4
MATH 1150 Pre-Calculus Algebra and Trigonometry	4		
	16		**13**

Sophomore

Fall	Hours	Spring	Hours
BSCI 2200 Construction Documents	**3**	**BSCI 2400 Structure of Buildings I**	**3**
ECON 2030 Principles of Macroeconomics	3	Core Literature I	3
ACCT 2810 Fundamentals Of Accounting	3	ECON 2020 Principles of Microeconomics	3
PHYS 1510 General Physics II	4	COMM 1000 Public Speaking	3
Philosophy Core	3	ACCT 2700 Business Law	3
	16		**15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
BSCI 3200 Construction Communication	**3**	**BSCI 3800 Contracting Business**	**4**	**BSCI 3300 Field Surveying**[3]	**2**
BSCI 3440 Structure of Buildings II	**3**	**BSCI 4700 Mechanical Systems in Buildings**	**3**		

BSCI 3500 Information and Communication Technology for Construction I	**3**	**BSCI 3660 Preconstruction and Project Management[4]**	**3**
BSCI 3600 Estimating and Costing[4]	**4**	**BSCI 4750 Electrical Systems in Buildings**	**3**
BSCI 3700 Construction Safety	**3**		
	16		**13**

Senior

Fall	Hours	Spring	Hours
BSCI 4350 Construction Project Analysis	**3**	**BSCI 4850 Construction Law and Risk Management**	**3**
BSCI 4500 Information and Communication Technology for Construction II	**3**	**BSCI 4990 Building Science Thesis[4]**	**4**
BSCI 4610 Scheduling and Field Operations[4]	**4**	**Construction Elective[1]**	**3**
MNGT 3810 Management Foundations ***or*** 3100 Principles of Management[2]	3	**Construction Elective [1]**	**3**
Service Learning Elective[5]	3	UNIV 4AA0 Achieve the Creed	0
	16		**13**

Total Hours: 120

1 **Construction Elective:**
Students can choose from: BSCI 4360 BSCI 4410, BSCI 4420, BSCI 4710, BSCI 4860, BSCI 4870, BSCI 4880, BSCI 4890, BSCI 4960, BSCI 5430, BSCI 5450, BSCI 5460, BSCI 5470, BSCI 5810 BSCI 5830, BSCI 5840, BSCI 5960, BSCI 5970

2 MNGT 3100 Principles of Management may be substituted for MNGT 3810 Management Foundations.

3 BSCI 3300 Field Surveying is required for all students accepted to the Professional Program (Fall, Spring, and Summer). For students accepted for the Fall and Spring semesters, the course will be taken during the break between Spring and Summer semesters. For students accepted for the Summer semester, the course will be taken during the Summer Semesters. **All students** MUST take the course during the designated time.

4 Professional Fee Charged

5 **Service Learning Elective:**
Students can choose from: BSCI 4360 or BSCI 5810

Incoming Freshmen may apply for admission to Auburn University as a Pre-Building Science student. If accepted by the university admission office, they are eligible to enroll as Pre-Building Science students. Transfer students (external) may apply for admission to the Pre-Building Science program during the fall, spring or summer semesters; however, fall and spring semesters are encouraged. All university admissions decisions are made by the university admissions office. Transfer students (internal/on-campus) may enter the Pre-Building Science program during fall, spring, or summer semester and will be accepted on a space-available basis as determined by the school head.

To be considered for admission into the professional Building Science program (BSCI), the student must complete all Pre-Building Science coursework shown in the first two years of the BSCI curriculum model and must have successfully completed a minimum of 60 credit hours. Students must also complete an application for the professional program through the CADC Office of Student Services. Admission is based on rank order of performance based on a formula GPA calculation described in the Building Science Academic Standards and based upon a minimum 2.60 formula GPA. The school reserves the right to limit enrollment in the professional program (BSCI) based on calculated GPA and on available resources. It is possible to have less than the available number of positions filled if applicants do not meet the minimum required 2.60 formula GPA to be eligible for admission consideration.

For the fall and summer semesters, thirty students are chosen in rank order based upon the formula GPA calculation. Please see a CADC advisor for a full copy of the BSCI Academic Standards. For the spring semester, sixty students are chosen in rank order based upon the formula GPA calculation. No preference will be given to either first-time or repeat applicants.

After being admitted into the professional program, any student receiving a grade below a C in any 3000- or 4000-level BSCI course, or any student whose cumulative GPA falls below 2.50, will be reviewed by the School Academic Standards Committee for approval to continue in the program. Any student who is reviewed may be required to repeat a course or to withdraw from the program.

School of Architecture, Planning, and Landscape Architecture

The Bachelor of Architecture degree is awarded upon the completion of the five-year curriculum. Qualified students may elect to pursue a second Bachelor of Interior Architecture degree concurrently.

Most state registration boards in the U.S. require a National Architectural Accrediting Board (NAAB) accredited degree as a pre-requisite for licensure. The NAAB accredits three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a six, three or two-year term of accreditation, depending on its degree of conformance with established educational standards. Auburn's next accreditation visit for the architecture program is in 2024.

Auburn University School of Architecture, Planning, and Landscape Architecture offers a NAAB-accredited, 5 year Bachelor of Architecture (159 credits) program, a four-year Bachelor of Science in Environmental Design program (This is not a professionally accredited degree.), and a four-year Bachelor of Landscape Architecture started in 2021. The landscape architecture program will pursue accreditation and anticipates being eligible to receive it in 2025.

Auburn University is a member of the Association of Collegiate Schools of Architecture.

The Bachelor of Interior Architecture concurrent degree program offers a holistic approach to design that focuses on the relationship between interior and exterior space. Interior architecture students develop enhanced critical thinking abilities in relation to the construction of space, progressive materiality, sustainability, and representation. Auburn has integrated interior architecture and architecture in this unique program resulting in the granting of two degrees upon completion of the fifth year of study. It is not possible to get the undergraduate degree in interior architecture without the concurrent architecture professional degree. Architecture students must apply separately to the interior architecture program through a competitive application process in the spring of their 2nd year of professional architecture school. The graduate who receives a Bachelor of Interior Architecture degree and a Bachelor of Architecture degree is a person trained in interior architecture and architecture who is qualified to sit for an architectural license exam after completing the required experience hours and then sit for the NCIDQ Exam for interiors, based on a transcript review.

The Bachelor of Landscape Architecture degree program prepares students to plan, design, manage, and nurture built and natural environments. Graduates are prepared to enhance the environmental health in their communities by designing and planning parks, campuses, streetscapes, trails, plazas, and many other projects that support community wellbeing.

Special Opportunities for Qualified Architecture and Interior Architecture Students

During the third year of design studio students may participate in at least one of a variety of field studies opportunities aimed at enriching students' learning experience and preparing students for professional life. These opportunities include both an international studies program with a variety of options for study abroad as well as the possibility of participation in the Rural Studio—a program based in rural west Alabama where students engage local communities via hands-on service-learning projects to help meet needs of shelter and improved quality-of-life—or Urban Studies—a program based in Birmingham, Alabama, where students engage in problems unique to the urban surroundings. In addition to the optional third year opportunities, students have the opportunity during their fifth year of study to participate in the Rural Studio or the Urban Studio, a design center in downtown Birmingham where upper-level students and faculty engage in community-centered, service-learning activities. Participation in each of these programs is limited, and students are selected to participate based on a submitted application submitted in the spring of their 4th year.

Professional internships with practicing architects are recommended throughout the summers of the professional program.

Majors

- Architecture
  - Architecture (Foundation Unit) (p. 327)
  - Architecture (Summer Design) (p. 329)
- Architecture/Interior Architecture

- Architecture/Interior Architecture (Foundation Unit) (p. 333)
- Architecture/Interior Architecture (Summer Design) (p. 336)

- Environmental Design (p. 339)
- Environmental Design — Pre-Landscape Architecture (p. 341)
- Landscape Architecture (p. 343)

Minors

- Environmental Design (p. 341)
- History of Architecture and the Built Environment (p. 343)

Architecture Courses

ARCH 1000 CAREERS IN DESIGN AND CONSTRUCTION (1) LEC. 1, LST. 1. Introduction to the environmental design and construction professions and the curricula in the chosen field.

ARCH 1010 INTRODUCTION TO ARCHITECTURE DESIGN (6) LEC/STU. 12. Coreq. ARCH 1060. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1020 INTRODUCTION TO ARCHITECTURE DESIGN II (6) LEC. 6, LST. 12. Pr. ARCH 1010 and ARCH 1000 and ARCH 1060. Coreq. ARCH 1420. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1060 VISUAL COMMUNICATION (2) LEC/STU. 2. Coreq. ARCH 1010. Introduction to graphic communication. Focus on developing graphic skills for the purpose of explaining form and communicating ideas via exercises in drafting, sketching, and diagramming.

ARCH 1420 INTRODUCTION TO DIGITAL MEDIA (3) LEC. 3, LST. 0. Pr. ARCH 1060. Coreq. ARCH 1020. Introduction to the principles of 2-D and 3-D digital media and how these principles are utilized in architectural design.

ARCH 2010 STUDIO I (6) LEC. 2, LST. 10. Pr. ARCH 1020 and ARCH 1420. Basic issues of architectural design centered around the thoughtful creation of exterior and interior space. Studies of light, material, texture, proportion, scale, and site are integrated into each project.

ARCH 2020 STUDIO II (6) LEC. 2, LST. 10. Pr. ARCH 2010. Fundamental design process skills including observation, analysis, and synthesis.

ARCH 2110 HISTORY OF WORLD ARCHITECTURE I (3) LEC. 3. Pr. ARCH 1020. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2210 ENVIRONMENTAL CONTROLS I (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2220 ENVIRONMENTAL CONTROLS II (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2600 THE ART OF ARCHITECTURE, PLACE, AND CULTURE (3) LEC. 3. The interrelationship of art, architecture, place, and culture with emphasis on the art of architecture from a global multicultural perspective. Illustrated lecture, readings, and essays.

ARCH 3010 STUDIO III (6) LEC. 2, LST. 10. Pr. ARCH 2020 and ARCH 3110. Builds on ARCH 2010 and 2020. The process of making architecture through critical inquiry and investigation. The physical, social, ethical contexts that inform the design of every building.

ARCH 3020 STUDIO IV (6) LEC. 2, AAB/LST. 10. Pr. ARCH 3010 or ARIA 3020. Builds on ARCH 3010 and adds an emphasis on the integration of construction tectonics in the development of architectural form.

ARCH 3110 HISTORY OF WORLD ARCHITECTURE II (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117. Introduction to key European buildings and towns from the Bronze Age to the Enlightenment. Examines how societal beliefs and practices influence the making of architecture.

ARCH 3120 HISTORY OF MODERN ARCHITECTURE (3) LEC. 3. Pr. ARCH 3110. The history of architecture, 1850-present, with an emphasis on the rise of the modern movement in Europe and the U.S.

ARCH 3320 MATERIALS AND METHODS OF CONSTRUCTION I (3) LEC. 3. Pr. ARCH 1020. The properties and potential design function of materials used in contemporary construction, with an emphasis on foundation systems, wood, and masonry.

ARCH 3410 DESSEIN ELECTIVES (3) LEC. 3. Explorations in the art of representation. Complete descriptions of specific courses and their prerequisites are available from the School of Architecture, Planning and Landscape Architecture Course may be repeated for a maximum of 9 credit hours.

ARCH 3500 SEMINAR IN METHODS AND PROCESSES (3) LEC. 3. The tools and techniques available to the design professional including specific design specializations, and design methodologies. Descriptions of specific seminars are available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3600 SEMINAR IN CONTEMPORARY ISSUES (3) LEC. 3. Pr. ARCH 2020. Investigation of significant topics that present opportunities and constraints to architectural thought and practice. Course may be repeated for a maximum of 9 credit hours.

ARCH 3700 SEMINAR IN HISTORY AND THEORY (3) LEC. 3. Pr. ARCH 2010. Investigation of theories, schools or periods to examine the potential and limitations of architecture. Descriptions of specific seminars available from School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3800 SEMINAR IN ASPECTS OF DESIGN (3) LEC. 3. Pr. ARCH 2020. Study of aspects of architectural design, such as form, space, style, meaning, perception, culture. Descriptions of specific seminars available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 4010 STUDIO V (6) LEC. 2, LST. 10. Pr. (ARCH 3010 or ARIA 3020) and BSCI 3440. The comprehensive design of buildings, building complexes, and spaces in an urban context. Lectures emphasize urban issues, research methods. Programming and analysis will parallel studio projects of increasing complexity.

ARCH 4020 STUDIO VI (6) LEC. 2, AAB/LST. 10. Pr. ARCH 4010 or ARIA 4020. The design of buildings, building complexes, and spaces with emphasis on the integration of building systems and tectonic development.

ARCH 4110 HISTORY OF URBAN ARCHITECTURE (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117 and ARCH 3110. The course surveys the history of the physical and formal manifestations of the urban environment from its inception to our days.

ARCH 4320 MATERIALS AND METHODS OF CONSTRUCTION II (3) LEC. 3. Pr. ARCH 3320. Properties and potential design applications of materials used in contemporary construction, with an emphasis on steel and concrete, roofing, glass and glazing, cladding, and interior finishes.

ARCH 4500 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. ARCH 3020 or ARIA 3020. Architects' legal responsibilities, frameworks of professional practice, office organization, business planning, marketing, project delivery, internship and professional ethics and leadership.

ARCH 4900 DIRECTED STUDIES (1-6) AAB. Development of an area of special interest through independent study. Evaluation of the work may be by faculty jury. School approval. Course may be repeated for a maximum of 6 credit hours.

ARCH 4910 RURAL STUDIO COMPLETION (0) DSL/LEC. Completion of construction project for ARCH 4120 Elective Studio. This studio is based in the School's remote facilities in Newbern, AL.

ARCH 4920 PROFESSIONAL INTERNSHIP (1-3) INT. Departmental approval. Application of principles and theories in a professional setting. Course may be repeated for a maximum of 9 credit hours.

ARCH 4960 SPECIAL PROBLEMS (1-6) LEC. Special problems Course may be repeated for a maximum of 6 credit hours.

ARCH 5010 STUDIO VII (6) LEC. 2, AAB/LST. 10. Pr. ARCH 4020 or ARIA 4020. Advanced problem-solving in the synthesis of previous design experiences. Development of a comprehensive design project.

ARCH 5020 THESIS STUDIO (6) LEC. 6, AAB/LST. 13. Pr. ARCH 5010 and ARCH 5990. Exploration and development of an architectural project under the direction of a faculty member.

ARCH 5100 TEACHING METHODS (1) LEC. 1.

ARCH 5240 BEING THERE (1) LEC. 1. Course may be repeated for a maximum of 2 credit hours.

ARCH 5340 METHODS IN COMMUNITY BASED LEARNING (3) LEC. 3.

ARCH 5990 THESIS RESEARCH (3) LEC. 3. Pr. ARCH 4020. Coreq. ARCH 5010. The tools, techniques, and strategies required to select, develop, refine, write, and present a thesis argument.

ARCH 5991 THESIS RESEARCH (1) LEC. 1. Pr. ARCH 5990. Expansion on the individual thesis argument and research begun in ARCH 5990 in parallel with the development of their thesis design project in ARCH 5020.

ARCH 7010 FALL STUDIO (6) STU. 12. This is one of three design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a schematic, client-driven architectural proposal.

ARCH 7020 SPRING STUDIO (6) STU. 12. This is one of three design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7030 SUMMER STUDIO (6) STU. 12. This is one of three design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7110 SEMINAR IN COLLABORATIVE DESIGN METHODS AND PROCESS (3) SEM. 3. Introduction to the core theories of collaboration within interdisciplinary design and construction project teams teams and community-based client groups. Students develop an understanding of the fundamentals of collaborative process design, principles negotiation, communication across disciplines, and conflict resolution.

ARCH 7120 SEMINAR IN DESIGN TECTONICS (3) SEM. 3. Taught as a series of workshops, this course provides the disciplinary framework necessary to apply technical research methods when evaluating options and reconciling the implications of design development decisions across systems and scales.

ARCH 7130 SEMINAR IN PROJECT COMMUNICATIONS (3) SEM. 3. This course provides the disciplinary framework necessary to develop all project documentation required for project construction, delivery, record keeping, as well as future research and analysis.

ARCH 7210 EXECUTIVE ISSUES: DISCIPLINARY FRAMEWORK (3) SEM. 3. Taught as a series “overlay” lectures and workshops. Provides the disciplinary framework to apply case study research methods when evaluating options and reconciling the implications of schematic design decisions across systems/scales.

ARCH 7220 EXECUTIVE ISSUES: RESEARCH METHODS (3) SEM. 3. Taught as a series "overlay" lectures and workshops. Provides the disciplinary framework necessary to apply case study research methods when evaluating options and reconciling the implications of design development decisions across systems/scales.

Interior Architecture Courses

ARIA 2150 ELEMENTS OF INTERIOR ARCH I (3) LEC. 3. The theory of design principles, aesthetics and concepts. Graphic drawings and models of interior spaces explored. Projects outside of class.

ARIA 2160 ELEMENTS OF INTERIOR ARCHITECTURE II (3) LEC. 3. The theory of design principles, aesthetics and concepts. Graphic drawings and models of interior spaces explored. Projects outside of class.

ARIA 3020 STUDIO 4A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10. Pr. ARCH 2020. Parallels Architecture Studio 4, but with an emphasis on interior architecture with exploration of detail and accommodation.

ARIA 4020 STUDIO 6A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10. Pr. ARCH 3020 and ARCH 3320 and (ARCH 2110 or ARCH 2117) and BSCI 3440. Parallels Architecture Studio 6, with emphasis on the development of interior architecture and spaces within an urban context. Consideration will be given to adaptive reuse.

ARIA 4030 INTERIOR ARCHITECTURE THESIS (6) LEC. 3, LST. 10. Pr. ARIA 4020. Coreq. ARIA 4080. Interior design project of the student's choice, under the direction of a faculty member.

ARIA 4080 INTERIOR ARCHITECTURE THESIS RESEARCH (2) LEC. 2. Pr. ARIA 4020. Research and writing of thesis documents, to include programming, site, and case studies.

ARIA 4450 INTERIOR ARCHITECTURE PROFESSIONAL PRACTICE (2) LEC. 2. Pr. ARIA 4020. Prepares student to enter professional office with an understanding of the skills, concepts and technical knowledge expected.

ARIA 4680 HISTORY AND THEORY OF INTERIOR ARCHITECTURE (3) LEC. 3. Pr. ARIA 4020. The theory and history of interior spaces, their social, material, and aesthetic development and their artifacts.

Environmental Design Courses

ENVD 2000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2007 HONORS ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2010 INTRODUCTION TO DESIGN AND DESIGN METHODS (3) LEC. 3. Introduces students to the importance of design and basic design methods.

ENVD 2040 DESIGN, INVENTION AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.

ENVD 2047 HONORS DESIGN, INVENTION, AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.

ENVD 2100 ENVIRONMENTAL DESIGN WORKSHOP I (6) LAB. 6. Pr. ENVD 2000. Departmental approval. Focus on general technical skill set for environmental design foundations. Digital media introduction, structure and fabrication techniques, design communication development.

ENVD 2200 READINGS IN LANDSCAPE ARCHITECTURE (3) SEM. 3. Investigates the idea of landscape through a range of texts, images, and built works that have helped form, and continue to shape, our understanding of the landscape. First year of B.ENVD.

ENVD 3000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES II (3) LEC. 3. Pr. ENVD 2100. Departmental approval. Advanced knowledge of design, construction and planning disciplines and practice. National/global environmental design issues, focus on interdisciplinary concepts, hybrid practices, & sustainability.

ENVD 3100 CIVIC ENGAGEMENT AND RESEARCH METHODS (3) LEC. 3. Pr. ENVD 3000. Departmental approval. Civic engagement and research methods for environmental design. This is a research prep course to develop research methods, projects, and community partnerships for summer ENVD 4100 workshop capstone.

ENVD 3200 SYSTEMS IN BUILT ENVIRONMENT I (3) SEM. 2.5. Pr. ENVD 2100. Focus on research of different systems in built environments, and different research methods that can be used in design in order to understand and represent them.

ENVD 3300 SYSTEMS IN BUILT ENVIRONMENT II (3) SEM. 2.5. Pr. ENVD 2100. Focuses on application of research from design and construction disciplines in built environment through testing and prototyping, thus exploring potential for application in a larger context.

ENVD 4000 ELEMENTS OF URBAN DESIGN (3) LEC. 3. Pr. ENVD 2100 or ARCH 2010 or LAND 2110. ENVD 4000 provides environmental design students with an introduction to urban design theories, methods and processes through combination of lectures and on-site instruction.

ENVD 4010 ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4017 HONORS ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4100 ENVIRONMENTAL DESIGN WORKSHOP II - CAPSTONE (6) LEC. 6. Pr. ENVD 3100. Environmental design knowledge & technical skill set using principles of collaboration, leadership & effectiveness training, hands-on experience, civic engagement & design communication skills.

ENVD 4500 PROFESSIONAL PRACTICE (3) SEM. 3. Pr. ENVD 3000. Enable students to learn elements of professional communication; create persuasive portfolio of their work; and to seek, and prepare for, internship and job opportunities.

ENVD 4900 DIRECTED STUDIES (3) IND. 3. Pr. ENVD 2100. Highly focused study (design research, design research application) in an area of interest to student that is approved by, and supervised by, a faculty member with such expertise. Must be in Junior or Senior status. Course may be repeated for a maximum of 6 credit hours.

ENVD 4920 INTERNSHIP IN ENVIRONMENTAL DESIGN (1) INT. 1. SU. Faculty Approval. Internship in the areas of environmental design, as approved by faculty supervisor.

ENVD 4970 SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3. Topics include: digital production, portfolio making and design thinking. Course may be repeated for a maximum of 9 credit hours.

ENVD 4977 HONORS SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3. Topics include: digital production, portfolio making and design thinking. Course may be repeated for a maximum of 9 credit hours.

ENVD 5030 STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) SEM. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

ENVD 5037 HONORS STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) LEC. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

Landscape Architecture Courses

LAND 1110 STUDIO I (4) LEC. 3. LAB. 1. Foundation course introduces studio culture, principles and processes of visual design, and the tools and techniques of landscape architectural design.

LAND 1160 GRAPHIC STUDIES I (2) LEC. 1. LAB. 1. Coreq. LAND 1110. Focuses on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage.

LAND 1210 STUDIO II (4) LEC. 3. LAB. 1. Pr. LAND 1110. Foundation course builds fundamental design process skills by exploring terrain and ecology through design exercises on small sites.

LAND 1260 GRAPHIC STUDIES II (2) LEC. 1. LAB. 1. Pr. LAND 1160. Introduces integrated analog-digital workflows. Focus on digital methods and tools: photomontage, diagramming, and presentation assembly; digital modeling, analysis, and rendering.

LAND 2110 PLANTS AND CONSTRUCTION WORKSHOP I (5) LEC. 4. LAB. 1. Pr. LAND 1210. Uses a field- and project- based approach to engage the medium of landscape architecture (plants, land, soils, and materials).

LAND 2120 FIELDWORK I (1) FLD. 1. Pr. LAND 1210. Coreq. LAND 2110. Advances program focus on landscape experience. Introduces techniques and tools for site reconnaissance: direct measurement, observation, evaluation, and synthesis.

LAND 2140 HISTORY, THEORY, AND PRACTICE I (3) LEC. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 2210 PLANTS AND CONSTRUCTION WORKSHOP II (5) LEC. 4. LAB. 1. Pr. LAND 2110. Focuses on landscape expression, experience, and cycles, including plant ephemerality, material assemblies, maintenance, performance, and choreography of landscape experience.

LAND 2220 FIELDWORK II (1) FLD. 1. Coreq. LAND 2210. Considers phenological and environmental cycles, expression of plants, materials, and atmospheres to strengthen relationships between design intention and physical expression.

LAND 2240 HISTORY, THEORY, AND PRACTICE II (3) LEC. 3. Pr. LAND 2140. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 3110 STUDIO III (5) LEC. 4. LAB. 1. Pr. LAND 2210. Advanced studio introduces design research processes to investigate eco-cultural relationships between regional and urban scales with emphasis on landscape networks.

LAND 3120 FIELDWORK III (1) FLD. 1. Pr. LAND 2220. Coreq. LAND 3110. Expand techniques and tools for site reconnaissance: multiple site visits to develop skills, deepen inventories, and contextualize design projects.

LAND 3160 DYNAMIC SYSTEMS I (3) LEC. 3. Pr. LAND 2240. Establishes ecological theories as a framework for analysis of urban conditions and as a tool for decision-making and design.

LAND 3210 STUDIO IV (5) LEC. 4. LAB. 1. Pr. LAND 3110. Junior studio focused on processes to support design at multiple scales for resilient landscapes that integrate aesthetics, program, and performance.

LAND 3220 FIELDWORK IV (1) FLD. 1. Pr. LAND 3120. Coreq. LAND 3210. Expand techniques and tools for mapping large scale landscape systems. Develop documentation skills using aerial photogrammetry and advanced site visualization.

LAND 4110 STUDIO V (5) LEC. 4, LST. 1. Pr. LAND 3210. Comprehensive studio synthesizes skills toward landscape activism and engagement in cultural contexts of urban, ex-urban, or rural sites and systems.

LAND 4120 FIELDWORK V (1) FLD. 1. Pr. LAND 3220. Coreq. LAND 4110. Apply comprehensive site reconnaissance skills to gather landscape intelligence. Engage community representatives to contextualize studio work.

LAND 4210 STUDIO VI (5) LEC. 4, LST. 1. Pr. LAND 4110. Comprehensive studio helps students develop sophisticated design research. Students create new work and critically evaluate its theoretical context.

LAND 4220 FIELDWORK VI (1) FLD. 1. Coreq. LAND 4210. Use broad skills, techniques, and thinking about site reconnaissance to frame design projects. Gather and synthesize comprehensive landscape intelligence.

LAND 4240 PROFESSIONAL PRACTICE (3) SEM. 3. Surveys development and ethics of the landscape architecture profession, businesses, and practices, to help students plot their futures.

LAND 4410 SEMINAR ON LANDSCAPE MATTER (3) SEM. Departmental approval. Seminar which explores material considerations in landscape, such as material selection and performance, material assemblies, landform and grading, or designing with plants and ecological communities, as they relate to the discipline of landscape architecture and are not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4420 SEMINAR ON LANDSCAPE ADVOCACY (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of landscape advocacy, such as public interest design, community outreach, and public engagement, as they relate to the discipline of landscape architecture and are not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4430 SEMINAR ON LANDSCAPE THOUGHT (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of landscape history, landscape theory, critique, or associated discourse as it relates to the discipline of Landscape Architecture and is not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4440 SEMINAR ON LANDSCAPE REPRESENTATION (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of Landscape Representation, Graphic Communication, and/or Drawing as it relates to the discipline of Landscape Architecture and is not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4450 SEMINAR ON LANDSCAPE RESEARCH (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of Landscape Research as it relates to the discipline of Landscape Architecture and is not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4900 DIRECTED STUDIES (1-3) IND. Departmental approval. Opportunity for students to work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours.

LAND 4920 PROFESSIONAL INTERNSHIP (1-3) INT. SU. Departmental approval. Opportunity for students to develop expertise in professional practice under the guidance of professionals. This includes but is not limited to site design, construction documentation, client/community presentations, and project management. Course may be repeated for a maximum of 3 credit hours.

LAND 4970 SPECIAL TOPICS IN LANDSCAPE ARCHITECTURE (3) LEC/SEM. Departmental approval. Study of a topic of special interest in landscape architecture beyond current program course offerings. Course may be repeated for a maximum of 9 credit hours.

LAND 5030 LANDSCAPE DESIGN METHODS (3) LEC. 9. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 5040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 9. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 5130 STUDIO I: FOUNDATION STUDIO (5) STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 5131 FIELDWORK I (1) FLD. 1. Field studies and travel related to studio. May count either LAND 5131 or LAND 6131.

LAND 5140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) SEM. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 5147 HONORS HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) SEM. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 5150 CONSTRUCTION I: LANDFORM & HYDROLOGY (3) LEC. 3. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management.

LAND 5160 GRAPHIC STUDIES I (2-3) LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 5230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May count either LAND 5230 or 6230.

LAND 5231 FIELDWORK II (1) FLD. 1. Field studies and travel related to studio. Departmental approval. May count either LAND 5231 or LAND 6231.

LAND 5240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 5250 CONSTRUCTION II: MATERIALS & DETAILING (3) LEC. 3. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 5260 GRAPHIC STUDIES III (3) SEM. 3. Pr. LAND 5150. Departmental approval. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 5270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 5290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 5330 STUDIO III (5) LEC. 5. Pr. (LAND 5230 or LAND 6230) or (P/C LAND 5331 or P/C LAND 6331). Departmental approval. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 5331 FIELDWORK III (1) FLD. 1. SU. Pr. (LAND 6230 or LAND 5230) or (P/C LAND 5330 or P/C LAND 6330). Departmental approval. Field studies and travel related to studio.

LAND 5340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 5240. Departmental approval. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture.

LAND 5350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 5360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 5367 HONORS DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 5370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 5380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, starts, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 5410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 5940 FIELDWORK ABROAD (3-6) AAB. Landscape architectural fieldwork conducted in locations outside the United States. Course may be repeated for a maximum of 9 credit hours.

LAND 6030 LANDSCAPE DESIGN METHODS (3) LEC. 3. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 6040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 3. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 6130 STUDIO I: FOUNDATION STUDIO (5) AAB/STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 6131 FIELDWORK I (1) AAB/FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) AAB/SEM. 3. Pr. LAND 5230 or LAND 6230. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 6150 CONSTRUCTION I: LANDFORM & HYDROLOGY (3) LEC. 3. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management.

LAND 6160 GRAPHIC STUDIES I (2-3) AAB/LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 6170 GRAPHIC STUDIES II (3) LEC. 3. Departmental approval. Graphic and communication theories and skills in a variety of media. Photoshop, Illustrator, Indesign and AutoCAD.

LAND 6230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May either LAND 5230 or 6230.

LAND 6231 FIELDWORK II (1) FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 6250 CONSTRUCTION II: MATERIALS & DETAILING (3) LEC. 3. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 6270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 6290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 6330 STUDIO III (5) LEC. 5. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 5331 and LAND 6331. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 6331 FIELD STUDIES III (1) FLD. 1. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 5330 and LAND 6330. Field studies and travel related to studio.

LAND 6340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 6240. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture. Departmental approval

LAND 6350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 6360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 6370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 6380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, strata, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 6410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 6940 FIELDWORK ABROAD (3-6) AAB. Landscape architectural fieldwork conducted in locations outside the United States. Course may be repeated for a maximum of 9 credit hours.

LAND 7130 STUDIO IV (5) AAB/STU. 5. Departmental approval. Investigates design strategies and techniques for generating new resilient cultural and environmental practices within complex dynamic conditions.

LAND 7131 FIELDWORK IV (1) AAB/FLD. 1. Pr. P/C LAND 5230. Departmental approval. Coreq. LAND 7130. Field studies and travel related to studio.

LAND 7140 URBAN STUDIES II: GLOBAL URBANISM (3) LEC. 3. Departmental approval. Examines the major global drivers of urban change, contemporary theories of international urban design, geography and cultural theory.

LAND 7170 PLANTS II (2-3) AAB/LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant ephemerality, functionality, and phenology. Course may be repeated for a maximum of 3 credit hours.

LAND 7190 RESEARCH BY DESIGN: FRAMEWORKS, METHODS, AND STRATEGIES (3) SEM. 3. Design is not just about solving problems, but figuring out which questions to ask in the first place. This course guides students through the iterative process of situating, identifying, framing, and testing a student-chosen trend, topic, or question.

LAND 7230 STUDIO V: COMPREHENSIVE STUDIO (5) STU. 5. Pr. LAND 5230. The first part of a two-semester research studio which involves creating a new body of work within a theoretical context and then critically appraising this work and its theoretical framework.

LAND 7231 FIELDWORK V (1) FLD. 1. Coreq. LAND 7230. Course is directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Emphasizes first-hand experiences of the landscape where careful observation and analysis occur; and introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7240 THEORIES AND PRACTICES (3) SEM. 3. Departmental approval. This is a reading, writing, and discussion seminar that examines the idea that the development of a democratic, civic, diverse social ecology can create more resilient and sustainable communities.

LAND 7250 CONTEMPORARY ISSUES IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Pr. LAND 5230. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7270 CONSTRUCTION III: REGENERATIVE TECHNOLOGIES (2-3) LEC. Introduces issues of land contamination and explores remediative and regenerative technologies as design strategies towards new productive futures. Course may be repeated for a maximum of 3 credit hours.

LAND 7280 DYNAMIC SYSTEMS II: REGIONAL ECOLOGIES (3) LEC. 3. This lecture/field laboratory course examines conditions of regional ecologies at multiple scales and explores possible public and private responses to these issues.

LAND 7290 GRAPHIC STUDIES III (3) SEM. 3. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 7330 STUDIO VI: COMPREHENSIVE STUDIO (5) STU. 12. Pr. LAND 5230 or LAND 6230. A culmination of a design research project that ends in a public review and exhibition.

LAND 7331 FIELDWORK VI (1) FLD. 15. Coreq. LAND 7330. Directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Gets students out of the classroom and emphasizes first-hand experiences of the landscape where careful observation and analysis occur. Introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7340 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course surveys the development and ethics of the profession of landscape architecture and presents an overview of the business and practice of the profession.

LAND 7410 SEMINAR ON HISTORY AND THEORY (3) LEC. 3. Departmental approval. Opportunity for students to further develop expertise expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7420 SEMINAR ON COMMUNITY OUTREACH (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7430 SEMINAR ON HYDROLOGY (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7440 SEMINAR ON LANDSCAPE COMMUNICATION (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7450 SEMINAR ON LANDSCAPE RESEARCH (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7470 LANDSCAPE ARCHITECTURE INTERNSHIP (3) PRA. 3. By approval of Chair of Landscape Architecture. A practical, professional, full-time, curriculum-related work experience in the industry of landscape architecture. Under joint supervision of employer and university. Course may be repeated for a maximum of 9 credit hours.

LAND 7900 DIRECTED STUDIES (1-3) AAB. An individual student can pursue an area of research beyond the required curriculum. Departmental approval; MLA II standing. Course may be repeated for a maximum of 9 credit hours.

LAND 7960 SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7970 SPECIAL TOPICS (1-6) AAB. Groups of student work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours. ADDITIONAL PREREQUISITES: Departmental approval; MLA I standing.

LAND 7992 RESEARCH SUMMARY (1) LEC. 1.

Architecture (Foundation Unit) (ARCH)

The curriculum in Architecture was established at Auburn University in 1907, making Auburn one of the first universities in the nation, and the first in the South, to offer Architecture as a major. Since then, the Architecture Program has enjoyed a strong reputation for the abilities of our graduates and the quality of our faculty. It is consistently ranked among the best in the country.

Admission to the Architecture Program is limited. Admission criteria can be found below the curriculum model.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1150 Pre-Calculus Algebra and Trigonometry ***or*** 1610 Calculus I	4	PHYS 1500 General Physics I	4
ARCH 1000 Careers in Design and Construction	**1**	**ARCH 1020 Introduction to Architecture Design II**	**6**
ARCH 1060 Visual Communication	**2**	**ARCH 1420 Introduction to Digital Media**	**3**
ARCH 1010 Introduction to Architecture Design	6		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
ARCH 2210 Environmental Controls I	3	Core Social Science	3
ARCH 2010 Studio I[2]	**6**	BSCI 2400 Structure of Buildings I	3
ARCH 2110 History of World Architecture I	**3**	**ARCH 2020 Studio II[2]**	**6**
ARCH 3320 Materials and Methods of Construction I	**3**	ARCH 4320 Materials and Methods of Construction II	3
		ARCH 3110 History of World Architecture II	**3**
		To proceed to the beginning sequence of a design studio at third, fourth and fifth year levels, students must have completed all courses prior to that level or have the approval of the Academic Review Committee. [reference CADC Auburn University Bulletin entry]	
	15		**18**

Junior

Fall	Hours	Spring	Hours
Humanities Core - (Literature)	3	ARCH Seminar (See advisor for approved ARCH seminars)	3
ARCH 3010 Studio III[2]	**6**	PHYS 1510 General Physics II	4
BSCI 3440 Structure of Buildings II	3	**ARCH 3020 Studio IV[2]**	**6**
ARCH 3700 Seminar in History and Theory	3	**ARCH 3410 Dessein Electives**	**3**
Urban & Rural Studio -- Optional		**ABROAD & Rural Studio -- Optional**	
	15		**16**

Senior

Fall	Hours	Spring	Hours
Core Fine Arts[1]	3	Free Elective	3
ARCH 4110 History of Urban Architecture[2]	**3**	Core Humanities	3
ARCH 2220 Environmental Controls II	3	**ARCH 4020 Studio VI [2]**	**6**

ARCH 4010 Studio V [2]	**6**	ARCH Seminar (See advisor for approved ARCH seminars)	3
		ARCH 4500 Professional Practice	**3**
	15		**18**

Fifth Year

Fall	Hours	Spring	Hours
ARCH Seminar (See advisor for approved ARCH seminars) or ROTC	3	HIST 1020 World History II	3
HIST 1010 World History I	3	Core Humanities Core (Philosophy)	3
Core Social Science	3	**ARCH 5020 Thesis Studio** [2]	**6**
ARCH 5010 Studio VII [2]	**6**	UNIV 4AA0 Achieve the Creed	0
ARCH 5990 Thesis Research	**3**	**Urban Studio & Rural Studio -- Optional, by application**	
Urban Studio & Rural Studio -- Optional, by application			
	18		**12**

Total Hours: 159

1 ARCH students may not take ARCH 2600 for Fine Arts credit
2 Professional Fee Charged

Process of enrolling as a Pre-Architecture Student

Incoming freshmen interested in pursuing the NAAB-accredited Bachelor of Architecture degree should apply for admission as Pre-Architecture (PARC) majors. If accepted by the university admissions office, students are eligible to enroll as Pre-Architecture students.

In order to matriculate from the Pre-Architecture Program (PARC) to the Professional Architecture Program (ARCH), students compete for seats through a placement pathway. There are two placement pathways an incoming freshmen student can participate in to compete for their spot in our Professional Architecture Program: the Summer Design Program or the Foundation Unit Program. Summer Design shifts the design studios to the summer between the freshman and sophomore years. The Foundation Unit begins the design studios in the first semester of freshmen year.

Enrollment in Foundation Unit or Summer Design curriculums is based on available resources as well as the student's preferred pathway as submitted per the timeline outlined below.

Approximately one week after the final round of regular decisions for freshman admissions are released by the university admissions office, all incoming freshmen accepted as Pre-Architecture majors will be mailed and emailed a letter detailing the two placement pathways: Summer Design and Foundation Unit. Included in this letter will be a link for students to submit their first and second preferences for placement pathways. Within the following 1-2 weeks, students will receive a response indicating their pathway placement. First preferences cannot be guaranteed, and placement is made on a first-come, first-served basis. Space is limited in Foundation Unit. Summer Design typically has space available for all eligible students. Students do not need to submit their enrollment deposit to provide preferences for either placement pathway.

Matriculation from Pre-Architecture to Professional Architecture Program

Enrollment in the second-year studios (as the start of the Professional Architecture Program/ARCH) is limited and eligibility for acceptance is based upon performance in courses in the first year of the curriculum as outlined below.

A student is eligible for Summer Design by completing ARCH 1000, MATH 1150 (or an equivalent course), and PHYS 1500 with passing grades and a total of 27 credit hours with a minimum 2.8 GPA prior to their Summer Design semester. Acceptance into the Professional Architecture Program (at the beginning of the second year of study) requires a grade of "SA" in ARCH 1010 and ARCH 1060 with a grade of C or better in ARCH 1020 and ARCH 1420. The Grade Adjustment Policy may not be used to progress to the Second Year Studio.

A student enrolled in the Foundation Unit must successfully pass ARCH 1000, ARCH 1010, and ARCH 1060 with a grade of “SA”. In addition, a Foundation Unit student must pass ARCH 1420 and ARCH 1020 with a C or higher while also completing MATH 1150 (or an equivalent course and PHYS 1500 with passing grades. Students that fail to successfully complete ARCH 1010 and ARCH 1060 in the fall semester, or students not accepted into the Second Year Studio sequence at the end of the spring semester, will not be readmitted to the Foundation Unit. These students may elect to participate in Summer Design as long as they meet the required eligibility requirements.

Transfer Students

Transfer students seeking admission into the Architecture Program must meet the transfer requirements set by Auburn University and should apply as a Pre-Architecture major. Summer Design is the pathway for transfer students to matriculate from the Pre-Architecture curriculum to the Professional Architecture curriculum. To be eligible for Summer Design, transfer students must meet the minimum criteria of eligibility for admission as previously defined. As Summer Design occurs over the summer term, students are advised to transfer to Auburn and be eligible to enroll in courses for the summer semester. To ensure eligibility and consideration for admission into Summer Design, it is recommended that students begin working with the College of Architecture, Design and Construction Student Services team in the August prior to (i.e. nine months before) attending the Summer Design Program.

Professional Program

In the event a grade of D or F is received in any required course in the major, a review is required for continuance in the program. Based on the outcome of this review, a student may be required to repeat the course or, in the case of design studios, the entire studio sequence for that respective year-level. Students receiving a second D when repeating a required course will be reviewed for continuance in the program. Similarly, a student receiving mostly grades of C or poorer may be reviewed for continuance in the program.

To proceed to the beginning sequence of design studio at third, fourth-, or fifth-year levels, the student must have completed all required prerequisite courses for that respective year-level, as indicated in the model curriculum.

Interior Architecture

Interior Architecture works across boundaries to integrate the design of objects, furniture, interiors, buildings and landscapes. The focus is understanding the built environment as a complex social landscape, particularly for the imaginative reuse of existing structures.

Students apply for admission to the Bachelor of Interior Architecture Program (ARIA) during their second year of the Professional Architecture Program. The school reserves the right to limit enrollment in Interior Design based on available resources.

Participation in the Interior Architecture (ARIA) Program is highly selective. Selection is based primarily on the ARIA faculty-comprised Admission Board’s assessment of submitted application. The application consists of a students’ statement of intent and three projects that demonstrate a high quality of design ability. Additionally, accepted students must:

- Have completed their appropriate studio coursework.
- Maintain a minimum 3.0 GPA for conditional acceptance into the ARIA concurrent degree program.
- Students must maintain a minimum 3.0 GPA in their ARIA studio coursework to proceed into the ARIA Summer Thesis Semester between Fourth and Fifth Year.

ARIA students will initially participate in two ARIA-designated Third- and Fourth-Year Studios. At the end of five years with one summer of study, the ARIA student receives both the Bachelor of Interior Architecture and Bachelor of Architecture. Students are pursuing both degrees concurrently. It is not possible to earn the Bachelor of Interior Architecture alone at Auburn University

If a 3.0 studio GPA is not maintained, a review by the ARIA Admissions Board will be required to determine a student’s eligibility to continue in the program.

Architecture (Summer Design) (ARCH)

The curriculum in Architecture was established at Auburn University in 1907, making Auburn one of the first universities in the nation, and the first in the South, to offer Architecture as a major. Since then, the Architecture Program has enjoyed a strong reputation for the abilities of our graduates and the quality of our faculty. It is consistently ranked among the best in the country.

Admission to the Architecture Program is limited. Admission criteria can be found below the curriculum model.

Freshman

Fall	Hours	Spring	Hours	Summer	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3	**ARCH 1060 Visual Communication**	**2**
HIST 1010 World History I	3	HIST 1020 World History II	3	ARCH 1010 Introduction to Architecture Design	6
MATH 1150 Pre-Calculus Algebra and Trigonometry ***or*** 1610 Calculus I[1]	4	PHYS 1500 General Physics I	4	ARCH 1020 Introduction to Architecture Design II	6
Core Fine Arts (Humanities)[2]	3	Free Elective	3	To qualify for summer design, students must meet the following 5 criteria: a minimum of 27 credit hours of university credit, succcessful completion of ARCH 1000, MATH 1150 Pre-CalAlgebra Trig OR MATH 1610 Caluculus 1, and PHYS 1500 General Physics I (Trig. based) and a minimum 2.80 GPA. Students who meet all but the GPA requirement may be considered for acceptance to the Summer Design sequence if space is available in the program	
ARCH 1000 Careers in Design and Construction	**1**			ARCH 1420 Introduction to Digital Media	3
	14		**13**		**17**

Sophomore

Fall	Hours	Spring	Hours
ARCH 2010 Studio I[3]	**6**	BSCI 2400 Structure of Buildings I	3
ARCH 2110 History of World Architecture I	**3**	ARCH 4320 Materials and Methods of Construction II	3
ARCH 3320 Materials and Methods of Construction I	**3**	ARCH 2020 Studio II[3]	6
ARCH 2210 Environmental Controls I	3	**ARCH 3110 History of World Architecture II**	**3**
	15		**15**

Junior

Fall	Hours	Spring	Hours
Core Literature (Humanities)	3	ARCH Seminar (see advisor for approved ARCH seminars)	3
ARCH 3010 Studio III[3]	**6**	**ARCH 3020 Studio IV**[3]	**6**
BSCI 3440 Structure of Buildings II	3	**ARCH 3410 Dessein Electives**	**3**
ARCH 3700 Seminar in History and Theory	3	**Abroad & Rural Studio - Optional by application**	
Urban or Rural Studio - Optional by application			
	15		**12**

Senior

Fall	Hours	Spring	Hours
ARCH 4010 Studio V[3]	**6**	Core Humanities	3
ARCH 2220 Environmental Controls II	3	**ARCH 4020 Studio VI**[3]	**6**
ARCH 4110 History of Urban Architecture	3	**ARCH 4500 Professional Practice**	**3**
		ARCH Seminar (See advisor for approved ARCH seminars)	3
	12		**15**

Fifth Year

Fall	Hours	Spring	Hours
ARCH Seminar (see advisor for approved courses) or ROTC	3	Core Social Science	3
Core Social Science	3	Core Philosophy (Humanities)	3
PHYS 1510 General Physics II	4	**ARCH 5020 Thesis Studio**[3]	**6**
ARCH 5010 Studio VII[3]	**6**	UNIV 4AA0 Achieve the Creed	0
ARCH 5990 Thesis Research	**3**	**Urban Studio & Rural Studio 1:1 exchange program - Optional by application**	
Urban Studio & Rural Studio 1:1 Studio - Optional by application			
	19		**12**

Total Hours: 159

1 MATH 1120/1130 or MATH 1150 or MATH 1610.
2 ARCH students may not take ARCH 2600 for Fine Arts credit.
3 Professional Fee Charged

Process of enrolling as a Pre-Architecture Student

Incoming freshmen interested in pursuing the NAAB-accredited Bachelor of Architecture degree should apply for admission as Pre-Architecture (PARC) majors. If accepted by the university admissions office, students are eligible to enroll as Pre-Architecture students.

In order to matriculate from the Pre-Architecture Program (PARC) to the Professional Architecture Program (ARCH), students compete for seats through a placement pathway. There are two placement pathways an incoming freshmen student can participate in to compete for their spot in our Professional Architecture Program: the Summer Design Program or the Foundation Unit Program. Summer Design shifts the design studios to the summer between the freshman and sophomore years. The Foundation Unit begins the design studios in the first semester of freshmen year.

Enrollment in Foundation Unit or Summer Design curriculums is based on available resources as well as the student's preferred pathway as submitted per the timeline outlined below.

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Matriculation from Pre-Architecture to Professional Architecture Program

Enrollment in the second-year studios (as the start of the Professional Architecture Program/ARCH) is limited and eligibility for acceptance is based upon performance in courses in the first year of the curriculum as outlined below.

A student is eligible for Summer Design by completing ARCH 1000, MATH 1150 (or an equivalent course), and PHYS 1500 with passing grades and a total of 27 credit hours with a minimum 2.8 GPA prior to their Summer Design semester. Acceptance into the Professional Architecture Program (at the beginning of the second year of study) requires a grade of “SA” in ARCH 1010 and ARCH 1060 with a grade of C or better in ARCH 1020 and ARCH 1420. The Grade Adjustment Policy may not be used to progress to the Second Year Studio.

A student enrolled in the Foundation Unit must successfully pass ARCH 1000, ARCH 1010, and ARCH 1060 with a grade of “SA”. In addition, a Foundation Unit student must pass ARCH 1420 and ARCH 1020 with a C or higher while also completing MATH 1150 (or an equivalent course and PHYS 1500 with passing grades. Students that fail to successfully complete ARCH 1010 and ARCH 1060 in the fall semester, or students not accepted into the Second Year Studio sequence at the end of the spring semester, will not be readmitted to the Foundation Unit. These students may elect to participate in Summer Design as long as they meet the required eligibility requirements.

Transfer Students

Transfer students seeking admission into the Architecture Program must meet the transfer requirements set by Auburn University and should apply as a Pre-Architecture major. Summer Design is the pathway for transfer students to matriculate from the Pre-Architecture curriculum to the Professional Architecture curriculum. To be eligible for Summer Design, transfer students must meet the minimum criteria of eligibility for admission as previously defined. As Summer Design occurs over the summer term, students are advised to transfer to Auburn and be eligible to enroll in courses for the summer semester. To ensure eligibility and consideration for admission into Summer Design, it is recommended that students begin working with the College of Architecture, Design and Construction Student Services team in the August prior to (i.e. nine months before) attending the Summer Design Program.

Professional Program

In the event a grade of D or F is received in any required course in the major, a review is required for continuance in the program. Based on the outcome of this review, a student may be required to repeat the course or, in the case of design studios, the entire studio sequence for that respective year-level. Students receiving a second D when repeating a required course will be reviewed for continuance in the program. Similarly, a student receiving mostly grades of C or poorer may be reviewed for continuance in the program.

To proceed to the beginning sequence of design studio at third, fourth-, or fifth-year levels, the student must have completed all required prerequisite courses for that respective year-level, as indicated in the model curriculum.

Interior Architecture

Interior Architecture works across boundaries to integrate the design of objects, furniture, interiors, buildings and landscapes. The focus is understanding the built environment as a complex social landscape, particularly for the imaginative reuse of existing structures.

Students apply for admission to the Bachelor of Interior Architecture Program (ARIA) during their second year of the Professional Architecture Program. The school reserves the right to limit enrollment in Interior Design based on available resources.

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- Have completed their appropriate studio coursework.
- Maintain a minimum 3.0 GPA for conditional acceptance into the ARIA concurrent degree program.
- Students must maintain a minimum 3.0 GPA in their ARIA studio coursework to proceed into the ARIA Summer Thesis Semester between Fourth and Fifth Year.

ARIA students will initially participate in two ARIA-designated Third- and Fourth-Year Studios. At the end of five years with one summer of study, the ARIA student receives both the Bachelor of Interior Architecture and Bachelor of Architecture. Students are pursuing both degrees concurrently. It is not possible to earn the Bachelor of Interior Architecture alone at Auburn University

If a 3.0 studio GPA is not maintained, a review by the ARIA Admissions Board will be required to determine a student’s eligibility to continue in the program.

Architecture/Interior Architecture (Foundation Unit) (ARIA)

The curriculum in Architecture was established at Auburn University in 1907, making Auburn one of the first universities in the nation, and the first in the South, to offer Architecture as a major. Since then, the Architecture Program has enjoyed a strong reputation for the abilities of our graduates and the quality of our faculty. It is consistently ranked among the best in the country.

Admission to the Architecture Program is limited. Admission criteria can be found below the curriculum model.

Freshman

Fall	Hours	Spring	Hours
ARCH 1010 Introduction to Architecture Design	6	ARCH 1020 Introduction to Architecture Design II	6
ARCH 1000 Careers in Design and Construction	**1**	ARCH 1420 Introduction to Digital Media	3
ARCH 1060 Visual Communication	**2**	PHYS 1500 General Physics I	4
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1120/1130 or MATH 1150 or MATH 1610	4		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
ARCH 2010 Studio I[2]	**6**	**ARCH 2020 Studio II** [2]	**6**
ARCH 2110 History of World Architecture I	**3**	**ARCH 3110 History of World Architecture II**	**3**
ARCH 2210 Environmental Controls I	3	ARCH 4320 Materials and Methods of Construction II	3
ARCH 3320 Materials and Methods of Construction I	**3**	BSCI 2400 Structure of Buildings I	3
		To proceed to the beginning sequence of a design studio at third, fourth and fifth year levels, students must have completed all courses prior to that level or have the approval of the Academic Review Committee. [refer to the CADC Auburn University Bulletin entry]	
		Core Social Science	3
	15		**18**

Junior

Fall	Hours	Spring	Hours
ARIA 3020 Studio 4A Interior Architecture[2]	**6**	**ARCH 3020 Studio IV**[2]	**6**
Core Literature (Humanities)	3	ARCH Seminar (See advisor for approved ARCH seminars)	3
BSCI 3440 Structure of Buildings II	3	**ARCH 3410 Dessein Electives**	**3**

ARIA 2150 Elements of Interior Arch I	3	PHYS 1510 General Physics II	4
Abroad or Rural Studio - Optional by Application		Abroad or Rural Studio - Optional by Application	
	15		**16**

Senior

Fall	Hours	Spring	Hours	Summer	Hours
Core Fine Arts (Humanities)[1]	3	**ARCH 4500 Professional Practice**	**3**	**ARIA 4030 Interior Architecture Thesis[2]**	**6**
ARCH 4020 Studio VI	**6**	**ARCH 4010 Studio V**	**6**	**ARIA 4080 Interior Architecture Thesis Research**	**2**
ARCH 2220 Environmental Controls II	3	ARIA 2160 Elements of Interior Architecture II	3	**ARIA 4450 Interior Architecture Professional Practice**	**2**
ARCH 4110 History of Urban Architecture	3	Core Humanities	3	**ARIA 4680 History and Theory of Interior Architecture**	**3**
ARCH 3700 Seminar in History and Theory	3	ARCH Seminar (See advisor for approved ARCH seminars)	3		
	18		**18**		**13**

Fifth Year

Fall	Hours	Spring	Hours
ARCH 5010 Studio VII[2]	**6**	**ARCH 5020 Thesis Studio[2]**	**6**
ARCH 5990 Thesis Research	**3**	HIST 1020 World History II (Core Social Science)	3
Core Humanities (Philosophy)	3	Core Social Science	3
HIST 1010 World History I (Core Social Science)	3	UNIV 4AA0 Achieve the Creed	0
Urban Studio & Rural Studio, 1:1 Exchange Program-Optional by application		**Urban Studio & Rural Studio-1:1 Exchange Program Optional by Application - Optional by Application**	
	15		**12**

Total Hours: 172

1 Architecture students may not count ARCH 2600 for Core Fine Arts.
2 Professional Fee Charged

Process of enrolling as a Pre-Architecture Student

Incoming freshmen interested in pursuing the NAAB-accredited Bachelor of Architecture degree should apply for admission as Pre-Architecture (PARC) majors. If accepted by the university admissions office, students are eligible to enroll as Pre-Architecture students.

In order to matriculate from the Pre-Architecture Program (PARC) to the Professional Architecture Program (ARCH), students compete for seats through a placement pathway. There are two placement pathways an incoming freshmen student can participate in to compete for their spot in our Professional Architecture Program: the Summer Design Program or the Foundation Unit Program. Summer Design shifts the design studios to the summer between the freshman and sophomore years. The Foundation Unit begins the design studios in the first semester of freshmen year.

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Matriculation from Pre-Architecture to Professional Architecture Program

Enrollment in the second-year studios (as the start of the Professional Architecture Program/ARCH) is limited and eligibility for acceptance is based upon performance in courses in the first year of the curriculum as outlined below.

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A student enrolled in the Foundation Unit must successfully pass ARCH 1000, ARCH 1010, and ARCH 1060 with a grade of “SA”. In addition, a Foundation Unit student must pass ARCH 1420 and ARCH 1020 with a C or higher while also completing MATH 1150 (or an equivalent course and PHYS 1500 with passing grades. Students that fail to successfully complete ARCH 1010 and ARCH 1060 in the fall semester, or students not accepted into the Second Year Studio sequence at the end of the spring semester, will not be readmitted to the Foundation Unit. These students may elect to participate in Summer Design as long as they meet the required eligibility requirements.

Transfer Students

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Professional Program

In the event a grade of D or F is received in any required course in the major, a review is required for continuance in the program. Based on the outcome of this review, a student may be required to repeat the course or, in the case of design studios, the entire studio sequence for that respective year-level. Students receiving a second D when repeating a required course will be reviewed for continuance in the program. Similarly, a student receiving mostly grades of C or poorer may be reviewed for continuance in the program.

To proceed to the beginning sequence of design studio at third, fourth-, or fifth-year levels, the student must have completed all required prerequisite courses for that respective year-level, as indicated in the model curriculum.

Interior Architecture

Interior Architecture works across boundaries to integrate the design of objects, furniture, interiors, buildings and landscapes. The focus is understanding the built environment as a complex social landscape, particularly for the imaginative reuse of existing structures.

Students apply for admission to the Bachelor of Interior Architecture Program (ARIA) during their second year of the Professional Architecture Program. The school reserves the right to limit enrollment in Interior Design based on available resources.

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- Have completed their appropriate studio coursework.
- Maintain a minimum 3.0 GPA for conditional acceptance into the ARIA concurrent degree program.

- Students must maintain a minimum 3.0 GPA in their ARIA studio coursework to proceed into the ARIA Summer Thesis Semester between Fourth and Fifth Year.

ARIA students will initially participate in two ARIA-designated Third- and Fourth-Year Studios. At the end of five years with one summer of study, the ARIA student receives both the Bachelor of Interior Architecture and Bachelor of Architecture. Students are pursuing both degrees concurrently. It is not possible to earn the Bachelor of Interior Architecture alone at Auburn University

If a 3.0 studio GPA is not maintained, a review by the ARIA Admissions Board will be required to determine a student's eligibility to continue in the program.

Architecture/Interior Architecture (Summer Design) (ARIA)

The curriculum in Architecture was established at Auburn University in 1907, making Auburn one of the first universities in the nation, and the first in the South, to offer Architecture as a major. Since then, the Architecture Program has enjoyed a strong reputation for the abilities of our graduates and the quality of our faculty. It is consistently ranked among the best in the country.

Admission to the Architecture Program is limited. Admission criteria can be found below the curriculum model.

Freshman

Fall	Hours	Spring	Hours	Summer	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3	**ARCH 1020 Introduction to Architecture Design II**	**6**
HIST 1010 World History I (Core Social Science)	3	HIST 1020 World History II (Core Social Science)	3	ARCH 1010 Introduction to Architecture Design	6
MATH 1150 Pre-Calculus Algebra and Trigonometry[1]	4	PHYS 1500 General Physics I	4	**ARCH 1060 Visual Communication**	**2**
Core Fine Arts (Humanities) [3]	3	Core Social Science	3	**ARCH 1420 Introduction to Digital Media**	**3**
ARCH 1000 Careers in Design and Construction	**1**			To qualify for summer design, students must meet the following 5 criteria: a minimum of 27 credit hours of university credit, successful completion of ARCH 1000, MATH 1150 Pre-Cal Algebra & Trig OR MATH 1610 Calculus 1, and PHYS 1500 General Physics I (Trig. based) and a minimum 2.80 GPA. Students who meet all but the GPA requirement may be considered for acceptance to the Summer Design sequence if space is available in the program	
	14		**13**		**17**

Sophomore

Fall	Hours	Spring	Hours
ARCH 2210 Environmental Controls I	3	ARCH 2020 Studio II[2]	6
ARCH 2010 Studio I[2]	**6**	**ARCH 3110 History of World Architecture II**	**3**
ARCH 2110 History of World Architecture I	**3**	ARCH 4320 Materials and Methods of Construction II	3

ARCH 3320 Materials and Methods of Construction I	**3**	BSCI 2400 Structure of Buildings I	3
		To proceed to the beginning sequence of a design studio at third, fourth and fifth year levels, students must have completed all courses prior to that level or have the approval of the Academic Review Committee. [reference CADC Auburn University Bulletin entry]	
	15		**15**

Junior

Fall	Hours	Spring	Hours
Core Literature (Humanities)	3	ARCH Seminar (See Advisor for list of approved courses)	3
BSCI 3440 Structure of Buildings II	3	**ARCH 3020 Studio IV[2]**	**6**
ARIA 2150 Elements of Interior Arch I	**3**	ARCH 3410 Dessein Electives	3
ARIA 3020 Studio 4A Interior Architecture[2]	**6**	**Abroad & Rural Studio -- Optional**	
Urban & Rural Studio - Optional			
	15		**12**

Senior

Fall	Hours	Spring	Hours	Summer	Hours
ARCH 3700 Seminar in History and Theory	3	Core Humanities	3	**ARIA 4030 Interior Architecture Thesis[2]**	**6**
ARCH 2220 Environmental Controls II	3	**ARCH 4010 Studio V**	**6**	**ARIA 4080 Interior Architecture Thesis Research**	**2**
ARCH 4110 History of Urban Architecture	3	**ARCH 4500 Professional Practice**	**3**	**ARIA 4450 Interior Architecture Professional Practice**	**2**
ARCH 4020 Studio VI	**6**	**ARIA 2160 Elements of Interior Architecture II (ARCH Seminar (See Advisor for approved list of courses.))**	**3**	**ARIA 4680 History and Theory of Interior Architecture**	**3**
		ARCH Seminar (See Advisor for list of approved courses)	3		
	15		**18**		**13**

Fifth Year

Fall	Hours	Spring	Hours
PHYS 1510 General Physics II	4	Core Social Science	3
ARCH 5010 Studio VII[2]	**6**	**ARCH 5020 Thesis Studio[2]**	**6**
ARCH 5990 Thesis Research	**3**	Core Philosophy (Humanities)	3
Urban Studio & Rural Studio 1:1 Exchange Program - Optional, by application		UNIV 4AA0 Achieve the Creed	0

	Urban Studio & Rural Studio-Optional, by application. Spain/ New Zealand optional by application	
	13	**12**

Total Hours: 172

1 MATH 1120/1130 or MATH 1150 or MATH 1610.
2 Professional Fee Charged
3 Architecture students may not take ARCH 2600 as a fine art.

Process of enrolling as a Pre-Architecture Student

Incoming freshmen interested in pursuing the NAAB-accredited Bachelor of Architecture degree should apply for admission as Pre-Architecture (PARC) majors. If accepted by the university admissions office, students are eligible to enroll as Pre-Architecture students.

In order to matriculate from the Pre-Architecture Program (PARC) to the Professional Architecture Program (ARCH), students compete for seats through a placement pathway. There are two placement pathways an incoming freshmen student can participate in to compete for their spot in our Professional Architecture Program: the Summer Design Program or the Foundation Unit Program. Summer Design shifts the design studios to the summer between the freshman and sophomore years. The Foundation Unit begins the design studios in the first semester of freshmen year.

Enrollment in Foundation Unit or Summer Design curriculums is based on available resources as well as the student's preferred pathway as submitted per the timeline outlined below.

Approximately one week after the final round of regular decisions for freshman admissions are released by the university admissions office, all incoming freshmen accepted as Pre-Architecture majors will be mailed and emailed a letter detailing the two placement pathways: Summer Design and Foundation Unit. Included in this letter will be a link for students to submit their first and second preferences for placement pathways. Within the following 1-2 weeks, students will receive a response indicating their pathway placement. First preferences cannot be guaranteed, and placement is made on a first-come, first-served basis. Space is limited in Foundation Unit. Summer Design typically has space available for all eligible students. Students do not need to submit their enrollment deposit to provide preferences for either placement pathway.

Matriculation from Pre-Architecture to Professional Architecture Program

Enrollment in the second-year studios (as the start of the Professional Architecture Program/ARCH) is limited and eligibility for acceptance is based upon performance in courses in the first year of the curriculum as outlined below.

A student is eligible for Summer Design by completing ARCH 1000, MATH 1150 (or an equivalent course), and PHYS 1500 with passing grades and a total of 27 credit hours with a minimum 2.8 GPA prior to their Summer Design semester. Acceptance into the Professional Architecture Program (at the beginning of the second year of study) requires a grade of "SA" in ARCH 1010 and ARCH 1060 with a grade of C or better in ARCH 1020 and ARCH 1420. The Grade Adjustment Policy may not be used to progress to the Second Year Studio.

A student enrolled in the Foundation Unit must successfully pass ARCH 1000, ARCH 1010, and ARCH 1060 with a grade of "SA". In addition, a Foundation Unit student must pass ARCH 1420 and ARCH 1020 with a C or higher while also completing MATH 1150 (or an equivalent course and PHYS 1500 with passing grades. Students that fail to successfully complete ARCH 1010 and ARCH 1060 in the fall semester, or students not accepted into the Second Year Studio sequence at the end of the spring semester, will not be readmitted to the Foundation Unit. These students may elect to participate in Summer Design as long as they meet the required eligibility requirements.

Transfer Students

Transfer students seeking admission into the Architecture Program must meet the transfer requirements set by Auburn University and should apply as a Pre-Architecture major. Summer Design is the pathway for transfer students to matriculate from the Pre-Architecture curriculum to the Professional Architecture curriculum. To be eligible for Summer Design, transfer students must meet the minimum criteria of eligibility for admission as previously defined. As Summer Design occurs over the summer term, students are advised to transfer to Auburn and be eligible to enroll in courses for the summer semester. To ensure eligibility and consideration for admission

into Summer Design, it is recommended that students begin working with the College of Architecture, Design and Construction Student Services team in the August prior to (i.e. nine months before) attending the Summer Design Program.

Professional Program

In the event a grade of D or F is received in any required course in the major, a review is required for continuance in the program. Based on the outcome of this review, a student may be required to repeat the course or, in the case of design studios, the entire studio sequence for that respective year-level. Students receiving a second D when repeating a required course will be reviewed for continuance in the program. Similarly, a student receiving mostly grades of C or poorer may be reviewed for continuance in the program.

To proceed to the beginning sequence of design studio at third, fourth-, or fifth-year levels, the student must have completed all required prerequisite courses for that respective year-level, as indicated in the model curriculum.

Interior Architecture

Interior Architecture works across boundaries to integrate the design of objects, furniture, interiors, buildings and landscapes. The focus is understanding the built environment as a complex social landscape, particularly for the imaginative reuse of existing structures.

Students apply for admission to the Bachelor of Interior Architecture Program (ARIA) during their second year of the Professional Architecture Program. The school reserves the right to limit enrollment in Interior Design based on available resources.

Participation in the Interior Architecture (ARIA) Program is highly selective. Selection is based primarily on the ARIA faculty-comprised Admission Board's assessment of submitted application. The application consists of a students' statement of intent and three projects that demonstrate a high quality of design ability. Additionally, accepted students must:

- Have completed their appropriate studio coursework.
- Maintain a minimum 3.0 GPA for conditional acceptance into the ARIA concurrent degree program.
- Students must maintain a minimum 3.0 GPA in their ARIA studio coursework to proceed into the ARIA Summer Thesis Semester between Fourth and Fifth Year.

ARIA students will initially participate in two ARIA-designated Third- and Fourth-Year Studios. At the end of five years with one summer of study, the ARIA student receives both the Bachelor of Interior Architecture and Bachelor of Architecture. Students are pursuing both degrees concurrently. It is not possible to earn the Bachelor of Interior Architecture alone at Auburn University

If a 3.0 studio GPA is not maintained, a review by the ARIA Admissions Board will be required to determine a student's eligibility to continue in the program.

Environmental Design (ENVD)

Bachelor of Science in Environmental Design

The bachelor of science in environmental design is a flexible multi-disciplinary degree. It emphasizes the blend of sustainable practices from local and global context with comprehensive design and systems thinking. The degree content includes environmental design courses, directed electives (electives within CADC) and free electives. Students are encouraged to utilize the free electives to earn minor, and therefore customize their educational experience. Two summers of coursework are required for the environmental design workshop course series. While this degree is a good option for students who are interested in pursuing graduate studies in design, planning and construction related programs, it also enables students to seek employment opportunities in a variety of different fields upon graduation.

Students who pursue the environmental design degree will learn core knowledge of design and construction disciplines and business practices related to human-designed environments, including awareness of national and global perspectives. Exposure to national/global environmental design issues, focus on interdisciplinary concepts, hybrid practices, and sustainability are key aspects of the curriculum. A two part workshop course series allows students to focus on developing a general technical skill set for environmental design foundations. Digital media introduction, structure and fabrication techniques, design communication development are included. A capstone workshop requires students to initiate and complete a community engagement environmental design project using principles of collaboration, leadership and effectiveness training, hands-on experience, civic engagement and design communication skills. Minimum GPA for transfer students is 2.5.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
History Core I	3	History Core II	3
Directed Elective 1	3	Core Science I	4
Free Elective[2]	3	ENVD 2010 Introduction to Design and Design Methods	3
Core Math	3-4		
	15-16		**13**

Sophomore

Fall	Hours	Spring	Hours	Summer	Hours
Core Literature (Humanities)	3	Core Humanities (Philosophy)	3	**ENVD 2100 Environmental Design Workshop I[1]**	**6**
Core Science II	4	Directed Elective 2	3	Directed Elective 3	3
ENVD 2040 Design, Invention and Society *or* ARCH 2600 The Art of Architecture, Place, and Culture	**3**	Social Science	3		
Free Elective(s)[2]	6	**ENVD 2000 Environmental Design Concepts and Practices I**	**3**		
		Free Elective[2]	3		
	16		**15**		**9**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
Core Social Science	3	**ENVD 3100 Civic Engagement and Research Methods[1]**	**3**	**ENVD 4100 Environmental Design Workshop II - Capstone[1]**	**6**
ENVD 3000 Environmental Design Concepts and Practices II[1]	**3**	**ENVD 5030 Studies in Design Thinking and Entrepreneurship (Studies in Design Thiking and Praxis)**	**3**	Free Elective[2]	3
ENVD 4010 Elements of Design Thinking and Communication	**3**	ENVD 4970 Special Topics in Environmental Design	3		
ENVD 3200 Systems in Built Environment I	3	ENVD 3300 Systems in Built Environment II	3		
Free Elective[*]	3	ENVD 4500 Professional Practice	3		
	15		**15**		**9**

Senior

Fall	Hours
Core Humanities	3
Free Elective[2]	4
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Directed Elective 4	3

Directed Elective 5	3
	13

Total Hours: 120-121

1 Professional Fee Charged
2 Students are required to complete 10 credit hours of 1000-level free electives and 12 credit hours of 2000-level free electives.

Environmental Design Minor

15 semester hours required for minor

The ENVD minor allows students from design and non-design disciplines to enrich and broaden their education through the understanding and application of design and design thinking methods. In an increasingly complex and interconnected world, design and design thinking methods are becoming appropriated by businesses and different organizations as tools that help them with problem-solving in a creative and effective manner. Education in design and design thinking provides a framework for a quick and effective problem-solving embedded in understanding of human activities.

Students who acquire an ENVD minor will be able to demonstrate nimbleness and adaptability in the real world, the ability to approach issues from many different angles, and offer constructive and effective methods for human-centric problem-solving. These skills will enable them to offer a well-rounded, competitive portfolio, regardless of their major. The ENVD minor will enable them to be more competitive candidates for positions in both the public and the private sectors and in design professions as well as in other disciplines such as engineering, business, the sciences, education, and others.

Students will be able to:

- understand the social, cultural and economic forces that shape design proposals;
- engage in and understand a basic design process;
- develop the ability to engage in and create opportunities for inter-disciplinary collaborations;
- understand applicability and benefits of design thinking as a creative problem solving approach in non-design disciplines.

Students can enroll in classes and therefore start fulfilling requirements towards completion of ENVD minor. The Environmental Design Minor requires completion of 15 semester hours — this can be accomplished through two different options:

Option 1 (Recommended for students from non-design majors)

Code	Title	Hours
ENVD 2100	Environmental Design Workshop I	6
ENVD 4010	Elements of Design Thinking and Communication	3
ENVD 4970	Special Topics in Environmental Design	3
ENVD 5030	Studies in Design Thinking and Entrepreneurship	3
Total Hours		**15**

Option 2 (Recommended for students from design majors)

Code	Title	Hours
ENVD 2000	Environmental Design Concepts and Practices I	3
ENVD 2200	Readings in Landscape Architecture	3
or ENVD 2010	Introduction to Design and Design Methods	
ENVD 3000	Environmental Design Concepts and Practices II	3
ENVD 4010	Elements of Design Thinking and Communication	3
ENVD 5030	Studies in Design Thinking and Entrepreneurship	3
or ENVD 4970	Special Topics in Environmental Design	
Total Hours		**15**

Environmental Design — Pre-Landscape Architecture Track (ENVD)

First Year

Fall	Hours	Spring	Hours
Core Math	3-4	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Science	4
Core Science	4	Directed Elective [1]	3
ARCH 1000 Careers in Design and Construction	1	Core Fine Arts (Humanities)	3
	11-12		**13**

Second Year

Fall	Hours	Spring	Hours	Summer	Hours
Core Literature (Humanities)	3	HIST 1020 World History II ***or*** 1027 Honors World History II	3	ENVD 2100 Environmental Design Workshop I	6
HIST 1010 World History I ***or*** 1017 Honors World History I	3	Core Literature (Humanities)	3		
Directed Elective[1]	3	ENVD 2000 Environmental Design Concepts and Practices I	3		
Core Social Science	3	ENVD 2010 Introduction to Design and Design Methods	3		
ARCH 2600 The Art of Architecture, Place, and Culture	3	ENVD 2200 Readings in Landscape Architecture	3		
	15		**15**		**6**

Third Year

Fall	Hours	Spring	Hours	Summer	Hours
Philosophy Core	3	**ENVD 3100 Civic Engagement and Research Methods**	**3**	LAND 5030 Landscape Design Methods	3
ENVD 3000 Environmental Design Concepts and Practices II	**3**	ENVD 4970 Special Topics in Environmental Design	3	LAND 5040 Landscape Issues & Practices	3
ENVD 4010 Elements of Design Thinking and Communication	3	ENVD 5030 Studies in Design Thinking and Entrepreneurship	3	If a student successfully completes the Pre-Landscape Architecture summer program, then the student progresses into the remainder of the Pre-Land curriculum. Otherwise the student will return to the basic ENVD degree plan	
Directed Elective [1]	3	Social Science Core	3		
	12		**12**		**6**

Fourth Year

Fall	Hours	Spring	Hours
LAND 5130 Studio I: Foundation Studio	5	LAND 5230 Studio II	5
LAND 5131 Fieldwork I	1	LAND 5231 Fieldwork II	1
LAND 5140 History, Theory, and Practice I: Landscape Architecture and Contemporary Urbanism	3	LAND 5240 History, Theory, and Practice II: Landscape Architecture and Contemporary Culture	3

LAND 5150 Construction I: Landform & Hydrology	3	LAND 5250 Construction II: Materials & Detailing	3
LAND 5260 Graphic Studies III	3	LAND 5290 Graphic Studies II	3
		UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120-121

1 CADC DIRECTED ELECTIVES: ARCH 1000, ARCH 3700, INDD 1120, BSCI 1100, ARCH 2110, ARCH 3110, ARCH 3410, ARIA 2150, ARIA 2160

History of Architecture and the Built Environment Minor

Program Requirements and Description

The Minor in the History of Architecture and the Built Environment is composed of a series of established courses taught in the School of Architecture, Planning and Landscape Architecture (APLA); the Department of History; and the Department of Art & Art History. The Minor is mainly housed in APLA, with the Department of History and the Department of Art & Art History as primary partners. As a unique program to both the state and larger region, the Minor will offer students the opportunity to study the history of the built environment within a National Architectural Accrediting Board (NAAB) accredited School of Architecture.

The Minor requires a minimum of 15 credit hours above the core requirement. There are two paths for the Minor and both paths require at least 12 hours at the 3000-level or above. Students will be instructed to make an appointment with the department advisor to discuss or complete the Minor.

Code	Title	Hours
Path A is for students outside of APLA:		
ARCH 2110	History of World Architecture I	3
ARCH 3110	History of World Architecture II	3
ARCH 4110	History of Urban Architecture	3
ARTS or HIST 3000+ elective [1, 2]		3
ARCH 3000+ approved elective (e.g. ARCH 3700 Seminar in History & Theory or ARCH 4900)		3
Total Hours		**15**

Code	Title	Hours
Path B is for students within APLA's Bachelor of Architecture (B.Arch) program. Students within the B.Arch are already required to take ARCH 2110, ARCH 3110, ARCH 3120, ARCH 3700, and ARCH 4110. Therefore, the B.Arch students will need to complete the following courses to satisfy the requirements for the Minor:		
ARTS 2100	Foundations of Art History I	3
or ARTS 2150	Foundations of Art History II	
ARTS 3000+ elective [1]		3
HIST 3000+ elective [2]		3
CADC 3000, approved elective within Architecture, Landscape Architecture, or Building Science		3
ARCH 4900 Directed studies or similar integrative capstone project		3
Total Hours		**15**

1 Select from following ARTS courses: 3630, 3640, 3660, 3700-3740, or other approved course.

2 Select from following HIST courses: 3020 -3040, 3320-3370, 3520, 3540-3560,3610-3630, or other approved course.

All required hours for the Minor must be completed at Auburn.

Landscape Architecture (LAND)

Freshman

Fall	Hours	Spring	Hours
LAND 1110 Studio I[1]	**4**	**LAND 1210 Studio II**[1]	**4**
LAND 1160 Graphic Studies I	**2**	**LAND 1260 Graphic Studies II**	**2**
Math Core	3	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Social Science Core	3
Fine Arts Core	3	History Core I	3
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
LAND 2110 Plants and Construction Workshop I[1]	**5**	**LAND 2210 Plants and Construction Workshop II**[1]	**5**
LAND 2120 Fieldwork I	**1**	**LAND 2220 Fieldwork II**	**1**
LAND 2140 History, Theory, and Practice I	**3**	**LAND 2240 History, Theory, and Practice II**	**3**
History Core II	3	Literature Core	3
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
	16		**16**

Junior

Fall	Hours	Spring	Hours
LAND 3110 Studio III[1]	**5**	**LAND 3210 Studio IV**[1]	**5**
LAND 3120 Fieldwork III	**1**	**LAND 3220 Fieldwork IV**	**1**
LAND 3160 Dynamic Systems I	**3**	**LAND 4240 Professional Practice**	**3**
LAND Directed Elective[2]	**3**	Humanities Core	3
Social Science Core	3	Philosophy Core	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
LAND 4110 Studio V[1]	**5**	**LAND 4210 Studio VI**[1]	**5**
LAND 4120 Fieldwork V	**1**	**LAND 4220 Fieldwork VI**	**1**
LAND Directed Elective[2]	**3**	**LAND Directed Elective**[2]	**3**
LAND Directed Elective[2]	**3**	**LAND Directed Elective**[2]	**3**
LAND Directed Elective[2]	**3**	**LAND Directed Elective**[2]	**3**
		UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 122

1 Professional Fee Charged

2 Directed Electives within LAND (a minimum of 12 credit hours): LAND 4900, LAND 4410, LAND 4420, LAND 4430, LAND 4440, LAND 4450, LAND 4970, LAND 5150, LAND 5250, LAND 5260, LAND 5340, LAND 5380, LAND 5410, LAND 5940, LAND 6940
Approved Electives (a maximum of 9 credit hours): LAND 4900, LAND 4410, LAND 4420, LAND 4430, LAND 4440, LAND 4450,LAND 4970, LAND 5150, LAND 5250, LAND 5260, LAND 5340, LAND 5380, LAND 5410, LAND 5940, LAND 6940, ARCH 2110, ARCH 3110, ARCH 3120, ARCH 4110, GDES 3110, GDES 3120, GDES 3130, ARTS 3210, ARTS 3310, ARTS 3410,

ARTS 3520, ARTS 3110, ARTS 3420, ARTS 3820, FORY 3100, HIST 3550, HORT 2060, HORT 2240, HORT 3210, HORT 3220, HORT 5240, PHIL 1120.

Majors

Raymond J. Harbert College of Business

JENNIFER M. MUELLER-PHILLIPS, *Dean*
KEVIN YOST, *Associate Dean for Academic Affairs*
MICHAEL J. WESSON, *Associate Dean for Graduate & Executive Programs*
DUANE BRANDON, *Acting Associate Dean for Research & Faculty Affairs*

THE RAYMOND J. HARBERT COLLEGE OF BUSINESS prepares students to become effective and socially responsible managers of business, industrial organizations, and government agencies and responsible citizens and leaders of society. To achieve this goal, the Harbert College offers undergraduate programs leading to the bachelor of science in business administration. In addition, it offers graduate work for the degrees of master of business administration (MBA), master of science in finance, master of science in management information systems (MSIS), master of accountancy (MAc), and the doctor of philosophy (PhD) in business. The Harbert College of Business and the School of Accountancy are accredited at the undergraduate and graduate levels by the Association to Advance Collegiate Schools of Business (AACSB International). Detailed information on graduate programs may be found in the Graduate School section in this *Bulletin*.

Curriculum

The undergraduate curriculum includes a two-year Pre-Business curriculum required of all students and a two-year Major curriculum selected by the student. These two curricula provide a balanced course of study for all students, with approximately one-half of the hours in business courses and one-half in courses offered outside the college. The courses required have been selected so that all students will have access to the "common body of knowledge" as designated by the College's accrediting agency, AACSB International.

The Pre-Business curriculum, followed by all business students in their freshman and sophomore years, provides a sound foundation of work in the arts and sciences, including courses in mathematics, humanities, social sciences and natural sciences. This lower division curriculum also includes some of the introductory business courses. Students must satisfactorily complete specific portions of the pre-business curriculum prior to moving on to the major curriculum. See the Office of Academic Advising for details.

The Major curriculum allows each student to concentrate or major in an area of interest during the junior and senior years. Currently offered majors are listed at the bottom of this page.

Through these curricula, the Harbert College seeks to develop in its students the analytical, decision-making and communication skills required of managers who lead modern organizations.

Admission to the College

Students entering the pre-business curriculum directly from high school or another university, in addition to meeting Auburn University's admission requirements, should have competence in the mathematics taught in second year algebra.

Incoming freshmen and external transfer students are admitted directly to the Harbert College of Business. Current non-business students who are interested in transferring into the Harbert College should refer to the "Transfer Guide" on the College's advising web page.

Graduation Requirements

To graduate, business students must meet the hours and subject matter requirements of their curricula, must have an overall GPA of at least 2.0 on all courses attempted at Auburn University, must have an overall GPA of at least 2.0 in all courses required for the major, and must meet all other university requirements. At least 50 percent of the business credit hours required for the business degree must be taken at Auburn University.

Student Services

The Harbert College's **Office of Academic Advising** is responsible for orienting all new students to the college and for advising business students on their academic matriculation. Incoming freshmen in their first semester and students on academic warning are

required to meet with their academic advisor prior to registration to have their academic plan approved. All other students are strongly encouraged to meet with their academic advisor each semester as well.

The College's **Office of Professional and Career Development** is available to all business students for professional development and career guidance. Some of the services provided include career coaching, resume writing assistance, mentoring, mock interviews, and employer engagement.

Online Program

For details on the Online Business Administration Degree Completer Program, please visit https://harbert.auburn.edu/degrees-programs/undergraduate/online-programs/bsba-online-degree-completer/index.html (https://harbert.auburn.edu/degrees-programs/undergraduate/online-programs/bsba-online-degree-completer/)

Minors

For departmental minors, business courses must be at the 3000-level or above, with the exception of Aviation Management minor, and from an approved list.

- Accountancy (p. 373)
- Business (p. 409)
- Honors Business (p. 410)
- Business Analytics (p. 383)
- Business-Engineering-Technology (p. 384)
- Entrepreneurship and Family Business (p. 397)
- Finance (p. 390)
- Human Resource Management (p. 398)
- Information Assurance (p. 384)
- International Business (p. 390)
- Information Systems Management (p. 385)
- Marketing (p. 403)
- Organizational Leadership (p. 399)
- Professional Sales (p. 403)
- Real Estate Development (p. 390)
- Supply Chain Management (p. 408)

Undergraduate Certificates

- Certificate in Accountancy (p. 374)

Graduate Programs

- Accountancy — Graduate Certificate, MAcc (p. 1702)
- Business Administration — MBA, MS, PhD (p. 1564)
- Finance — MS, PhD (p. 1662)
- Management — PhD (p. 1567)
- Supply Chain Management — Graduate Certificate, MS, PhD (p. 1787)
- Business Analytics and Information Systems — Graduate Certificate, MS, PhD (p. 1790)
  - Business Analytics — Graduate Certificate (p. 1567)
  - Information Systems Management — MS (On-Campus/Online) (p. 1791)
  - Information Systems Management — PhD (p. 1791)
  - Management Information Systems — Graduate Certificate (p. 1702)

Accounting Courses

ACCT 2110 PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3. Basic accounting principles with focus on preparation and use of financial statements. Credit will not be given for both ACCT 2110 and ACCT 2810. Sophomore standing.

ACCT 2117 HONORS PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3. Pr. Honors College. Basic accounting principles with focus on preparation and use of financial statements. Sophomore standing.

ACCT 2210 PRINCIPLES OF MANAGERIAL ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. Emphasis on cost accounting, budgeting, and decision making using managerial accounting information. Sophomore standing.

ACCT 2700 BUSINESS LAW (3) LEC. 3. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2707 HONORS BUSINESS LAW (3) LEC. 3. Pr. Honors College. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2810 FUNDAMENTALS OF ACCOUNTING (3) LEC. 3. Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and ACCT 2810.

ACCT 2817 HONORS FUNDAMENTALS OF ACCOUNTING (3) LEC. 3. Pr. Honors College. Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and ACCT 2810.

ACCT 3210 ACCOUNTING FOR DECISION MAKING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Junior standing applies to ACCT 3210. ACCT 3210 is limited to students in the BSBA Online completer program.

ACCT 3310 BUSINESS PROCESSES AND INTERNAL CONTROLS (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment. Limited to students in the BSBA Online completer program. Credit will not be given for both ACCT 3310 and ACCT 3520.

ACCT 3810 PROFESSIONAL DEVELOPMENT IN ACCOUNTANCY (1) LEC. 1. SU. Pr. (P/C ACCT 3110 or P/C ACCT 3113 or P/C ACCT 5110) and P/C BUSI 2010. Career planning and preparation for transition from university student to accounting professional.

ACCT 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Advanced individual research and study in accounting under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

ACCT 4920 ACCOUNTING INTERNSHIP (1-6) DSL/LEC. SU. Internship opportunity with an accounting firm, corporation, or governmental entity. Course may be repeated for a maximum of 6 credit hours.

ACCT 5110 INTERMEDIATE ACCOUNTING I (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. Accounting principles and theory including accounting for current assets, liabilities, and investments. Junior standing applies to ACCT 5110. ACCT 5113 is limited to students accepted to online accounting program.

ACCT 5120 INTERMEDIATE ACCOUNTING II (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110. Grade of C or better. Continuation of ACCT 5110, with emphasis on fixed assets, capital structure, and cash flows. Junior standing applies to ACCT 5120. ACCT 5123 is limited to students accepted to online accounting program.

ACCT 5130 ADVANCED ACCOUNTING TOPICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics.

ACCT 5140 SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. A study of current issues in accounting theory and practice. Topics include regulations and economic and technological developments.

ACCT 5150 CURRENT ISSUES IN ACCOUNTING (3) LEC. 3. Pr. P/C ACCT 5110. Departmental approval. Examination of current issues in the accounting profession.

ACCT 5210 COST ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Junior standing applies to ACCT 5210.

ACCT 5300 AUDITING & ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 3110 or ACCT 5110. Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports.

ACCT 5410 INCOME TAX I (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110. Principles of federal taxation as it applies to individuals and property transactions.

ACCT 5420 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413 or ACCT 5410. Tax accounting for individuals, partnerships, corporations, estates, and trusts. Extensive use of a tax-service program. ACCT 5423 is limited to students accepted to online accounting program.

ACCT 5510 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3. Pr. P/C ACCT 3110 or P/C ACCT 3113 or P/C ACCT 5110. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment.

ACCT 5520 ACCOUNTING ANALYTICS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110) and (CTCT 3250 or CTCT 3253) and (P/C ACCT 3520 or P/C ACCT 3523 or P/C ACCT 5510). Students will learn to analyze data and solve accounting based problems using advanced spreadsheet techniques, database management systems and other analysis tools.

ACCT 5610 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. Accounting for governmental and not-for-profit entities. Focus on effective use of resources.

ACCT 5620 ISSUES IN INTERNATIONAL ACCOUNTING (3) LEC. 3. Pr. P/C ACCT 5110. Departmental approval. Accounting issues concerning international business activity.

ACCT 5700 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments. ACCT 5703 is limited to students accepted to online accounting program.

ACCT 5810 CORPORATE GOVERNANCE & ACCOUNTING ETHICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. Analyzing the impact of corporate governance and accounting ethics on business transactions.

ACCT 6110 INTERMEDIATE ACCOUNTING I (3) LEC. 3. Accounting principles and theory including accounting for current assets, liabilities, and investments.

ACCT 6120 INTERMEDIATE ACCOUNTING II (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110 or ACCT 6116. Continuation of ACCT 6110/6116, with emphasis on fixed assets, capital structure, and cash flows.

ACCT 6130 ADVANCED ACCOUNTING TOPICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120 or ACCT 6126. Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics.

ACCT 6150 CURRENT ISSUES IN ACCOUNTING (3) LEC. 3. Pr. ACCT 5110. Departmental approval. Examination of current issues in the accounting profession.

ACCT 6210 COST ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making.

ACCT 6300 AUDITING & ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 3110 or ACCT 5110 or ACCT 6110. Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports.

ACCT 6410 INCOME TAX I (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110 or ACCT 6116. Principles of federal taxation as it applies to individuals and property transactions.

ACCT 6420 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413 or ACCT 5410 or ACCT 6410 or ACCT 6416. Tax accounting for individuals, partnerships, corporations, estates and trusts. Extensive use of a tax-service program.

ACCT 6510 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110 or P/C ACCT 6110 or P/C ACCT 6116. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment.

ACCT 6520 ACCOUNTING ANALYTICS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110 or ACCT 6116) and (ACCT 3520 or ACCT 3523 or ACCT 5510 or ACCT 5513 or ACCT 6510 or ACCT 6516). Students will learn to analyze data and solve accounting based problems using advanced spreadsheet techniques, database management systems and other analysis tools.

ACCT 6610 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120. Accounting for governmental and not-for-profit entities. Focus on effective use of resources.

ACCT 6620 ISSUES IN INTERNATIONAL ACCOUNTING (3) LEC. 3. Pr. ACCT 5110. Departmental approval. Accounting issues concerning international business activity.

ACCT 6700 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments.

ACCT 6810 CORPORATE GOVERNANCE & ACCOUNTING ETHICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120 or ACCT 6126. Analyzing the impact of corporate governance and accounting ethics on business transactions.

ACCT 7110 RESEARCH IN ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120. Departmental approval. An evaluation, critique, and application of financial accounting theory to current reporting problems using current research tools and resources.

ACCT 7130 FINANCIAL ANALYSIS & VALUATION (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120. Financial analysis to support managerial, investor, and creditor decision-making, forecasting financial statements and earnings, and applying valuation models to accounting measurement and investment decisions.

ACCT 7210 ACCOUNTING FOR DECISION MAKING AND CONTROL (3) LEC. 3. Pr. ACCT 3210 or ACCT 3213 or ACCT 5210 or ACCT 5213 or ACCT 6210 or ACCT 6216. Departmental approval. Relationship between management accounting and information systems and analysis of costs.

ACCT 7300 ADVANCED AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313 or ACCT 5300 or ACCT 5303 or ACCT 6300 or ACCT 6306. Advanced topics in auditing and assurance services.

ACCT 7320 FRAUD EXAMINATION (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313 or ACCT 5300 or ACCT 5303 or ACCT 6300 or ACCT 6306. Learning how and why occupational fraud is committed and how fraudulent conduct is deterred, investigated, and resolved.

ACCT 7410 FEDERAL TAX RESEARCH (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or P/C ACCT 6420 or ACCT 6426. Departmental approval. Sources of authority used in federal tax research and survey of tax policy issues.

ACCT 7420 CORPORATE AND PARTNERSHIP TAXATION (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426. Tax issues involving corporations and partnership.

ACCT 7510 INTEGRATED ACCOUNTING APPLICATIONS (3) LEC. 3. Pr. ACCT 3530 or ACCT 3533 or ACCT 5520 or ACCT 5523 or ACCT 6520 or ACCT 6526. Design and analysis of accounting information systems and relational databases.

ACCT 7520 ENTERPRISE ACCOUNTING SYSTEMS (3) LEC. 3. Departmental approval. Design, analysis and use of Enterprise accounting systems.

ACCT 7710 PROFESSIONAL DEVELOPMENT (0) IND. Professional development topics and events for Master of Accountancy students. Course may be repeated for a maximum of 10 credit hours.

ACCT 7970 ADVANCED SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Departmental approval. Industry issues in accounting.

Business Admin Courses

BUSI 1010 PROFESSIONAL AND CAREER DEVELOPMENT IN BUSINESS I (1) LEC. 1. Introduction to career readiness including exploration and discovery of career interests and values, with an emphasis on personal and professional development opportunities that enhance career preparedness.

BUSI 1040 FINANCIAL WELLNESS (3) LEC. 3. This course gives students an understanding of relevant personal finance topics and the tools needed to plan and execute their financial goals. The course covers topics currently relevant to college students as well as those that will have long-term implications for careers and retirement. The course is designed to be accessible and relevant to all students regardless of major.

BUSI 2010 PROFESSIONAL AND CAREER DEVELOPMENT IN BUSINESS II (1) LEC. 1. Articulation and creation of personal branding through learning job search essentials including resumes, cover letters, social media, interviewing, networking, and internships.

BUSI 2100 ORAL COMMUNICATION FOR BUSINESS (1) LEC. 1. Theories and techniques of strong oral communication skills, with real-world applications for business.

BUSI 2900 DIRECTED STUDIES (1-3) AAB/IND. SU. Independent study option for freshmen and sophomores in the College of Business for students who seek general or free elective credit. Course may be repeated for a maximum of 3 credit hours.

BUSI 3010 PROFESSIONAL DEVELOPMENT IN BUSINESS III (1) LEC. 1. Pr. P/C BUSI 2010. Preparation for conducting an intern/career position job search. Develop career planning and job search skills.

BUSI 3250 INTERNATIONAL BUSINESS (3) LEC. 3. Beginning with a foundation in the movement of goods, services, people, money, technology, and information across borders students will learn how culture, social issues, economic, regulatory, legal and political factors impact businesses and consumers alike. A running theme will be the diversity of environments and people that impact international business.

BUSI 3257 INTERNATIONAL BUSINESS (3) DSL/LEC. Beginning with a foundation in the movement of goods, services, people, money, technology, and information across borders students will learn how culture, social issues, economic, regulatory, legal and political factors impact businesses and consumers alike. A running theme will be the diversity of environments and people that impact international business.

BUSI 3500 LEADERSHIP IN ENGINEERING & BUSINESS THEORY (4) LEC. 3. LAB. 3. This class investigates the challenges of integrating engineering design with business requirements as they related to product innovation. Specific focus is placed on strategic planning and leadership needs to successfully steer product ideas into business reality. Case study problems from business and engineering practice.

BUSI 3510 PRODUCT INNOVATION: FROM CONCEPT TO PRODUCTION (4) LEC. 3. LAB. 2.33. Pr. BUSI 3500 and BUSI 3520 and BUSI 3560. This course takes students on a journey from conceptualization (concept) to production to market (production). Students are introduced to the basics of modern computer-aided design (CAD), classic manufacturing processes, and design tools. They will learn how to use Fusion 360 to create 2D and 3D models, as well as how to use CAD to generate concepts, conduct market research, benchmark designs, and create prototypes. Students will also learn about classic manufacturing processes such as casting. Department approval.

BUSI 3560 LEADERSHIP FOR BUSINESS AND ENGINEERS (1) LEC. 1. Overview of leadership concepts and skills.

BUSI 4010 PROFESSIONAL AND CAREER DEVELOPMENT IN BUSINESS IV (1) LEC. 1. Execution of career readiness concepts, integrating ethical leadership and decision making in order to assist in the transition from the classroom to the workforce.

BUSI 4920 BUSINESS INTERNSHIP (1-3) AAB/INT. SU. Internship option for students to gain work experience who seek general or free elective credit. Approval of instructor prior to internship, and completion of or current enrollment in two or more of the following: ACCT 2110, ECON 2020, ECON 2030, FINC 3610, MNGT 3100, or MKTG 3310. Course may be repeated for a maximum of 3 credit hours.

BUSI 4970 SPECIAL TOPICS IN BUSINESS (3) LEC. 3. Coreq. BUSI 4540. A special topics course to encompass a variety of interdisciplinary business topics. Course may be repeated for a maximum of 6 credit hours.

BUSI 5500 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. (BUSI 3500 or BUSI 3520) and BUSI 3560 and BUSI 3510. Acceptance into the BET minor program. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products and processes that influence the competitiveness of the firm. Department approval.

BUSI 5510 BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 6. Pr. (BUSI 3500 or BUSI 3520) and BUSI 3560 and BUSI 3510 or BUSI 5500 or ENGR 6500. Department approval. Must be admitted to BET minor. You will be required to apply everything you've learned in the Business Engineering Technology minor to deliver a “fully realized” working product along with supporting project documentation.

BUSI 5550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Must be enrolled in BET minor. Processes to develop and present design proposal for cooperating industry.

BUSI 5600 INTERNATIONAL ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. BUSI 3500 or BUSI 3520 and BUSI 3560 and BUSI 3510. Department approval. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products, and processes that influence the firm's competitiveness. The main emphasis of this course will be on the process of commercializing an innovation - bringing the innovation to market via the creation of a company. Must be enrolled in the Business-Engineering-Technology minor and participating in the International BET.

BUSI 5610 INTERNATIONAL BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 4. Pr. (BUSI 3500 or BUSI 3520) and BUSI 3560 and BUSI 3510 and BUSI 5600 or ENGR 6600. Department approval. Must be admitted to International BET minor. This course is intended to immerse the student in the new product design and development experience. Students will work directly with international companies and fellow international students to generate working prototypes that offer solutions. Students are expected to develop a successful new product development plan and execute all necessary activities to bring a functional prototype to life by semester's end. Specific focus is placed on creative product ideas.

BUSI 7110 FINANCIAL ANALYSIS (3) LEC. 3. Departmental approval. Integrated course combining financial accounting and corporate finance for MBA students.

BUSI 7120 QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS (3) LEC. 3. Departmental approval. Integrated course in statistical methods and management science for MBA students.

BUSI 7130 STRATEGIC ANALYSIS AND THE COMPETITIVE ENVIRONMENT (3) LEC. 3. Departmental approval. Integrated course covering business strategy and the external environment in a global context.

BUSI 7140 ORGANIZATIONAL LEADERSHIP, ETHICS AND CHANGE (3) LEC. 3. Integrated course covering individual and group behavior in organizations, effective team building, motivation, and communications, ethical behavior, and leading organizations through change. May count either BUSI 7140 or BUSI 7146.

BUSI 7150 OPERATIONAL EXCELLENCE THROUGH SUPPLY CHAIN AND QUALITY MANAGEMENT (3) LEC. 3. An examination of the strategic roles of supply chain and quality management in the creation of outstanding product and service operations. Departmental approval. May count either BUSI 7150 or BUSI 7156.

BUSI 7160 ADVANCED PROFESSIONAL DEVELOPMENT (1) LEC. 1. This course prepares students for career success by focusing on self-assessment, industry/job/company research, personal brand identification, resumes and cover letters, interviewing, career and company research, presentation skills, and benefits and negotiation. Course may be repeated for a maximum of 3 credit hours.

BUSI 7210 STRATEGIC MARKETING MANAGEMENT (3) LEC. 3. Departmental approval. Covers key aspects of marketing, including product, pricing, distribution, and promotion strategies. Emphasis is placed on marketing analysis and strategy development.

BUSI 7220 INFORMATION TECHNOLOGY FOR COMPETITIVE ADVANTAGE (3) LEC. 3. Examines the strategic role information technology plays in influencing competitive advantage. Departmental approval. May count either BUSI 7220 or BUSI 7226.

BUSI 7230 COST ANALYSIS AND SYSTEMS (3) LEC. 3. Departmental approval. Integrates production and cost theory from economics with managerial and cost accounting theory and systems for MBA

BUSI 7250 INTERNATIONAL BUSINESS OPERATIONS (3) AAB. Departmental approval. Examines the economic, financial, legal, political, social, and cultural factors impacting international business operations. Participation in a specified global experience is a requirement of this course.

BUSI 7310 INTEGRATED BUSINESS PROJECT AND CASE ANALYSIS (3) LEC. 3. Integrates knowledge gained from MBA classes and applies that knowledge to address actual business problems. May count either BUSI 7310 or BUSI 7316.

BUSI 7920 MBA INTERNSHIP (0-6) DSL. SU. Departmental approval. Internship for MBA students in business organizations. Course may be repeated for a maximum of 6 credit hours.

BUSI 7970 SPECIAL TOPICS IN BUSINESS ADMINISTRATION (1-3) AAB. Departmental approval. Specialized topics in business administration not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

Business Analytics Courses

BUAL 2600 BUSINESS ANALYTICS I (3) LEC. 3. Pr. (MATH 1610 or MATH 1617 or MATH 1680 or MATH 1683). Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results.

BUAL 2650 BUSINESS ANALYTICS II (3) LEC. 3. Pr. BUAL 2600 or STAT 2610 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 3010 or STAT 2513. A second course in quantitative analysis in business including statistical inference, classification analysis, predictive modeling, forecasting, introduction to data mining.

BUAL 3010 PROFESSIONAL DEVELOPMENT IN BUSINESS ANALYTICS (1) LEC. 1. SU. Pr. P/C BUAL 2650. Career planning and preparation for employment as an analytics professional.

BUAL 3100 INTRODUCTION TO ARTIFICIAL INTELLIGENCE (3) LEC. 3. Pr. BUAL 2600. This course introduces business students to the foundational concepts of Artificial Intelligence (AI) and its applications in business environments. It focuses on how AI technologies like machine learning, natural language processing, and data analytics drive innovation and enhance decision-making. Students will explore real-world business applications of AI, covering topics such as automation, predictive analytics, customer service, and AI-driven strategy. The course is designed to

BUAL 4910 PRACTICUM (1-3) PRA. SU. Supervised practical application of business analytics theory and methods. Course may be repeated for a maximum of 3 credit hours.

BUAL 4920 BUSINESS ANALYTICS INTERNSHIP (1-3) INT. SU. Pr. BUAL 3010. The internship program represents an opportunity for students to be exposed to analytics environments first-hand and to integrate this experience with their formal education. The practical nature of the internship facilitates the educational process and provides valuable work experience. Departmental approval required. Course may be repeated for a maximum of 3 credit hours.

BUAL 5500 BUSINESS DATA MANAGEMENT AND ACQUISITION (3) LEC. 3. Pr. BUAL 2600 and P/C BUAL 3010. Management and governance of the big data environment that is necessary to support extracting, merging, and preparing large data sets for analysis.

BUAL 5600 PRINCIPLES OF PREDICTIVE MODELING (3) DSL/LEC. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

BUAL 5610 PREDICTIVE MODELING FOR BUSINESS DECISIONS (3) DSL/LEC. Pr. BUAL 2650 and (BUAL 5500 or BUAL 5650). Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. Credit will not be given for both BUAL 5610 and BUAL 6610/6616.

BUAL 5660 DESCRIPTIVE ANALYTICS FOR BUSINESS DECISIONS (3) LEC. 3. Pr. BUAL 5500 or BUAL 5650. Advanced topics in big data management, with emphasis on various technical environments used in the big data environment. Credit will not be given for both BUAL 5660 and BUAL 6660/6666.

BUAL 5700 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650. Advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6706.

BUAL 5710 ADVANCED DATA AND TEXT ANALYTICS (3) LEC. 3. Pr. (BUAL 5700 or BUAL 6700 or BUAL 6706) and (P/C BUAL 5660 or P/C BUAL 6660 or P/C BUAL 6666). This course covers advanced approaches used for writing crawlers and spiders, text analytics, sentiment analysis, social media analytics, network analytics, and deep learning for solving business and organizational problems. The course provides conceptual and hand-on understanding of such state-of-art analytics approaches using various python libraries. Knowledge of python programming is necessary to do well in the course.

BUAL 5800 DATA VISUALIZATION (3) LEC. 3. Pr. BUAL 2650. The course will focus on learning the challenges of big data and how effectively utilizing data visualization techniques can help with decision-making. The course will cover the principles of effective visualization designs as well as get hands-on experience with developing dashboards and presenting analysis in other visual formats.

BUAL 5850 FOUNDATIONS OF SPORTS ANALYTICS (3) LEC. 3. Pr. BUAL 2650. This course provides an introduction to analyzing and representing sports data. Students will learn how to develop narratives about team and player performance. Students will also learn various techniques that are suitable for analyzing sports data. Examples will be used from various sports to generate results that can explain outcomes.

BUAL 5860 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 5610 and BUAL 5660. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 5900 DIRECTED STUDIES (1-3) IND. SU. Faculty led individualized or group-oriented in-depth study of a topic in business analytics. May include literary research, algorithm development, programming, data analysis, or a combination of these. Course may be repeated for a maximum of 6 credit hours.

BUAL 5960 SPECIAL PROBLEMS (3) DSL. This course may be either a self-learning course or a lecture course designed to enhance the student's knowledge of a selected topic. If self-learning, the course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the course objectives. Course may be repeated for a maximum of 6 credit hours.

BUAL 6600 PRINCIPLES OF PREDICTIVE MODELING (3) DSL/LEC. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

BUAL 6610 PREDICTIVE MODELING FOR BUSINESS DECISIONS (3) DSL/LEC. Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. Credit will not be given for both BUAL 5610 and BUAL 6610/6616.

BUAL 6650 BUSINESS DATA MANAGEMENT AND ACQUISITION (3) LEC. 3. Managing, governing, extracting, merging, and preparing large data sets for analysis.

BUAL 6660 DESCRIPTIVE ANALYTICS FOR BUSINESS DECISIONS (3) LEC. 3. Advanced topics in big data management, with emphasis on loading and cleansing the data for analysis. May count either BUAL 5660 or BUAL 6660/6666.

BUAL 6700 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650 or ISMN 6650 or ISMN 6656. This course covers advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6.

BUAL 6710 ADVANCED DATA AND TEXT ANALYTICS (3) LEC. 3. Pr. (BUAL 5700 or BUAL 6700 or BUAL 6706) and (P/C BUAL 5660 or P/C BUAL 6660 or P/C BUAL 6666). This course covers advanced approaches used for writing crawlers and spiders, text analytics, sentiment analysis, social media analytics, network analytics, and deep learning for solving business and organizational problems. The course provides conceptual and hand-on understanding of such state-of-art analytics approaches using various python libraries. Knowledge of python programming is necessary to do well in the course.

BUAL 6800 DATA VISUALIZATION (3) DSL. This course is designed as a graduate level class in which graduate students will learn the various elements and techniques of data visualization. The focus of the course will be to learn the challenges of big data and how effective utilization of data visualization techniques can help with decision making. Course will cover the principles of effective visualization designs as well as get hands on experience with developing dashboards and present analysis in other visual formats.

BUAL 6850 FOUNDATIONS OF SPORTS ANALYTICS (3) DSL/LEC. This course provides an introduction to analyzing and representing sports data. Students will learn how to develop narratives about team and player performance. Students will also learn various techniques that are suitable for analyzing sports data. Examples will be used from various sports to generate results that can explain outcomes.

BUAL 6860 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 6610 or BUAL 6616. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 6900 DIRECTED STUDIES (3) IND. 3. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

BUAL 6960 SPECIAL PROBLEMS (3) IND/LEC. 3. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

BUAL 7000 INTRODUCTION TO ARTIFICIAL INTELLIGENCE (3) DSL/LEC. This course introduces business students to the foundational concepts of Artificial Intelligence (AI) and its applications in business environments. It focuses on how AI technologies like machine learning, natural language processing, and data analytics drive innovation and enhance decision-making. Students will explore real-world business applications of AI, covering topics such as automation, predictive analytics, customer service, and AI-driven strategy. The course is designed to help students understand practical AI applications

Entrepreneurship Family Bus Courses

ENFB 3140 ESSENTIALS OF ENTREPRENEURSHIP (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2030 or ECON 2033 or ECON 2037. The application of basic business principles to the entrepreneurial environment.

ENFB 4160 FAMILY BUSINESS MANAGEMENT (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of aspects of managing an established family business, on a day-to-day basis, and of planning for succession to the next generation.

ENFB 4170 MANAGING ENTREPRENEURIAL START-UPS (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of aspects of managing and marketing concepts and processes that can be utilized to launch new ventures or a new division within an existing business.

ENFB 4180 GROWTH STRATEGIES FOR EMERGING COMPANIES (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of the important aspects of starting and managing a franchise business.

ENFB 4190 NEW VENTURE CREATION (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Analysis of industrial, competitive, market and financial aspects of starting a business.

ENFB 4200 BUSINESS PLAN FOR THE NEW VENTURE (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Application of business principles to a practical, hands-on project.

ENFB 4210 CORPORATE VENTURING-ENTREPRENEURS IN ORGANIZATIONS (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of the entrepreneurial process as it applies to the operations of a department or functional area within an established organization.

ENFB 4220 DIGITAL ENTREPRENEURSHIP AND EMERGING TECHNOLOGIES (3) LEC. 3. Pr. ENFB 3140. Examines how digitalization and emerging technologies impact entrepreneurship and innovation by changing the functional areas of business including marketing, management, finance, and supply chain management.

ENFB 4920 INTERNSHIP (1-6) INT. Pr. 2.50 GPA. Departmental approval. Approval by departmental internship program committee. Course may be repeated for a maximum of 6 credit hours.

ENFB 4950 SEMINAR IN ENTREPRENEURSHIP AND FAMILY BUSINESS (3) LEC. 3. This seminar covers emerging issues in entrepreneurship. Prequisite: ENFB 3140 or Departmental Approval. Course may be repeated for a maximum of 6 credit hours.

ENFB 4970 SPECIAL TOPICS IN ENTREPRENEURSHIP & FAMILY BUSINESS (3) LEC. 3. Pr. ENFB 3140 or Departmental approval. This course covers current topics in entrepreneurship and family business. Course may be repeated for a maximum of 6 credit hours.

ENFB 5900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

ENFB 5960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

ENFB 6900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

ENFB 6960 SPECIAL PROBLEMS (3) DSL/IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

Finance Courses

FINC 2400 PERSONAL FINANCE (3) LEC. 3. Plans for managing personal financing problems involving insurance, housing, household budgeting, investments, personal and bank loans, personal credit and time value of money.

FINC 3010 PROFESSIONAL DEVELOPMENT IN FINANCE (1) LEC. 1. SU. Pr. (P/C FINC 3610 or FINC 3613 or FINC 3617) and P/C BUSI 2010. Career planning and preparation for employment in the finance industry.

FINC 3100 FUNDAMENTALS OF GLOBAL TRADE (3) LEC. 3. COB academic standards. Export management skills, including basic global supply chain management and trade finance. Junior standing.

FINC 3200 RISK AND INSURANCE (3) LEC. 3. Essentials of risk management, with emphasis on the use of insurance, including the characteristics of property, liability, life and health insurance. Junior standing.

FINC 3250 PRINCIPLES OF REAL ESTATE (3) LEC. 3. Fundamental principles and practices as applied to the purchase, sale and lease and management of real estate. Junior standing.

FINC 3270 SUSTAINABLE REAL ESTATE (3) LEC. 3. Pr. FINC 3250. Everyone's story is rooted in real estate: the ways we fund, plan, build, use, and exchange real property have informed our past and will dictate our future. This course surveys the wide variety of topics that intersect to maximize sustainable development projects, including investment analysis, green building, and project certifications. Through lectures, case studies and simulations, you will learn how people, property and capital interact to help shape the evolving real estate industry.

FINC 3610 PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117 or ACCT 2810 or ACCT 3110 or ACCT 3113 or ACCT 2813. Corporate finance from the perspective of a financial manager. Topics include time value of money, valuation, and capital budgeting. May count either FINC 3610 or FINC 3810.

FINC 3617 HONORS PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. Honors College. ACCT 2117. Corporate finance from the perspective of a financial manager. Topics include financial planning and forecasting cash budgeting, capital budgeting, basic valuation, dividends. Fall, Spring. Junior standing.

FINC 3620 SMALL BUSINESS FINANCE (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Financial control, financial forecasting, working capital and sources of financing in a small and closely-held business environment.

FINC 3630 ADVANCED BUSINESS FINANCE (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3610). C or better in FINC 3610. In-depth analysis of financial concepts including valuation capital budgeting, cost of capital, leasing, financial analysis, and capital structure.

FINC 3640 INVESTMENTS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Types of investment security markets, investment instruments, concepts and strategies for institutional and individual investors.

FINC 3700 FINANCIAL MARKETS INSTITUTIONS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Overview of the financial system, organization and regulation of financial markets and institutions, the behavior and structure of interest rates.

FINC 3750 FINANCIAL MODELING (3) LEC. 3. Pr. P/C FINC 3630 and P/C FINC 3640. Application of financial management and investments concepts through Excel modeling. Topics include capital budgeting, capital asset pricing, cost of capital, stock and bond valuation. Advanced topics include DCF modeling, portfolio optimization and VBA.

FINC 3810 FOUNDATIONS OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2810 or ACCT 2813 or ACCT 2110 or ACCT 2117. Foundations of Business Finance is a broad based introductory course that will focus on finance functions and applications of finance principles. This course is not open to undergraduates majoring in business. Junior standing. May count either FINC 3610 or FINC 3810.

FINC 4210 PROPERTY AND LIABILITY INSURANCE (3) LEC. 3. Pr. FINC 3200. Commercial risks and the insurance contracts used to address these risks.

FINC 4410 FIXED INCOME (3) LEC. 3. Pr. FINC 3640. Overview of fixed income characteristics, markets, and trading. Topics include Treasuries, yield curves, corporate bond analysis, asset-backed securities, municipal bonds, preferred stock, money market instruments, measuring interest rate risk with duration and convexity, and bond portfolio management.

FINC 4630 FINANCIAL STRATEGY (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110) and (FINC 3630 or FINC 3633). The advanced application of corporate finance through case analysis, company analysis, and current topics.

FINC 4650 FINANCIAL STATEMENT ANALYSIS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Evaluation and assessment of financial condition, performance, and reporting strategies of firms using relevant financial and market information.

FINC 4660 SECURITY ANALYSIS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110) and (FINC 3630 or FINC 3633) and FINC 3640. Analysis, techniques and selection of securities to meet specific investment objectives. Focus on individual security analysis and portfolio management.

FINC 4700 MANAGEMENT OF FINANCIAL INSTITUTIONS (3) LEC. 3. Pr. FINC 3700. Management strategies for firms including management of credit, liquidity, capital and interest rate risks in a regulated environment.

FINC 4720 FINANCIAL SECTOR REGULATION AND SUPERVISION (3) LEC. 3. Pr. FINC 3700. The course will facilitate understanding of regulatory and supervisory oversight tools used by financial sector regulators to control new and emerging issues/ risks facing financial institutions and markets, and how financial institutions and markets manage and operate to in light of these regulatory and supervisory requirements.

FINC 4750 ADVANCED FINANCIAL MODELING (3) LEC. 3. Pr. FINC 3750 and (FINC 4650 or FINC 4653). Departmental approval. The course teaches advanced financial modeling and valuation, including public and acquisition comparables, discounted cash flows, merger consequences and leveraged buyout analysis.

FINC 4760 ADVANCED SECURITY ANALYSIS (3) LEC. 3. Pr. FINC 4750 or Departmental approval. The course focuses on the comprehensive analysis of individual securities for potential inclusion in an actively managed investment portfolio. The course will cover the basics of traditional financial statement and valuation analysis in addition to macro-economic analysis, political analysis, technical analysis, derivatives, history of financial markets, commodities, competitive analysis, fixed income analysis, and trading.

FINC 4780 ADVANCED PORTFOLIO MANAGEMENT (3) LEC. 3. Pr. FINC 4760. Departmental approval. The course teaches students to analyze financial problems and develop sophisticated financial models for modern portfolio management.

FINC 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Advanced individual research and study in finance under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

FINC 4920 INTERNSHIP (1-6) AAB/INT. SU. Departmental approval. The internship program offers the opportunity to gain relevant and meaningful work experience. Course may be repeated for a maximum of 9 credit hours.

FINC 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Specialized topics and current developments and innovations in finance. Course may be repeated for a maximum of 6 credit hours.

FINC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

FINC 5250 REAL ESTATE FINANCE (3) LEC. 3. Pr. FINC 3250 and (FINC 3610 or FINC 3613 or FINC 3617 or FINC 3810). This class presents the fundamental concepts of real estate finance. Students will study the institutions and instruments of real estate finance, factors affecting the flow of funds into various real estate markets, and how lenders assess risks and price their loans. The ultimate investment outlets for many of the financing products studied in the course are also covered in some detail.

FINC 5260 REAL ESTATE INVESTMENT (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617 or FINC 3810) and FINC 3250. This class presents the fundamental concepts of real estate investment analysis. Students will study lease analysis to allow for cash flow projection based on those leases. Students will use those cash flow projections in property valuation to enable a discussion of deal structuring, ownership structures, and funding sources. Real estate as an asset class will be discussed in a broader portfolio context.

FINC 5510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 5670 MERGERS, ACQUISITIONS, AND RESTRUCTURING (3) LEC. 3. Pr. FINC 3630 or FINC 3633. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. May count either FINC 5670 or FINC 6670/FINC 6676.

FINC 5680 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 3630 or FINC 3633 or FINC 3640 or FINC 3700. Examination of derivative securities with emphasis on applying derivative securities to the management of corporate financial risk.

FINC 6250 REAL ESTATE FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or BUSI 7110 or BUSI 7116. Departmental approval. This class presents the fundamental concepts of real estate finance. Students will study the institutions and instruments of real estate finance, factors affecting the flow of funds into various real estate markets, and how lenders assess risks and price their loans. The ultimate investment outlets for many of the financing products studied in the course are also covered in some detail.

FINC 6260 REAL ESTATE INVESTMENT (3) LEC. 3. Pr. BUSI 7110 or BUSI 7116. This class presents the fundamental concepts of real estate investment analysis. Students will study lease analysis to allow for cash flow projection based on those leases. Students will use those cash flow projections in property valuation to enable a discussion of deal structuring, ownership structures, and funding sources. Real estate as an asset class will be discussed in a broader portfolio context.

FINC 6510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 6670 MERGERS, ACQUISITIONS AND RESTRUCTURING (3) LEC. 3. Pr. BUSI 7110 or BUSI 7116. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. Departmental approval. May count either FINC 6670 or FINC 6676.

FINC 6680 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or BUSI 7110 or BUSI 7116. Departmental approval. Theory and pricing of derivative securities with emphasis on applying derivative securities in corporate financial risk management.

FINC 7630 HEALTH CARE FINANCE (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110 or BUSI 7116. Departmental approval. Techniques and analysis of financial management in a health care setting. Emphasis on financial planning and forecasting, budgeting, capital investment analysis in the regulated healthcare marketplace.

FINC 7640 ADVANCED INVESTMENTS (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Types of investment securities, regulation and operation of securities markets and the theory and practice of investments.

FINC 7650 APPLIED FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110. Departmental approval. The integration of financial theory with practice through spreadsheets, case analysis, company analysis, and current topics in finance.

FINC 7660 SECURITY ANALYSIS AND MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Advanced analytical methods for security valuation, managing investment portfolios, and developing appropriate investment strategies.

FINC 7690 GLOBAL FINANCIAL MARKETS (3) LEC. 3. Analysis and examination of financial institutions and markets in an evolving regulatory and global marketplace for financial services and products.

FINC 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth research and study under the direction of a faculty member. Topics are variable within finance and finance-related areas. Course may be repeated for a maximum of 6 credit hours.

FINC 7970 SPECIAL TOPICS (1-3) DSL. Departmental approval. Specialized topics in finance and finance-related areas not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

FINC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FINC 8620 THEORY OF FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Choice under certainty and uncertainty, time-state preference models, stochastic dominance, the mean-variance criterion, and asset pricing models Miller-Modigliani propositions would be developed.

FINC 8640 INVESTMENTS (3) SEM. 3. Pr. FINC 8620. This course focuses on current literature in Investments. Students should develop the insights necessary to identify problems and conduct research in Investments.

FINC 8650 SEMINAR IN CORPORATE FINANCE (3) SEM. 3. Pr. FINC 86250. This course focuses on current literature in Corporate Finance. Students should develop the insights necessary to identify problems and conduct research in Corporate Finance.

FINC 8690 FINANCIAL MARKETS AND INTERMEDIATION (3) LEC. 3. Pr. FINC 8620. This course focuses on current literature in financial markets and intermediation. Students should develop the insights necessary to identify problems and conduct research in this area.

FINC 8700 SPECIAL TOPICS IN FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Varies according to faculty and students interests. This could be a course like Options, Futures and Derivatives, or a course with several participating faculty members discussing their own research.

FINC 8800 SEMINAR ON FACULTY RESEARCH AND EXTENSIONS (1-3) LEC. 3. SU. Departmental approval. Rotating faculty members will present their current published and unpublished research. Readings will be assigned. Student/faculty discussions are expected to follow the usual seminar format.

FINC 8880 SEMINAR (1) SEM. SU. Admission to the Ph.D. in Business with a Concentration in Finance. Seminar presentations by visiting scholars, Finance Faculty and Ph.D. students.

FINC 8990 RESEARCH AND DISSERTATION (1-12) DSR. Course may be repeated for a maximum of 60 credit hours.

Human Resource Mngt Courses

HRMN 3420 HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Management of human resources dealing with selection, training, placement, appraisal, compensation, and employee representation.

HRMN 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. Departmental approval. Approval by departmental intern program committee and minimum 2.50 GPA. Course may be repeated for a maximum of 6 credit hours.

HRMN 4970 SPECIAL TOPICS IN HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Pr. MNGT 3100. This course covers current and emerging topics related to human resource management. Course may be repeated for a maximum of 6 credit hours.

HRMN 5430 LABOR RELATIONS (3) LEC. 3. General survey of the development of collective bargaining, major provisions of labor law, and bargaining issues of craft and industrial unions.

HRMN 5460 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 5470 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Modern compensation systems, strategic planning, wage and salary management, benefits administration and pay incentive development.

HRMN 5510 HUMAN RESOURCE PLANNING, DEVELOPMENT, AND APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice and design of managerial systems in these functions.

HRMN 5540 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or BUAL 2603 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3600 or STAT 3610). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 5900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 5960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 6460 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 6470 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Study of the theory, procedures, techniques, and practices used to administer modern organization compensation systems.

HRMN 6510 HR PLANNING DEV & APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice, and design of managerial systems and these functions.

HRMN 6540 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 6900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

HRMN 6960 SPECIAL PROBLEMS (3) IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

Information Systems Management Courses

ISMN 2140 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2. The fundamental principles of the structure and management of information systems. Credit will not be given for both ISMN 2140/2143 and ISMN 3140/3143.

ISMN 3010 PROFESSIONAL DEVELOPMENT IN INFORMATION SYSTEMS (1) LEC. 1. SU. Pr. P/C ISMN 2140. Career planning and preparation for employment as an information systems management professional.

ISMN 3040 BUSINESS TELECOM MANAGEMENT (3) LEC. 3. Pr. ISMN 3140 or ISMN 3143. Voice communications and technology and data communications (LAN, WAN, internet broadband), networks, protocols, standards, legislation and project development and management.

ISMN 3070 BUSINESS SYSTEM LOGIC AND MODELING (3) LEC. 3. Concepts, techniques, and tools for discovering, specifying, and modeling business logic are introduced, explored, and applied.

ISMN 3080 PROGRAMMING AND COMPUTER APPLICATIONS (3) LEC. 3. Visual and object-oriented business programming languages are introduced and explored.

ISMN 3140 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2. The fundamental principles of the structure and management of information systems. Credit will not be given for both ISMN 2140/2143 and ISMN 3140/3143.

ISMN 3830 DATABASE MANAGEMENT SYSTEMS (3) LEC. 3. Business applications software in a database environment, complex data, and file structures, systems design consideration of global and distributed databases.

ISMN 3840 ANALYSIS OF BUSINESS SYSTEMS (3) LEC. 3. The study and application of tools, techniques, and methodologies to analyze, understand, and model business systems.

ISMN 4090 DIGITAL BUSINESS DESIGN (3) LEC. 3. Pr. ISMN 3830 or MNGT 3830 or MNGT 3833. Students bring together knowledge of digital technologies and their skills in business design and development to create innovative, leading-edge processes, products, and services for today's modern organizations.

ISMN 4850 COMPETITIVE STRATEGIES THROUGH INFORMATION (3) LEC. 3. Emphasizes how competitive strategies for companies are formulated and implemented using a combination of information technologies.

ISMN 4920 INTERNSHIP (1-3) AAB/INT. SU. Pr. ISMN 3010. Approval by departmental internship program committee. Course may be repeated for a maximum of 3 credit hours.

ISMN 5040 TELECOMMUNICATIONS MANAGEMENT (3) LEC. 3. Pr. (ISMN 3140 or ISMN 3143) or ISMN 2140. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management.

ISMN 5290 BUSINESS PROGRAMMING FOR ANALYTICS (3) LEC. 3. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290/5293 and ISMN 6290/6296.

ISMN 5360 APPLICATION OF GEOSPATIAL INFORMATION SYSTEMS FOR BUSINESS (3) LEC. 3. GIS involves the use of GIS and desktop mapping technology to aid in processes such as disaster recovery, facility planning and management, market segmentation, and community growth. The student will learn how to strategically use GIS to facilitate organizational performance. Credit will not be given for both ISMN 5360/5363 and ISMN 6360/6366.

ISMN 5370 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6373.

ISMN 5620 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Overview of business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 5630 CLOUD SERVICES (3) LEC. 3. This course is a comprehensive introduction to the world of cloud computing, covering its fundamental concepts, various service models, and practical applications. This course delves into key cloud services such as computing, storage, networking, databases, and security while also addressing topics like cloud architecture, management, and cost optimization. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 5640 SERVERSIDE INTERNET PGM (3) DSL/LEC. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML.

ISMN 5650 ADVANCED BUSINESS APPLICATION DEVELOPMENT (3) LEC. 3. Pr. ISMN 3080 and P/C ISMN 3830. Fundamentals of developing comprehensive, component-based local and Internet business applications. Grade of C or better in prerequisite course. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 5680 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 5730 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality, and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 5740 INFORMATION RISK ANALYSIS (3) LEC. 3. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 5750 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. Pr. (ISMN 5730 or ISMN 5670). This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. Credit will not be given for both ISMN 5750/5753 and ISMN 6750/6756.

ISMN 5880 ADVANCED PRACTICAL EXPERIENCE (3) LEC. 3. Pr. ISMN 4090 and ISMN 5650. This course synthesizes theory and principles of management information systems (MIS) using real-life, hands-on projects through experiential learning. It's the capstone course for the major.

ISMN 5900 DIRECTED STUDIES (1-3) AAB/IND. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 5960 SPECIAL PROBLEMS (3) AAB/IND. 3. Independent study investigating current literature in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 6040 TELECOMMUNICATIONS MANAGEMENT (3) LEC. 3. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management. Credit will not be given for both ISMN 5040 and ISMN 6040/6046.

ISMN 6270 CURRENT ISSUES IN INFORMATION SYSTEMS FOR ORGANIZATIONS (3) LEC. 3. This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Course is designed to enable students to take it twice with subject change. Course may be repeated for a maximum of 6 credit hours.

ISMN 6290 BUSINESS PROGRAMMING FOR ANALYTICS (3) LEC. 3. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290 and ISMN 6290.

ISMN 6370 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6376.

ISMN 6380 SOCIAL MEDIA AS A TOOL FOR BUSINESS STRATEGY (3) LEC. 3. Learn how to use social media as a tool to integrate business processes and enhance business performance. Credit will not be given for both ISMN 5380/5383 and ISMN 6380/6386.

ISMN 6620 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Evaluates business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 6630 CLOUD SERVICES (3) LEC. 3. This course is a comprehensive introduction to the world of cloud computing, covering its fundamental concepts, various service models, and practical applications. This course delves into key cloud services such as computing, storage, networking, databases, and security while also addressing topics like cloud architecture, management, and cost optimization. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 6640 SERVERSIDE INTERNET PGM (3) LEC. 3. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. Credit will not be given for both ISMN 5640 and ISMN 6640/6646.

ISMN 6650 ADVANCED BUSINESS APPLICATION DEVELOPMENT (3) LEC. 3. Fundamentals of developing comprehensive, component-based local and Internet business applications. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 6670 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Organizational issues of security and methodologies for information assurance will be discussed from a managerial perspective.

ISMN 6680 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830 or ISMN 7830 or ISMN 7836. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 6690 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3. Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Credit will not be given for both ISMN 5690 and ISMN 6690/6696.

ISMN 6710 INFORMATION RISK ANALYSIS (3) LEC. 3. Departmental approval. In-depth instruction on the range of skills required of persons engaged in the performance of risk analysis functions.

ISMN 6730 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 6740 INFORMATION RISK ANALYSIS (3) LEC. 3. In-depth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 6750 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. May count either ISMN 5750 or ISMN 6750.

ISMN 6870 BUSINESS INTELLIGENCE APPLICATIONS (3) LEC. 3. Pr. ISMN 3830 or BUAL 5650. Key tasks, tools, techniques and methodologies supporting the application of Business Intelligence Systems in organizations, and related management issues. Credit will not be given for both ISMN 5870 and ISMN 6870/6876.

ISMN 6880 MANAGEMENT INFORMATION SYSTEMS PROJECTS (3) DSL/LEC. Synthesizes theory and principles of management information systems (MIS) using real-life, hands-on-projects.

ISMN 6900 DIRECTED STUDIES (3) DSL/IND. 3. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 9 credit hours.

ISMN 6960 SPECIAL PROBLEMS (3) DSL/IND. 3. General information systems management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 9 credit hours.

ISMN 7020 BUSINESS TELECOMMUNICATIONS AND NETWORKS (3) LEC. 3. Provides an understanding of voice and data communications, e.g., networks (LAN, internet), protocols standards, legislation and project development, so that managers, might utilize telecommunications effectively.

ISMN 7140 MANAGING END USER COMPUTING (3) LEC. 3. Studies MIS from user's perspective, and compares it with the roles of the professional department. Course covers support of desktop applications, data usage, and communications.

ISMN 7360 INTEGRATING THEORY AND PRACTICE FOR TECHNOLOGY MANAGERS (3) LEC. 3. A study of the technical and non-technical forces that influence the decision-making process in companies by the use of innovative instructional material.

ISMN 7380 INTEGRATING INFORMATION TECHNOLOGIES TO PROVIDE COMPETITIVE ADVANTAGE (3) LEC. 3. How to integrate effectively information technologies in formulating and implementing competitive strategies for companies.

ISMN 7660 INFORMATION SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. General systems theory, information systems logical and physical analysis, structured and object-oriented methodologies and prototyping, system documentation, general design and use of CASE tools.

ISMN 7730 MANAGEMENT OF INNOVATION (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. The process of product and service innovation on two levels: managing product design and general strategies for managing multiple innovation streams.

ISMN 7760 QUANT METHODS IN OPS MNGT (3) LEC. 3.

ISMN 7830 DATABASE DEVELOPMENT AND DESIGN (3) LEC. 3. Database management systems using database methodologies to support business applications, including requirements for distributed databases.

ISMN 7870 EXPERT SYSTEMS IN BUSINESS (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Study of expert systems and other knowledge-based systems in the organization, including relevant concepts, methodologies, architectures, strategies, and issues.

ISMN 7880 ADV MNGT OF INFO SYS (3) LEC. 3. In-depth inquiry and analysis of advanced information technologies in organizations.

ISMN 7890 INFORMATION RESOURCE MANAGEMENT (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Management of information systems resources, unique management problems in a computer information systems environment. Strategic and competitive analysis of information technology.

ISMN 7970 SPECIAL TOPICS IN INFORMATION SYSTEMS MANAGEMENT (1-3) LEC. 1-3. Specialized topics in information systems management not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

ISMN 7980 MSIS PROJECT (1-10) DSL/IND. 1-10. SU. Departmental approval. Independent exploration of an approved topic/problem that allows the student to demonstrate the application of knowledge and capabilities gained during the program. Approval of the project and assessment of its deliverables by the student's advisory committee is required. Course may be repeated for a maximum of 10 credit hours.

ISMN 8010 IS MANAGEMENT RESEARCH SEM. I (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation MIS research.

ISMN 8020 IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation of applied and case studies research in MIS.

ISMN 8030 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH I (3) SEM. 3. Research methodologies used in conducting research with emphasis on empirical research methods.

ISMN 8040 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH II (3) SEM. 3. Research methodologies used in conducting research with emphasis on conceptual and empirical research methods.

ISMN 8500 ADVANCED IS MANAGEMENT RESEARCH SEMINAR I (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the management of technology and technological innovation, with the primary focus on information technology and research.

ISMN 8660 ADVANCED IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the alignment of information technology strategy to business objectives and goals.

ISMN 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Must be degree seeking PhD student in the Business with concentration in IS program.

Management Courses

MNGT 3010 PROFESSIONAL DEVELOPMENT IN MANAGEMENT (1) LEC. 1. SU. Pr. (P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107) and P/C BUSI 2010. Career planning and preparation for employment in a management position.

MNGT 3100 PRINCIPLES OF MANAGEMENT (3) LEC. 3. Management functions and the applications of management principles in organization. Junior standing. May count either MNGT 3100 or MNGT 3810.

MNGT 3107 HONORS PRINCIPLES OF MANAGEMENT (3) LEC. 3. Pr. Honors College. Management functions and the applications of management principles in organization. Fall, Spring. Junior standing.

MNGT 3460 ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Study, analysis and application of theories and techniques for understanding, predicting and managing human behavior in the organizational context.

MNGT 3810 MANAGEMENT FOUNDATIONS (3) LEC. 3. Management Foundations is a broad based introductory course that will focus on management functions and applications of management principles. This course is not open to undergraduates majoring in business. Junior standing. May count either MNGT 3100 or MNGT 3810.

MNGT 3970 GLOBAL PERSPECTIVES IN BUSINESS IN SPAIN (6) LEC. 6. The objective of the course is to learn about business in Spain by immersing the student totally into the Spain language and culture. Course may be repeated for a maximum of 12 credit hours.

MNGT 4100 MANAGEMENT IN GLOBAL BUSINESS ENVIRONMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Issues unique to managing operations in the global business environment.

MNGT 4400 ORGANIZATIONAL CHANGE (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. The complexities involved in implementing change in organizations.

MNGT 4610 INTERNATIONAL FIELD ANALYSIS PROJECT COURSE (3) LEC. 3. Field analysis team projects with local or multinational organizations in a foreign county. Course will be taught in conjunction with COB International Studies Programs.

MNGT 4690 ETHICAL ISSUES IN MANAGEMENT (3) LEC. 3. Pr. (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). The course is designed to help students gain a better understanding of how ethical dilemmas can impact managerial decisions.

MNGT 4800 STRATEGIC MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization. College of Business Information Technology requirement.

MNGT 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. MNGT 3100 or MNGT 3103 or MNGT 3107. Departmental approval. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

MNGT 4950 SEMINAR IN MANAGEMENT (1-10) AAB/SEM. Departmental approval. Course may be repeated for a maximum of 10 credit hours.

MNGT 4970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. Pr. MNGT 3100. This course covers current topics related to managing people and organizations. or Departmental Approval. Course may be repeated for a maximum of 6 credit hours.

MNGT 5560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 5900 DIRECTED STUDIES (1-3) AAB/IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 5960 SPECIAL PROBLEMS IN MANAGEMENT (1-3) AAB/IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 6560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 6900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

MNGT 6960 SPECIAL PROBLEMS (1-3) AAB/IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

MNGT 6970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. This course covers emerging and current topics related to managing people and organizations that are not otherwise covered in existing courses.

MNGT 7970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. Departmental approval. Current topics in management.

MNGT 8030 RESEARCH METHODS IN MANAGEMENT I (3) LEC. 3. Pr. MNGT 8400. Research methodologies used in conducting research with emphasis on empirical organizational behavior research methods. A graduate-level course taken in major field, and working knowledge of SPSS or SAS.

MNGT 8310 SEMINAR IN ADVANCED ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Departmental approval. Advanced study of theories and research in organizational behavior. Overarching organizational behavior paradigms and theoretical perspectives and research findings at the individual and group levels of analysis.

MNGT 8320 SEMINAR IN STRATEGY IMPLEMENTATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy implementation.

MNGT 8330 SEMINAR IN STRATEGY FORMULATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy formulation.

MNGT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (4) LEC. 3. LAB. 1. Pr. STAT 7000. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models. STAT 7000 or approved equivalent.

MNGT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Marketing Courses

MKTG 3010 PROFESSIONAL DEVELOPMENT IN MARKETING (1) LEC. 1. SU. Pr. (P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317) and P/C BUSI 2010. Career planning and preparation for employment in the marketing industry.

MKTG 3310 PRINCIPLES OF MARKETING (3) LEC. 3. Study of functions, institutions, and basic problems in marketing of goods and services in a global economy. Credit will not be given for both MKTG 3310 and MKTG 3810. Junior standing.

MKTG 3317 HONORS PRINCIPLES OF MARKETING (3) LEC. 3. Pr. Honors College. Study of functions, institutions, and basic problems of marketing goods and services in a global economy. Junior standing.

MKTG 3810 FOUNDATIONS OF BUSINESS MARKETING (3) LEC. 3. Broad-based course for non-business majors that focuses on marketing functions and applications of marketing principles. Students enrolled in a business major or the Marketing minor may not enroll in this course. May count either MKTG 3310 or MKTG 3810; credit will not be awarded for both MKTG 3310 and MKTG 3810. Junior standing.

MKTG 4310 SPORTS AND ENTERTAINMENT MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Application of marketing theory and practice to the sports and entertainment business.

MKTG 4330 RETAIL MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Principles of retail operation: facility location, layout, purchasing, pricing and merchandise control.

MKTG 4340 MARKETING AND NEW PRODUCT DEVELOPMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Marketing-based analysis of profitable new products and brand extensions involving the invention, development, and product launch plus sustaining market success.

MKTG 4390 PERSONAL SELLING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Selling strategy as an interdisciplinary business activity.

MKTG 4400 INTERNATIONAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Strategy, policy, and the variables affecting international marketing decisions.

MKTG 4410 CONSUMER BEHAVIOR (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Critical review and analysis of possible pragmatic applications of consumer behavior theories used for marketing decision making.

MKTG 4420 ADVANCED PERSONAL SELLING (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810) and (MKTG 4390 or MKTG 4393). Grade of C or better in prerequisite courses. Advanced personal selling skills, practices and programs are covered. Emphasis is placed on sales presentations, demonstrations, negotiations and relationship building skills.

MKTG 4430 BUSINESS TO BUSINESS MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Marketing strategy and applications for business-to-business companies and markets.

MKTG 4440 MARKETING ETHICS AND CORPORATE SOCIAL RESPONSIBILITY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Explores marketing ethics and social responsibility from an organizational perspective.

MKTG 4450 CUSTOMER RELATIONSHIP MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3810 or MKTG 3317. This course is designed to compare and contrast the basic concepts of customer relationship management (CRM) as related to sales strategy. Grade of C or better in prerequisite course.

MKTG 4460 ADVERTISING STRATEGY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. The course applies research in psychology and the behavioral sciences to advertising strategy, including the methodology for planning, execution, and evaluation of advertising campaigns.

MKTG 4470 PHARMACEUTICAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. This course will examine the current pharmaceutical marketing environment from a practical perspective. Grade of C or better in prerequisite course.

MKTG 4480 PRICING STRATEGY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. The examination of pricing objectives, strategy, and tactics in marketing. Grade of C or better in prerequisite course.

MKTG 4490 NEGOTIATING AND CONFLICT RESOLUTION (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. The course integrates conceptual understanding with practical application of negotiation, with a particular emphasis on sales negotiations.

MKTG 4800 MARKETING STRATEGY (3) LEC. 3. Pr. MKTG 4360 or MKTG 5360 and Completed courses from MKTG 4050-5500 or BUSI 3250 or MKTG 4050-5500. and MKTG 3310 or MKTG 3313 or MKTG 3317. Strategic perspectives of market dynamics in different competitive environments across organizational levels. Pr MKTG 3310/3317 and Pr/Cr MKTG 4360/5360 and Pr 9 hours of Marketing electives between MKTG 4050 - 5500 or BUSI 3250. All Pr and Cr courses require a C or better. Credit will not be given for both MKTG 4800 and MKTG 4980.

MKTG 4900 DIRECTED STUDIES (1-3) AAB/IND. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Advanced research, reading and study in marketing. Department approval. Course may be repeated for a maximum of 6 credit hours.

MKTG 4920 MARKETING STUDENT INTERNSHIP PROGRAM (3) AAB/INT. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Grade of C or better. Provides a relevant and meaningful work experience in a marketing or marketing-related business, industry or organization.

MKTG 4970 SPECIAL TOPICS IN MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of current marketing topics. Course may be repeated for a maximum of 9 credit hours.

MKTG 5350 SERVICES MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Examination of marketing in service industries and implementation of service marketing strategies. Credit will not be given for both MKTG 4350 and MKTG 5350.

MKTG 5360 MARKETING RESEARCH AND ANALYTICS (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810) and (BUAL 2650 or BUAL 2653). Grade of C or better in prerequisite courses. Research methods in marketing and their application to marketing problems. Credit will not be given for both MKTG 4360 and MKTG 5360.

MKTG 5370 SALES MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810) and (P/C MKTG 4390 or P/C MKTG 4393). Grade of C or better in prerequisite courses. Principles and practices of organization and administration of sales organizations. Credit will not be given for both MKTG 4370 and MKTG 5370.

MKTG 5500 DIGITAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Use of electronic media and the Internet for marketing strategy. Credit will not be given for both MKTG 4500 and MKTG 5500.

MKTG 5507 HONORS DIGITAL MARKETING (3) LEC. 3. Pr. Honors College. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Use of electronic media and the Internet for marketing strategy. Credit will not be given for both MKTG 4500 and MKTG 5500 (5507).

MKTG 6350 SERVICES MARKETING (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Examination of marketing in service industries and implementation of service marketing strategies.

MKTG 6360 MARKETING RESEARCH AND ANALYTICS (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Research methods in marketing and their application to marketing problems.

MKTG 6370 SALES MANAGEMENT (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Principles and practices of organization and administration of sales organizations.

MKTG 6380 CUSTOMER INSIGHTS AND MARKETING SOLUTIONS (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Study of tools and strategies that businesses use to gather deep understanding about their customers' needs, behaviors, and preferences, then leverage that information to create targeted and effective marketing campaigns, ultimately leading to improved customer engagement and sales.

MKTG 6500 DIGITAL MARKETING (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Use of electronic media and the Internet for marketing strategy.

MKTG 7970 SPECIAL STUDIES IN MARKETING (3) LEC. 3. Pr. BUSI 7210. Departmental approval. Grade of C or better in prerequisite course. Variable content in the marketing area. Course may be repeated for a maximum of 6 credit hours.

Supply Chain Management Courses

SCMN 2150 PRINCIPLES OF SUPPLY CHAIN MANAGEMENT (2) LEC. 2. Fundamental concepts, activities, and tools of supply chain management.

SCMN 3100 FOUNDATIONS OF BUSINESS LOGISTICS (3) LEC. Pr. SCMN 2150. The course provides an introduction to logistics activities and processes from a supply chain perspective. Foundational concepts, current issues, and strategies used to obtain competitive advantage in a global business environment will be addressed. For Non-SCM Majors and Non-SCM Minors only. Credit will not be given for both SCMN 3710 and SCMN 3100.

SCMN 3710 LOGS: MNGT OF FULFILLMENT PROC (3) LEC. 3. Pr. SCMN 2150 or SCMN 2153 or SCMN 3150 or SCMN 3153. SCMN 2150/2153 requires a grade of 'C' or better. Management of logistics processes involved in meeting customer demand, including inventory, transportation, distribution, and related activities. Fall, Spring, Summer.

SCMN 3720 TRANSPORTATION AND ORDER FULFILLMENT (3) LEC. 3. Pr. SCMN 2150. Pre-requisite requires a grade of 'C' or better. Management of transportation and distribution activities involved in the order fulfillment process. Fall, Spring.

SCMN 3730 STRATEGIC SOURCING (3) LEC. 3. Pr. SCMN 2150. Pre-requisite requires a grade of 'C' or better. Addresses the scope of activities and various roles of the procurement function within the organization and between firms. Fall, Spring.

SCMN 3740 SUPPLY & DEMAND INTEGRATION (3) LEC. 3. Pr. SCMN 2150. Credit will not be given for both SCMN 3710 and SCMN 3740. SCMN 3740 is a foundational supply chain course that is focused on the key concepts and decisions needed to align supply with demand. This course is designed to provide an overview of supply chain planning to achieve integration in all time horizons-short, intermediate, and long term.

SCMN 3810 PROFESSIONAL DEVELOPMENT IN SUPPLY CHAIN MANAGEMENT (1) LEC. 1. SU. Pr. SCMN 2150 and P/C BUSI 2010. SCMN majors only. Career planning and preparation for supply chain internships and professional experience opportunities. Credit will not be given for both SCMN 3810 and BUSI 3010 or SCMN 4810. Fall, Spring.

SCMN 3910 PRACTICUM IN SUPPLY CHAIN MANAGEMENT (1-3) PRA. 1-3. SU. Pr. (SCMN 2150 or SCMN 2153 or SCMN 3150) and (CTCT 3250 or CTCT 3253). Departmental approval. CTCT 3250/3253 requires a grade of 'C' or better. SCMN majors only. Cooperatively selected field activity to gain practical SCM experience. Course may be repeated for a maximum of 6 credit hours.

SCMN 3920 INTERNSHIP IN SUPPLY CHAIN MANAGEMENT (0-6) INT. SU. Pr. (SCMN 3720 or SCMN 3730 or SCMN 3740) and (CTCT 3250 or CTCT 3253) and SCMN 3810. Departmental approval. Prerequisites require a grade of 'C' or better. SCMN majors only. Professional work experience in a supply chain focused position. Course may be repeated for a maximum of 6 credit hours.

SCMN 4620 SUSTAINABLE SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Pr. SCMN 3730. Pressure from customers, policy makers and non-governmental organizations compels companies to address the environmental footprint of their operations and the social impact they have on local communities. This course focuses on the “triple bottom line,” which addresses how a company must strategically incorporate environmental, social and economic dimensions.

SCMN 4700 SUPPLY CHAIN PERFORMANCE MANAGEMENT (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3740) and SCMN 3720 and SCMN 3730 and CTCT 3250. Pre-requisites require a grade of 'C' or better. Understanding and managing supply chain performance through the use of metrics, analysis, and improvement strategies. Fall, Spring.

SCMN 4730 SUPPLY CHAIN TOOLS AND TECH (3) LEC. 3. Pr. SCMN 3730 and SCMN 3720. Tools, techniques and technologies of various supply chain processes.

SCMN 4750 ENTERPRISE SYSTEMS IN SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Pr. SCMN 4700 and SCMN 4730. This course provides detailed hands –on training on ERP systems using SAP. The course will cover end to end ERP operation, including procurement, manufacturing, sales & distribution, human resources, cost and management accounting, etc. At the end of this class, students who complete it with a B or above will automatically be eligible for their SAP Recognition Certificate provided they have also passed SCMN 4730 and SCMN 4700 with B or above.

SCMN 4770 SUPPLY CHAIN OPERATIONS MANAGEMENT (3) LEC. 3. Pr. SCMN 3730 and SCMN 3720. Review and application of current supply chain strategies processes and information technologies required to compete in today's global marketplace. The course will focus on presenting key manufacturing management techniques used to balance supply with demand to ensure customer satisfaction.

SCMN 4800 SUPPLY CHAIN STRATEGY: A GLOBAL PERSPECTIVE (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713 or SCMN 3740) and SCMN 3720 and SCMN 3730 and (CTCT 3250 or CTCT 3253). Pre-requisites require a grade of "C" or better. Capstone course providing an intensive study of strategies used to facilitate global flows of product, information, and payments. Fall, Spring, Summer

SCMN 4820 SUPPLY CHAIN CONSULTING (3) LEC. 3. Pr. (BUAL 2600 or BUAL 2603 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3600) and BUAL 2650 and SCMN 3920. This special topic course is intended to help develop essential skills in planning and executing a company-focused consulting project.

SCMN 4900 DIRECTED STUDIES IN SUPPLY CHAIN MANAGEMENT (1-3) LEC/SEM. Departmental approval. Advanced individual research of SCM topic under direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

SCMN 4970 SPEC TOPS IN SUPPLY CHAIN MGNT (3-6) LEC. 3-6. Pr. SCMN 3720 and SCMN 3730. Current topics and issues related to the field of supply chain management. Course may be repeated for a maximum of 6 credit hours.

SCMN 5390 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713) and SCMN 3720. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. May count either SCMN 5390 or SCMN 6390.

SCMN 5500 INVENTORY AND WAREHOUSE MANAGEMENT (3) LEC. 3. Pr. SCMN 3710 and SCMN 3720. Departmental approval. Course focuses on issues related to managing inventories in a supply chain. Topics include: role of inventory in supply chains, inventory-related policies and decisions, and dealing with supply and demand uncertainty. Issues related to safety stock and replenishment planning, impact of lead times, and management of multi-echelon supply chains are covered. Additional issues related to warehousing inventory, such as storage and slotting policies, receiving and put away, order picking strategies and warehouse management are covered.

SCMN 5600 SUPPLY CHAIN PLANNING (3) LEC. 3. Pr. SCMN 3710 and SCMN 3720. Departmental approval. This course focuses on long-term and short-term planning of supply chains to provide a strategic fit with business objectives. Topics include: framework for supply chain planning and decision-making, distribution network designs and managing uncertainty, demand forecasting and aggregate planning. Issues related to supply chain coordination and planning for product availability under service levels are also covered. Additional issues related to sales and operations planning, managing economies of scale and revenue management are also covered.

SCMN 5720 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Pr. SCMN 2150 and (BUAL 2600 or BUAL 2603 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3600) and P/C BUAL 2650. Fundamentals of process improvement; techniques for performing quality control functions; quality management systems.

SCMN 6390 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. LAB. 0. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. Credit will not be given for both SCMN 5390 and SCMN 6390.

SCMN 6500 INVENTORY AND WAREHOUSE MANAGEMENT (3) LEC. 3. This course focuses on issues related to managing inventories in a supply chain. Topics include: role of inventory in supply chains, inventory-related policies and decisions, and dealing with supply and demand uncertainty. Issues related to safety stock and replenishment planning, impact of lead times, and management of multi-echelon supply chains are covered. Additional issues related to warehousing inventory, such as storage and slotting policies, receiving and put away, order picking strategies and warehouse management are covered.

SCMN 6600 SUPPLY CHAIN PLANNING (3) LEC. 3. This course focuses on long-term and short-term planning of supply chains to provide a strategic fit with business objectives. Topics include: framework for supply chain planning and decision-making, distribution network designs and managing uncertainty, demand forecasting and aggregate planning. Issues related to supply chain coordination and planning for product availability under service levels are also covered. Additional issues related to sales and operations planning, managing economies of scale and revenue management are also covered.

SCMN 6720 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Fundamentals of process improvement; techniques for performing quality control functions; quality management systems. Fall, Spring. Student should have completed a basic statistics course prior to enrolling in SCMN 6720.

SCMN 6900 DIRECTED STUDIES (3) IND. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 6960 SPECIAL PROBLEMS (3) IND. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 7600 SUPPLY MNGT AND MANUFACTURING (3) LEC. 3. Pr. P/C BUSI 7150. The management of purchasing, supply and materials management, manufacturing processes related to the fulfillment of supply chain requirements. Spring.

SCMN 7700 DEMAND MNGT & FULFILLMENT (3) LEC. 3. Pr. P/C BUSI 7150. The management of logistical processes related to the fulfillment of supply chain requirements. Primary topics include tin integrated planning, operations, and performance analysis of demand, inventory, transportation, distribution, and customer relationships. Summer.

SCMN 7770 SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Problems and analysis in the design and management of the retail, industrial and service supply chain.

SCMN 7800 SUPPLY CHAIN STRATEGY (3) LEC. 3. Pr. P/C BUSI 7150. Advanced study of integrated supply chain theory, strategy, and practice. Topics include network design, collaboration, inventory visibility, process synchronization, information management, and financial analysis. Fall.

SCMN 7900 DIRECTED STUDIES (3) IND. SU. Departmental approval. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 8150 DOCTORAL SEMINAR ON CURRENT TOPICS IN SCM RESEARCH (3) LEC. 3. LAB. 0, SEM. 0. The class is a rigorous, seminar style course on Current Topics in SCM Research. Each class will familiarize you with the key insights in a current research topic (i.e., the “hot topics”) in the SCM area. The instructor has chosen to cover a broad range of active research to give you an overview of topics that people are working on currently and are likely to work on in the future.

SCMN 8250 LSCM INTERORGANIZATIONAL THEORY SEMINAR (3) LEC. 3. LAB. 0, SEM. 0. This is an advanced theories seminar in logistics and supply chain management (LSCM). This seminar is designed to expose doctoral students to accepted research grounding in LSCM and train students to be successful researchers. Management history and ten core theories are covered. We will be discussing seminal articles in-depth with a connection to recent works. These articles are published in top journals in LSCM, Economics, International Business, Management, Marketing, and Sociology.

SCMN 8350 EMPIRICAL METHODS IN SUPPLY MANAGEMENT RESEARCH (3) LEC. 1.5. LAB. 1.5. This course provides students with an overview of quantitative empirical research in major supply chain journals. Students will read and synthesize articles in top SCM journals which employ a variety of quantitative, empirical strategies. They will be provided with instruction on the application of a variety of approaches in Stata to analyze data. Students will also perform their own quantitative analysis with data of their choice.

SCMN 8450 HISTORY OF SUPPLY CHAIN MANAGEMENT & OPERATIONS RESEARCH (3) LEC. 3. LAB. 0, SEM. 0. In this seminar, students should gain a broad understanding of SCM topics in which prior scholars have conducted academic research. A review of the key ideas and principles scholars have addressed is undertaken to critically assess how the primary research streams in SCM have developed. Understanding this development will require considerable reading and thoughtful analysis outside of class.

SCMN 8550 SEMINAR IN GLOBAL SUPPLY CHAIN MANAGEMENT (3) LEC. 3. LAB. 0, SEM. 0. In this seminar, students will gain a broad understanding of global topics connected with SCM. A review of the key ideas and principles in International Business, Cross Border Trade, and Customs Unions are discussed. The role of tariffs, import and export barriers, and free trade on local and global economies are discussed and debated in detail.

SCMN 8650 RESEARCH METHODS IN SUPPLY CHAIN MANAGEMENT - 2 (3) LEC. 0. LAB. 0, SEM. 0. In this seminar, students will gain a deep understanding of statistical and methodological issues in SCM scholarship (especially latent variables). A review of the advanced topics is offered including usage in STATA or SAS. Students may be expected to demonstrate hands on expertise in these topics including writing code, implementing the methods, interpreting results and understanding their implications.

SCMN 8750 EXPERIMENTAL METHODS IN SUPPLY CHAIN MANAGEMENT (3) LEC. 0. LAB. 0, SEM. 0. In this seminar, students will gain a deep understanding of statistical and methodological issues in SCM scholarship (with a focus on experiments). A review of the topics is offered including usage in STATA or SAS. Students may be expected to demonstrate hands on expertise in these topics including writing code, implementing the methods, interpreting results and understanding their implications.

SCMN 8900 DIRECTED STUDIES (3) IND. SU. Departmental approval. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Must be degree seeking PhD student in the Business with concentration in the Supply Chain Management program.

School of Accountancy

The School of Accountancy is dedicated to advancing the field of accounting and preparing tomorrow's accounting leaders. Throughout the undergraduate program, accounting majors experience numerous opportunities to network with prospective employers and gain insight on career opportunities within the accounting profession. During the senior year, students are strongly encouraged to intern for the firm or corporation where they desire to work full-time after completing their education. The majority of students receive full-time job offers at the conclusion of their accounting internships and before enrolling in the Master of Accountancy (MAcc) Program.

Students who desire careers in public accounting must obtain 27 additional hours beyond the 123 hours required for the undergraduate degree in order to academically qualify for certification as a CPA. Most students pursue those additional hours through the MAcc Program. The MAcc Program provides students additional technical skills, research and communication skills, as well as focused preparation on passing the CPA Exam on the first sitting.

Majors

- Accountancy — On-Campus Option for First Degree Candidates (p. 372)
- Accountancy — Online Option for Second Degree Candidates (p. 373)

Minors

- Accountancy (p. 373)

Undergraduate Certificates

- Accountancy (p. 374)

Courses

ACCT 2110 PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3. Basic accounting principles with focus on preparation and use of financial statements. Credit will not be given for both ACCT 2110 and ACCT 2810. Sophomore standing.

ACCT 2117 HONORS PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3. Pr. Honors College. Basic accounting principles with focus on preparation and use of financial statements. Sophomore standing.

ACCT 2210 PRINCIPLES OF MANAGERIAL ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. Emphasis on cost accounting, budgeting, and decision making using managerial accounting information. Sophomore standing.

ACCT 2700 BUSINESS LAW (3) LEC. 3. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2707 HONORS BUSINESS LAW (3) LEC. 3. Pr. Honors College. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2810 FUNDAMENTALS OF ACCOUNTING (3) LEC. 3. Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and ACCT 2810.

ACCT 2817 HONORS FUNDAMENTALS OF ACCOUNTING (3) LEC. 3. Pr. Honors College. Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and ACCT 2810.

ACCT 3210 ACCOUNTING FOR DECISION MAKING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Junior standing applies to ACCT 3210. ACCT 3210 is limited to students in the BSBA Online completer program.

ACCT 3310 BUSINESS PROCESSES AND INTERNAL CONTROLS (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment. Limited to students in the BSBA Online completer program. Credit will not be given for both ACCT 3310 and ACCT 3520.

ACCT 3810 PROFESSIONAL DEVELOPMENT IN ACCOUNTANCY (1) LEC. 1. SU. Pr. (P/C ACCT 3110 or P/C ACCT 3113 or P/C ACCT 5110) and P/C BUSI 2010. Career planning and preparation for transition from university student to accounting professional.

ACCT 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Advanced individual research and study in accounting under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

ACCT 4920 ACCOUNTING INTERNSHIP (1-6) DSL/LEC. SU. Internship opportunity with an accounting firm, corporation, or governmental entity. Course may be repeated for a maximum of 6 credit hours.

ACCT 5110 INTERMEDIATE ACCOUNTING I (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. Accounting principles and theory including accounting for current assets, liabilities, and investments. Junior standing applies to ACCT 5110. ACCT 5113 is limited to students accepted to online accounting program.

ACCT 5120 INTERMEDIATE ACCOUNTING II (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110. Grade of C or better. Continuation of ACCT 5110, with emphasis on fixed assets, capital structure, and cash flows. Junior standing applies to ACCT 5120. ACCT 5123 is limited to students accepted to online accounting program.

ACCT 5130 ADVANCED ACCOUNTING TOPICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics.

ACCT 5140 SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. A study of current issues in accounting theory and practice. Topics include regulations and economic and technological developments.

ACCT 5150 CURRENT ISSUES IN ACCOUNTING (3) LEC. 3. Pr. P/C ACCT 5110. Departmental approval. Examination of current issues in the accounting profession.

ACCT 5210 COST ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Junior standing applies to ACCT 5210.

ACCT 5300 AUDITING & ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 3110 or ACCT 5110. Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports.

ACCT 5410 INCOME TAX I (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110. Principles of federal taxation as it applies to individuals and property transactions.

ACCT 5420 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413 or ACCT 5410. Tax accounting for individuals, partnerships, corporations, estates, and trusts. Extensive use of a tax-service program. ACCT 5423 is limited to students accepted to online accounting program.

ACCT 5510 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3. Pr. P/C ACCT 3110 or P/C ACCT 3113 or P/C ACCT 5110. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment.

ACCT 5520 ACCOUNTING ANALYTICS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110) and (CTCT 3250 or CTCT 3253) and (P/C ACCT 3520 or P/C ACCT 3523 or P/C ACCT 5510). Students will learn to analyze data and solve accounting based problems using advanced spreadsheet techniques, database management systems and other analysis tools.

ACCT 5610 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. Accounting for governmental and not-for-profit entities. Focus on effective use of resources.

ACCT 5620 ISSUES IN INTERNATIONAL ACCOUNTING (3) LEC. 3. Pr. P/C ACCT 5110. Departmental approval. Accounting issues concerning international business activity.

ACCT 5700 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments. ACCT 5703 is limited to students accepted to online accounting program.

ACCT 5810 CORPORATE GOVERNANCE & ACCOUNTING ETHICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. Analyzing the impact of corporate governance and accounting ethics on business transactions.

ACCT 6110 INTERMEDIATE ACCOUNTING I (3) LEC. 3. Accounting principles and theory including accounting for current assets, liabilities, and investments.

ACCT 6120 INTERMEDIATE ACCOUNTING II (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110 or ACCT 6116. Continuation of ACCT 6110/6116, with emphasis on fixed assets, capital structure, and cash flows.

ACCT 6130 ADVANCED ACCOUNTING TOPICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120 or ACCT 6126. Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics.

ACCT 6150 CURRENT ISSUES IN ACCOUNTING (3) LEC. 3. Pr. ACCT 5110. Departmental approval. Examination of current issues in the accounting profession.

ACCT 6210 COST ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making.

ACCT 6300 AUDITING & ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 3110 or ACCT 5110 or ACCT 6110. Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports.

ACCT 6410 INCOME TAX I (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110 or ACCT 6116. Principles of federal taxation as it applies to individuals and property transactions.

ACCT 6420 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413 or ACCT 5410 or ACCT 6410 or ACCT 6416. Tax accounting for individuals, partnerships, corporations, estates and trusts. Extensive use of a tax-service program.

ACCT 6510 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110 or P/C ACCT 6110 or P/C ACCT 6116. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment.

ACCT 6520 ACCOUNTING ANALYTICS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110 or ACCT 6116) and (ACCT 3520 or ACCT 3523 or ACCT 5510 or ACCT 5513 or ACCT 6510 or ACCT 6516). Students will learn to analyze data and solve accounting based problems using advanced spreadsheet techniques, database management systems and other analysis tools.

ACCT 6610 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120. Accounting for governmental and not-for-profit entities. Focus on effective use of resources.

ACCT 6620 ISSUES IN INTERNATIONAL ACCOUNTING (3) LEC. 3. Pr. ACCT 5110. Departmental approval. Accounting issues concerning international business activity.

ACCT 6700 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments.

ACCT 6810 CORPORATE GOVERNANCE & ACCOUNTING ETHICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120 or ACCT 6126. Analyzing the impact of corporate governance and accounting ethics on business transactions.

ACCT 7110 RESEARCH IN ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120. Departmental approval. An evaluation, critique, and application of financial accounting theory to current reporting problems using current research tools and resources.

ACCT 7130 FINANCIAL ANALYSIS & VALUATION (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120. Financial analysis to support managerial, investor, and creditor decision-making, forecasting financial statements and earnings, and applying valuation models to accounting measurement and investment decisions.

ACCT 7210 ACCOUNTING FOR DECISION MAKING AND CONTROL (3) LEC. 3. Pr. ACCT 3210 or ACCT 3213 or ACCT 5210 or ACCT 5213 or ACCT 6210 or ACCT 6216. Departmental approval. Relationship between management accounting and information systems and analysis of costs.

ACCT 7300 ADVANCED AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313 or ACCT 5300 or ACCT 5303 or ACCT 6300 or ACCT 6306. Advanced topics in auditing and assurance services.

ACCT 7320 FRAUD EXAMINATION (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313 or ACCT 5300 or ACCT 5303 or ACCT 6300 or ACCT 6306. Learning how and why occupational fraud is committed and how fraudulent conduct is deterred, investigated, and resolved.

ACCT 7410 FEDERAL TAX RESEARCH (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or P/C ACCT 6420 or ACCT 6426. Departmental approval. Sources of authority used in federal tax research and survey of tax policy issues.

ACCT 7420 CORPORATE AND PARTNERSHIP TAXATION (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426. Tax issues involving corporations and partnership.

ACCT 7510 INTEGRATED ACCOUNTING APPLICATIONS (3) LEC. 3. Pr. ACCT 3530 or ACCT 3533 or ACCT 5520 or ACCT 5523 or ACCT 6520 or ACCT 6526. Design and analysis of accounting information systems and relational databases.

ACCT 7520 ENTERPRISE ACCOUNTING SYSTEMS (3) LEC. 3. Departmental approval. Design, analysis and use of Enterprise accounting systems.

ACCT 7710 PROFESSIONAL DEVELOPMENT (0) IND. Professional development topics and events for Master of Accountancy students. Course may be repeated for a maximum of 10 credit hours.

ACCT 7970 ADVANCED SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Departmental approval. Industry issues in accounting.

Accountancy (ACCT)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
World History I or II	3	World History I or II or Social Science Core Elective	3
Core Science I	4	Core Science II	4
MATH 1680 Calculus with Business Applications I	4	Core Fine Arts	3
BUSI 1010 Professional and Career Development in Business I	1	COMM 1000 Public Speaking	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2700 Business Law	3	**ACCT 2110 Principles of Financial Accounting**	**3**
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
BUAL 2600 Business Analytics I	3	BUAL 2650 Business Analytics II	3
Core Literature	3	Core Literature II or Humanities Core Elective	3
SCMN 2150 Principles of Supply Chain Management	2	CTCT 3250 Information Analysis	3
BUSI 2010 Professional and Career Development in Business II	1		
	15		**15**

Junior

Fall	Hours	Spring	Hours
ACCT 5110 Intermediate Accounting I	**3**	**ACCT 5120 Intermediate Accounting II**	**3**

ACCT 5510 Accounting Information Systems	**3**	**ACCT 5300 Auditing & Assurance Services**	**3**
ACCT 3810 Professional Development in Accountancy	**1**	**ACCT 5410 Income Tax I**	**3**
FINC 3610 Principles of Business Finance	3	MKTG 3310 Principles of Marketing	3
ISMN 2140 Introduction to Management Information Systems	2	MNGT 3100 Principles of Management	3
Elective	3	Elective	1
	15		**16**

Senior

Fall	Hours	Spring	Hours
ACCT 5520 Accounting Analytics	**3**	**ACCT 5210 Cost Accounting**	**3**
Accounting Elective	**3**	**Accounting Elective or Business Elective**	**3**
Accounting Elective	**3**	Business Elective[1]	3
MNGT 4800 Strategic Management	3	Elective	6
BUSI 4010 Professional and Career Development in Business IV	1	UNIV 4AA0 Achieve the Creed	0
Elective	3		
	16		**15**

Total Hours: 123

[1] Must be a non-accounting business elective.

Accountancy Minor

15 semester hours in minor (5000-level or above)

Code	Title	Hours
ACCT 5110	Intermediate Accounting I	3
ACCT 5120	Intermediate Accounting II	3
Elective Courses - See advisor for approved course listing.		9
Total Hours		**15**

Accountancy — Online Option for Second Degree Candidates (ACCT)

The School of Accountancy offers an online Bachelor of Science in Business Administration (BSBA) in Accountancy for candidates seeking professional advancement or a change in their career paths to accounting. This unique program combines traditional campus instruction with modern technology providing the Auburn campus experience to online students.

Our traditional campus accounting classes are filmed in smart classrooms using state of the art technology. Online students view their lectures via streaming video either live or at a time convenient to their work schedules. Since students are receiving the same instruction and AACSB accredited degree as their campus peers, they are held to the same rigor and academic standards.

Admission to the online BSBA in Accountancy program is limited to **second degree seeking candidates only** who meet the following criteria:

- Completed either an AACSB-accredited bachelor's degree in business or an AACSB-accredited MBA from a U.S. institution. Students with MBAs who do not have a business undergraduate degree must have completed courses equivalent to the required business prerequisites.
- Must be a U.S. citizen and have either a USA or APO address.

Admitted students will receive a waiver of the university and college core classes and be required to complete only 30 semester hours in accounting. The admissions process and advising is administered by the Office of Graduate & Online Programs in the School of Accountancy. For more information, please contact Mrs. Andee Hodo, Director of Graduate & Online Programs, at andee.hodo@auburn.edu or (334) 844-6207. Completed applications will be considered on a competitive basis by the Committee on Undergraduate Study in Accountancy.

Code	Title	Hours
Required Courses: (21 Hours, 3 credit hours each)		
ACCT 5110	Intermediate Accounting I	3
ACCT 5120	Intermediate Accounting II	3
ACCT 5210	Cost Accounting	3
ACCT 5510	Accounting Information Systems	3
ACCT 5520	Accounting Analytics	3
ACCT 5300	Auditing & Assurance Services	3
ACCT 5410	Income Tax I	3
Total Hours		**21**

Code	Title	Hours
Accounting Electives: (9 Hours - choose three classes)		
ACCT 5130	Advanced Accounting Topics	3
ACCT 5420	Income Tax II	3
ACCT 5610	Governmental and Not-For-Profit Accounting	3
ACCT 5700	Advanced Business Law	3
Total Hours		**9**

Code	Title	Hours
TOTAL HOURS		**30**

The student's plan of study must be approved by Mrs. Andee Hodo, Director of Graduate & Online Programs in the School of Accountancy, at andee.hodo@auburn.edu or (334) 844-6207. Students interested in meeting the educational requirements for the Uniform CPA Examination while pursuing the online BSBA in Accountancy will be advised by Mrs. Hodo to accomplish this goal.

Students who are working full-time may take six semester hours per semester and may complete the program in five semesters or two years. Students who are not working may complete the program more quickly. For more information, please visit https://harbert.auburn.edu/degrees-programs/undergraduate/online-programs/bsba-accountancy-online-second-degree/index.html (https://harbert.auburn.edu/degrees-programs/undergraduate/online-programs/bsba-accountancy-online-second-degree/).

Certificate in Accountancy

The School of Accountancy offers an Undergraduate Certificate in Accountancy Program for students who successfully complete 24 hours (eight three-semester hour courses) of upper-level (5000 level and above) undergraduate accounting courses at Auburn University. The program is designed for two types of candidates: 1) campus undergraduate business students who are not majoring in accounting but desire to pursue the educational requirements to sit for the Uniform CPA Exam and would like formal recognition of this professional competency or 2) online undergraduate students pursuing the educational requirements to sit for the Uniform CPA Exam. Campus undergraduate students may be first degree candidates; however, online candidates must hold at least a four-year undergraduate degree from a regionally accredited university and must have completed the required business foundation prerequisites. The course requirements for the certificate program are listed below:

Undergraduate Certificate in Accountancy Program

Requires 24 Semester Hours

Required Courses: (Six Hours)

Code	Title	Hours
ACCT 5110	Intermediate Accounting I	3
ACCT 5120	Intermediate Accounting II	3

The School of Accountancy does not allow Auburn University students to be concurrently enrolled in both online and campus sections. Campus students are not allowed to enroll in online sections.

All students are required to take Intermediate Accounting I and II. Campus students are required to complete all upper-level accounting courses at Auburn University-Main Campus. Online students that have completed Intermediate Accounting I and II at another regionally accredited institution and have earned a minimum grade of B or higher in each course may receive a waiver of these two courses by the Director of Graduate & Online Programs, and therefore, be required to take 24 hours from the courses listed below.

Additional Courses Offered:

Code	Title	Hours
ACCT 5130	Advanced Accounting Topics	3
ACCT 5210	Cost Accounting	3
ACCT 5300	Auditing & Assurance Services	3
ACCT 5410	Income Tax I	3
ACCT 5420	Income Tax II	3
ACCT 5510	Accounting Information Systems	3
ACCT 5520	Accounting Analytics	3
ACCT 5610	Governmental and Not-For-Profit Accounting	3
ACCT 5700	Advanced Business Law	3

PROGRAM REQUIREMENTS:

Campus Students: Undergraduate Certificate Program Requirements

1. Candidates must be enrolled in a non-accounting business degree program at Auburn University.
2. Candidates must meet and adhere to course prerequisites listed in the AU Bulletin.
3. Candidates must earn a minimum of a 2.0 overall GPA across the eight courses.
4. Candidates must adhere to Auburn University policies and guidelines as outlined in the AU Bulletin.
5. No transfer credit is permitted. All eight courses must be taken at Auburn University-Main Campus.
6. Candidates must adhere to School of Accountancy policies and guidelines.
7. The admissions process is administered by the Office of Undergraduate Admissions.

Online Students: Undergraduate Certificate Program Requirements

1. Candidates must hold a four-year undergraduate degree from a regionally accredited university and must have completed the 24 hours of business foundation prerequisites.
2. Candidates must meet and adhere to course prerequisites listed in the AU Bulletin.
3. Candidates must earn a minimum of a 2.0 overall GPA across the eight courses.
4. Candidates must adhere to Auburn University policies and guidelines as outlined in the AU Bulletin.
5. The Program is limited to students with USA or APO addresses only.
6. No transfer credit is permitted. All eight courses must be taken at Auburn University.
7. Candidates must adhere to School of Accountancy policies and guidelines.
8. The admissions process is administered by the Office of Graduate & Online Programs in the School of Accountancy.

Questions should be directed to Mrs. Andee Hodo, Director of Graduate & Online Programs in the School of Accountancy, at andee.hodo@auburn.edu or (334) 844-6207.

Department of Business Analytics and Information Systems

The Department of Business Analytics and Information Systems prepares students for careers involving the planning, analysis, and execution of processes related to the movement of passengers, product, and information. The professional programs within the

Department are designed to provide students with the technical skills and knowledge needed to be effective decision makers for their organizations. The professional programs available are Business Analytics (BUAL), and Information Systems Management (ISMN). Information regarding careers, internships, scholarships, and student organizations is available through the program coordinators. College of Business pre-requisites are strictly enforced. Junior standing and compliance with College of Business academic standards are required for all 3000 and above level courses.

Business Analytics

The Business Analytics program prepares students for careers that use data to support solve problems and exploit opportunities in a data-driven manner. Students learn skills in a natural progression that goes through formulating a problem, identifying and cleaning data, uncovering patterns in data, developing predictive models, using these models to make recommendations, and communicating the results in a manner appropriate to executives or clients. Business Analytics skills are in demand across a wide range of industries including healthcare, marketing, finance, consulting, transportation, and information technology. Students are encouraged to develop expertise in a functional business discipline such as marketing or finance using elective coursework.

Information Systems Management

The Information Systems Management program provides education and training so that students can help lead organizational change projects in transforming and improving business processes and in designing and creating new, innovative digital products and services. The program is designed to enable students to meet the challenges that are poised by information technology management in both public sector and for-profit organizations. Because information systems are critical to all aspects of every organization, Information System Management majors are in great demand in the marketplace. Information systems students can focus their study in the areas of business analytics, information security, and/or technology infrastructure.

Majors

- Business Analytics (p. 382)
- Information Systems Management (p. 384)

Minors

- Business Analytics (p. 383)
- Business-Engineering-Technology (p. 384)
- Information Assurance (p. 384)
- Information Systems Management (p. 385)

Business Analytics Courses

BUAL 2600 BUSINESS ANALYTICS I (3) LEC. 3. Pr. (MATH 1610 or MATH 1617 or MATH 1680 or MATH 1683). Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results.

BUAL 2650 BUSINESS ANALYTICS II (3) LEC. 3. Pr. BUAL 2600 or STAT 2610 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 3010 or STAT 2513. A second course in quantitative analysis in business including statistical inference, classification analysis, predictive modeling, forecasting, introduction to data mining.

BUAL 3010 PROFESSIONAL DEVELOPMENT IN BUSINESS ANALYTICS (1) LEC. 1. SU. Pr. P/C BUAL 2650. Career planning and preparation for employment as an analytics professional.

BUAL 3100 INTRODUCTION TO ARTIFICIAL INTELLIGENCE (3) LEC. 3. Pr. BUAL 2600. This course introduces business students to the foundational concepts of Artificial Intelligence (AI) and its applications in business environments. It focuses on how AI technologies like machine learning, natural language processing, and data analytics drive innovation and enhance decision-making. Students will explore real-world business applications of AI, covering topics such as automation, predictive analytics, customer service, and AI-driven strategy. The course is designed to

BUAL 4910 PRACTICUM (1-3) PRA. SU. Supervised practical application of business analytics theory and methods. Course may be repeated for a maximum of 3 credit hours.

BUAL 4920 BUSINESS ANALYTICS INTERNSHIP (1-3) INT. SU. Pr. BUAL 3010. The internship program represents an opportunity for students to be exposed to analytics environments first-hand and to integrate this experience with their formal education. The practical nature of the internship facilitates the educational process and provides valuable work experience. Departmental approval required. Course may be repeated for a maximum of 3 credit hours.

BUAL 5500 BUSINESS DATA MANAGEMENT AND ACQUISITION (3) LEC. 3. Pr. BUAL 2600 and P/C BUAL 3010. Management and governance of the big data environment that is necessary to support extracting, merging, and preparing large data sets for analysis.

BUAL 5600 PRINCIPLES OF PREDICTIVE MODELING (3) DSL/LEC. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

BUAL 5610 PREDICTIVE MODELING FOR BUSINESS DECISIONS (3) DSL/LEC. Pr. BUAL 2650 and (BUAL 5500 or BUAL 5650). Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. Credit will not be given for both BUAL 5610 and BUAL 6610/6616.

BUAL 5660 DESCRIPTIVE ANALYTICS FOR BUSINESS DECISIONS (3) LEC. 3. Pr. BUAL 5500 or BUAL 5650. Advanced topics in big data management, with emphasis on various technical environments used in the big data environment. Credit will not be given for both BUAL 5660 and BUAL 6660/6666.

BUAL 5700 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650. Advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6706.

BUAL 5710 ADVANCED DATA AND TEXT ANALYTICS (3) LEC. 3. Pr. (BUAL 5700 or BUAL 6700 or BUAL 6706) and (P/C BUAL 5660 or P/C BUAL 6660 or P/C BUAL 6666). This course covers advanced approaches used for writing crawlers and spiders, text analytics, sentiment analysis, social media analytics, network analytics, and deep learning for solving business and organizational problems. The course provides conceptual and hand-on understanding of such state-of-art analytics approaches using various python libraries. Knowledge of python programming is necessary to do well in the course.

BUAL 5800 DATA VISUALIZATION (3) LEC. 3. Pr. BUAL 2650. The course will focus on learning the challenges of big data and how effectively utilizing data visualization techniques can help with decision-making. The course will cover the principles of effective visualization designs as well as get hands-on experience with developing dashboards and presenting analysis in other visual formats.

BUAL 5850 FOUNDATIONS OF SPORTS ANALYTICS (3) LEC. 3. Pr. BUAL 2650. This course provides an introduction to analyzing and representing sports data. Students will learn how to develop narratives about team and player performance. Students will also learn various techniques that are suitable for analyzing sports data. Examples will be used from various sports to generate results that can explain outcomes.

BUAL 5860 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 5610 and BUAL 5660. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 5900 DIRECTED STUDIES (1-3) IND. SU. Faculty led individualized or group-oriented in-depth study of a topic in business analytics. May include literary research, algorithm development, programming, data analysis, or a combination of these. Course may be repeated for a maximum of 6 credit hours.

BUAL 5960 SPECIAL PROBLEMS (3) DSL. This course may be either a self-learning course or a lecture course designed to enhance the student's knowledge of a selected topic. If self-learning, the course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the course objectives. Course may be repeated for a maximum of 6 credit hours.

BUAL 6600 PRINCIPLES OF PREDICTIVE MODELING (3) DSL/LEC. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

BUAL 6610 PREDICTIVE MODELING FOR BUSINESS DECISIONS (3) DSL/LEC. Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. Credit will not be given for both BUAL 5610 and BUAL 6610/6616.

BUAL 6650 BUSINESS DATA MANAGEMENT AND ACQUISITION (3) LEC. 3. Managing, governing, extracting, merging, and preparing large data sets for analysis.

BUAL 6660 DESCRIPTIVE ANALYTICS FOR BUSINESS DECISIONS (3) LEC. 3. Advanced topics in big data management, with emphasis on loading and cleansing the data for analysis. May count either BUAL 5660 or BUAL 6660/6666.

BUAL 6700 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650 or ISMN 6650 or ISMN 6656. This course covers advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6.

BUAL 6710 ADVANCED DATA AND TEXT ANALYTICS (3) LEC. 3. Pr. (BUAL 5700 or BUAL 6700 or BUAL 6706) and (P/C BUAL 5660 or P/C BUAL 6660 or P/C BUAL 6666). This course covers advanced approaches used for writing crawlers and spiders, text analytics, sentiment analysis, social media analytics, network analytics, and deep learning for solving business and organizational problems. The course provides conceptual and hand-on understanding of such state-of-art analytics approaches using various python libraries. Knowledge of python programming is necessary to do well in the course.

BUAL 6800 DATA VISUALIZATION (3) DSL. This course is designed as a graduate level class in which graduate students will learn the various elements and techniques of data visualization. The focus of the course will be to learn the challenges of big data and how effective utilization of data visualization techniques can help with decision making. Course will cover the principles of effective visualization designs as well as get hands on experience with developing dashboards and present analysis in other visual formats.

BUAL 6850 FOUNDATIONS OF SPORTS ANALYTICS (3) DSL/LEC. This course provides an introduction to analyzing and representing sports data. Students will learn how to develop narratives about team and player performance. Students will also learn various techniques that are suitable for analyzing sports data. Examples will be used from various sports to generate results that can explain outcomes.

BUAL 6860 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 6610 or BUAL 6616. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 6900 DIRECTED STUDIES (3) IND. 3. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

BUAL 6960 SPECIAL PROBLEMS (3) IND/LEC. 3. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

BUAL 7000 INTRODUCTION TO ARTIFICIAL INTELLIGENCE (3) DSL/LEC. This course introduces business students to the foundational concepts of Artificial Intelligence (AI) and its applications in business environments. It focuses on how AI technologies like machine learning, natural language processing, and data analytics drive innovation and enhance decision-making. Students will explore real-world business applications of AI, covering topics such as automation, predictive analytics, customer service, and AI-driven strategy. The course is designed to help students understand practical AI applications

Information Systems Management Courses

ISMN 2140 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2. The fundamental principles of the structure and management of information systems. Credit will not be given for both ISMN 2140/2143 and ISMN 3140/3143.

ISMN 3010 PROFESSIONAL DEVELOPMENT IN INFORMATION SYSTEMS (1) LEC. 1. SU. Pr. P/C ISMN 2140. Career planning and preparation for employment as an information systems management professional.

ISMN 3040 BUSINESS TELECOM MANAGEMENT (3) LEC. 3. Pr. ISMN 3140 or ISMN 3143. Voice communications and technology and data communications (LAN, WAN, internet broadband), networks, protocols, standards, legislation and project development and management.

ISMN 3070 BUSINESS SYSTEM LOGIC AND MODELING (3) LEC. 3. Concepts, techniques, and tools for discovering, specifying, and modeling business logic are introduced, explored, and applied.

ISMN 3080 PROGRAMMING AND COMPUTER APPLICATIONS (3) LEC. 3. Visual and object-oriented business programming languages are introduced and explored.

ISMN 3140 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2. The fundamental principles of the structure and management of information systems. Credit will not be given for both ISMN 2140/2143 and ISMN 3140/3143.

ISMN 3830 DATABASE MANAGEMENT SYSTEMS (3) LEC. 3. Business applications software in a database environment, complex data, and file structures, systems design consideration of global and distributed databases.

ISMN 3840 ANALYSIS OF BUSINESS SYSTEMS (3) LEC. 3. The study and application of tools, techniques, and methodologies to analyze, understand, and model business systems.

ISMN 4090 DIGITAL BUSINESS DESIGN (3) LEC. 3. Pr. ISMN 3830 or MNGT 3830 or MNGT 3833. Students bring together knowledge of digital technologies and their skills in business design and development to create innovative, leading-edge processes, products, and services for today's modern organizations.

ISMN 4850 COMPETITIVE STRATEGIES THROUGH INFORMATION (3) LEC. 3. Emphasizes how competitive strategies for companies are formulated and implemented using a combination of information technologies.

ISMN 4920 INTERNSHIP (1-3) AAB/INT. SU. Pr. ISMN 3010. Approval by departmental internship program committee. Course may be repeated for a maximum of 3 credit hours.

ISMN 5040 TELECOMMUNICATIONS MANAGEMENT (3) LEC. 3. Pr. (ISMN 3140 or ISMN 3143) or ISMN 2140. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management.

ISMN 5290 BUSINESS PROGRAMMING FOR ANALYTICS (3) LEC. 3. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290/5293 and ISMN 6290/6296.

ISMN 5360 APPLICATION OF GEOSPATIAL INFORMATION SYSTEMS FOR BUSINESS (3) LEC. 3. GIS involves the use of GIS and desktop mapping technology to aid in processes such as disaster recovery, facility planning and management, market segmentation, and community growth. The student will learn how to strategically use GIS to facilitate organizational performance. Credit will not be given for both ISMN 5360/5363 and ISMN 6360/6366.

ISMN 5370 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6373.

ISMN 5620 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Overview of business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 5630 CLOUD SERVICES (3) LEC. 3. This course is a comprehensive introduction to the world of cloud computing, covering its fundamental concepts, various service models, and practical applications. This course delves into key cloud services such as computing, storage, networking, databases, and security while also addressing topics like cloud architecture, management, and cost optimization. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 5640 SERVERSIDE INTERNET PGM (3) DSL/LEC. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML.

ISMN 5650 ADVANCED BUSINESS APPLICATION DEVELOPMENT (3) LEC. 3. Pr. ISMN 3080 and P/C ISMN 3830. Fundamentals of developing comprehensive, component-based local and Internet business applications. Grade of C or better in prerequisite course. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 5680 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 5730 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality, and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 5740 INFORMATION RISK ANALYSIS (3) LEC. 3. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 5750 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. Pr. (ISMN 5730 or ISMN 5670). This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. Credit will not be given for both ISMN 5750/5753 and ISMN 6750/6756.

ISMN 5880 ADVANCED PRACTICAL EXPERIENCE (3) LEC. 3. Pr. ISMN 4090 and ISMN 5650. This course synthesizes theory and principles of management information systems (MIS) using real-life, hands-on projects through experiential learning. It's the capstone course for the major.

ISMN 5900 DIRECTED STUDIES (1-3) AAB/IND. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 5960 SPECIAL PROBLEMS (3) AAB/IND. 3. Independent study investigating current literature in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 6040 TELECOMMUNICATIONS MANAGEMENT (3) LEC. 3. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management. Credit will not be given for both ISMN 5040 and ISMN 6040/6046.

ISMN 6270 CURRENT ISSUES IN INFORMATION SYSTEMS FOR ORGANIZATIONS (3) LEC. 3. This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Course is designed to enable students to take it twice with subject change. Course may be repeated for a maximum of 6 credit hours.

ISMN 6290 BUSINESS PROGRAMMING FOR ANALYTICS (3) LEC. 3. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290 and ISMN 6290.

ISMN 6370 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6376.

ISMN 6380 SOCIAL MEDIA AS A TOOL FOR BUSINESS STRATEGY (3) LEC. 3. Learn how to use social media as a tool to integrate business processes and enhance business performance. Credit will not be given for both ISMN 5380/5383 and ISMN 6380/6386.

ISMN 6620 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Evaluates business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 6630 CLOUD SERVICES (3) LEC. 3. This course is a comprehensive introduction to the world of cloud computing, covering its fundamental concepts, various service models, and practical applications. This course delves into key cloud services such as computing, storage, networking, databases, and security while also addressing topics like cloud architecture, management, and cost optimization. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 6640 SERVERSIDE INTERNET PGM (3) LEC. 3. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. Credit will not be given for both ISMN 5640 and ISMN 6640/6646.

ISMN 6650 ADVANCED BUSINESS APPLICATION DEVELOPMENT (3) LEC. 3. Fundamentals of developing comprehensive, component-based local and Internet business applications. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 6670 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Organizational issues of security and methodologies for information assurance will be discussed from a managerial perspective.

ISMN 6680 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830 or ISMN 7830 or ISMN 7836. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 6690 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3. Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Credit will not be given for both ISMN 5690 and ISMN 6690/6696.

ISMN 6710 INFORMATION RISK ANALYSIS (3) LEC. 3. Departmental approval. In-depth instruction on the range of skills required of persons engaged in the performance of risk analysis functions.

ISMN 6730 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 6740 INFORMATION RISK ANALYSIS (3) LEC. 3. In-depth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 6750 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. May count either ISMN 5750 or ISMN 6750.

ISMN 6870 BUSINESS INTELLIGENCE APPLICATIONS (3) LEC. 3. Pr. ISMN 3830 or BUAL 5650. Key tasks, tools, techniques and methodologies supporting the application of Business Intelligence Systems in organizations, and related management issues. Credit will not be given for both ISMN 5870 and ISMN 6870/6876.

ISMN 6880 MANAGEMENT INFORMATION SYSTEMS PROJECTS (3) DSL/LEC. Synthesizes theory and principles of management information systems (MIS) using real-life, hands-on-projects.

ISMN 6900 DIRECTED STUDIES (3) DSL/IND. 3. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 9 credit hours.

ISMN 6960 SPECIAL PROBLEMS (3) DSL/IND. 3. General information systems management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 9 credit hours.

ISMN 7020 BUSINESS TELECOMMUNICATIONS AND NETWORKS (3) LEC. 3. Provides an understanding of voice and data communications, e.g., networks (LAN, internet), protocols standards, legislation and project development, so that managers, might utilize telecommunications effectively.

ISMN 7140 MANAGING END USER COMPUTING (3) LEC. 3. Studies MIS from user's perspective, and compares it with the roles of the professional department. Course covers support of desktop applications, data usage, and communications.

ISMN 7360 INTEGRATING THEORY AND PRACTICE FOR TECHNOLOGY MANAGERS (3) LEC. 3. A study of the technical and non-technical forces that influence the decision-making process in companies by the use of innovative instructional material.

ISMN 7380 INTEGRATING INFORMATION TECHNOLOGIES TO PROVIDE COMPETITIVE ADVANTAGE (3) LEC. 3. How to integrate effectively information technologies in formulating and implementing competitive strategies for companies.

ISMN 7660 INFORMATION SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. General systems theory, information systems logical and physical analysis, structured and object-oriented methodologies and prototyping, system documentation, general design and use of CASE tools.

ISMN 7730 MANAGEMENT OF INNOVATION (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. The process of product and service innovation on two levels: managing product design and general strategies for managing multiple innovation streams.

ISMN 7760 QUANT METHODS IN OPS MNGT (3) LEC. 3.

ISMN 7830 DATABASE DEVELOPMENT AND DESIGN (3) LEC. 3. Database management systems using database methodologies to support business applications, including requirements for distributed databases.

ISMN 7870 EXPERT SYSTEMS IN BUSINESS (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Study of expert systems and other knowledge-based systems in the organization, including relevant concepts, methodologies, architectures, strategies, and issues.

ISMN 7880 ADV MNGT OF INFO SYS (3) LEC. 3. In-depth inquiry and analysis of advanced information technologies in organizations.

ISMN 7890 INFORMATION RESOURCE MANAGEMENT (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Management of information systems resources, unique management problems in a computer information systems environment. Strategic and competitive analysis of information technology.

ISMN 7970 SPECIAL TOPICS IN INFORMATION SYSTEMS MANAGEMENT (1-3) LEC. 1-3. Specialized topics in information systems management not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

ISMN 7980 MSIS PROJECT (1-10) DSL/IND. 1-10. SU. Departmental approval. Independent exploration of an approved topic/problem that allows the student to demonstrate the application of knowledge and capabilities gained during the program. Approval of the project and assessment of its deliverables by the student's advisory committee is required. Course may be repeated for a maximum of 10 credit hours.

ISMN 8010 IS MANAGEMENT RESEARCH SEM. I (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation MIS research.

ISMN 8020 IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation of applied and case studies research in MIS.

ISMN 8030 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH I (3) SEM. 3. Research methodologies used in conducting research with emphasis on empirical research methods.

ISMN 8040 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH II (3) SEM. 3. Research methodologies used in conducting research with emphasis on conceptual and empirical research methods.

ISMN 8500 ADVANCED IS MANAGEMENT RESEARCH SEMINAR I (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the management of technology and technological innovation, with the primary focus on information technology and research.

ISMN 8660 ADVANCED IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the alignment of information technology strategy to business objectives and goals.

ISMN 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Must be degree seeking PhD student in the Business with concentration in IS program.

Business Analytics (BUAL)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
World History I or II	3	World History I or II or Social Science Core Elective	3
Core Science I	4	Core Science II	4
MATH 1680 Calculus with Business Applications I	4	Core Fine Arts	3
BUSI 1010 Professional and Career Development in Business I	1	COMM 1000 Public Speaking	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2110 Principles of Financial Accounting	3	ACCT 2210 Principles of Managerial Accounting	3
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
BUAL 2600 Business Analytics I	3	BUAL 2650 Business Analytics II	3
Core Literature	3	Core Literature II or Humanities Core Elective	3
SCMN 2150 Principles of Supply Chain Management	2	CTCT 3250 Information Analysis	3

BUSI 2010 Professional and Career Development in Business II		1			
		15			**15**

Junior

Fall	Hours		Spring	Hours	
BUAL 3010 Professional Development in Business Analytics		**1**	**BUAL 5600 Principles of Predictive Modeling**		**3**
BUAL 5500 Business Data Management and Acquisition		**3**	**BUAL 5660 Descriptive Analytics for Business Decisions**		**3**
FINC 3610 Principles of Business Finance		3	**Business Analytics Elective**[1]		**3**
ISMN 2140 Introduction to Management Information Systems		2	ACCT 2700 Business Law		3
Elective		6	MKTG 3310 Principles of Marketing		3
			Elective		1
		15			**16**

Senior

Fall	Hours		Spring	Hours	
BUAL 5610 Predictive Modeling for Business Decisions		**3**	**BUAL 5860 Communicating Quantitative Results in Business**		**3**
Business Analytics Elective[1]		**3**	**Business Analytics Elective**[1]		**3**
Business Analytics Elective[1]		**3**	**Business Analytics Elective**[1]		**3**
MNGT 3100 Principles of Management		3	MNGT 4800 Strategic Management		3
BUSI 4010 Professional and Career Development in Business IV		1	Elective		3
Elective		3	UNIV 4AA0 Achieve the Creed		0
		16			**15**

Total Hours: 123

[1] See the Harbert College advising website for approved courses.

Business Analytics Minor

15 semester hours in the minor (3000-level or above). Courses taken to fulfill the University Core Curriculum requirements or other major/minor program requirements may not be used to fulfill the minor. See course descriptions for appropriate prerequisites. Non-business majors who are seeking this minor should declare the minor at https://www.aub.ie/NBdeclareminor. Students must earn an overall GPA of at least 2.0 in all minor courses.

Code	Title	Hours
Choose 5 courses (15 hours) from the following:		
BUAL 5600	Principles of Predictive Modeling	3
BUAL 5610	Predictive Modeling for Business Decisions	3
BUAL 5500	Business Data Management and Acquisition	3
BUAL 5660	Descriptive Analytics for Business Decisions	3
BUAL 5960	Special Problems	3
BUAL 5850	Foundations of Sports Analytics	3
ISMN 4850	Competitive Strategies Through Information	3
ISMN 5290	Business Programming for Analytics	3

ISMN 5620	Business Applications with Open Source Software	3

Total Hours: 15 (must earn a minimum overall minor GPA of 2.0)

Business-Engineering-Technology Minor

Students who minor in Business-Engineering-Technology learn, practice, and integrate entrepreneurship, engineering, and business management skills demanded by the technology-driven global economy, solve real-world case study and design problems, and work in cross-functional teams. The minor is a joint offering by the Colleges of Business and Engineering. Admission to the minor is competitive. Engineering and business majors apply for admission to the Business-Engineering-Technology Program as second semester sophomores. To remain in the program the cumulative GPA must be equal to or greater than 3.0.

Code	Title	Hours
BUSI/ENGR 3500	Leadership in Engineering & Business Theory	4
BUSI/ENGR 3510	Product Innovation: From Concept to Production (Name changing to Sketch to Shelf: Tools for Product Innovation)	4
BUSI 5500	Entrepreneurship and Strategic Management of Technology and Innovation (Entrepreneurship and Strategic Management of Technology and Innovation)	4
or ENGR 5500	Entrepreneurship and Strategic Management of Technology and Innovation	
BUSI 5510	Business Engineering Technology Minor-Capstone (BET Capstone Project)	4
or ENGR 5510	Business Engineering Technology Minor-Capstone	
Total Hours		**16**

Information Assurance Minor

15 semester hours in minor

Code	Title	Hours
ISMN 5730	Security and Information Assurance	3
Elective Courses - See advisor for approved course listing. For Business majors only.		12
Total Hours		**15**

Information Systems Management (ISMN)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
World History I or II	3	World History I or II or Social Science Core Elective	3
Core Science I	4	Core Science II	4
MATH 1680 Calculus with Business Applications I	4	Core Fine Arts	3
BUSI 1010 Professional and Career Development in Business I	1	COMM 1000 Public Speaking	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
BUAL 2600 Business Analytics I	3	BUAL 2650 Business Analytics II	3
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
Core Literature	3	Core Literature II or Humanities Core Elective	3
ACCT 2110 Principles of Financial Accounting	3	ACCT 2210 Principles of Managerial Accounting	3

BUSI 2010 Professional and Career Development in Business II	1	ACCT 2700 Business Law	3
ISMN 2140 Introduction to Management Information Systems	**2**		
	15		**15**

Junior

Fall	Hours	Spring	Hours
ISMN 3080 Programming and Computer Applications	**3**	**ISMN 4090 Digital Business Design**	**3**
ISMN 3830 Database Management Systems	**3**	**ISMN 5650 Advanced Business Application Development**	**3**
MKTG 3310 Principles of Marketing	3	MNGT 3100 Principles of Management	3
SCMN 2150 Principles of Supply Chain Management	2	FINC 3610 Principles of Business Finance	3
CTCT 3250 Information Analysis	3	Business Elective	3
ISMN 3010 Professional Development in Information Systems	**1**		
	15		**15**

Senior

Fall	Hours	Spring	Hours
ISMN 5730 Security and Information Assurance	**3**	**ISMN 5880 Advanced Practical Experience**	**3**
ISMN Elective[1]	**3**	**ISMN Elective** [1]	**3**
ISMN Elective[1]	**3**	MNGT 4800 Strategic Management	3
BUSI 4010 Professional and Career Development in Business IV	1	Business Elective[1]	3
Elective	4	Elective	3
Business Elective	3	UNIV 4AA0 Achieve the Creed	0
	17		**15**

Total Hours: 123

1 See the Harbert College advising website for approved courses.

Information Systems Management Minor

15 semester hours in minor (3000-level or above)

Code	Title	Hours
Elective Courses - See advisor for approved course listing.		15
Total Hours		**15**

Department of Finance

Finance

The objective of the finance curriculum is to develop the specialized finance knowledge, techniques, and skills necessary for successful placement in finance related positions. The program encompasses the major areas of finance including corporate finance, financial institutions and markets, and investments. In addition, the program offers elective work in the subareas of real estate and risk management and insurance. The program will allow students the opportunity to develop not only the specialized knowledge of finance, but also the professional presentation and use of such knowledge through oral and written communication. Students enrolled in the finance program also complete the College of Business core curriculum designed to provide the broader understanding of the entire

business organization including accounting, economics, management and marketing. College of Business pre-requisites are strictly enforced. Junior standing and compliance with Harbert College of Business academic standards are required for all 3000 and above level courses.

Majors

- Finance (p. 389)

Minors

- Finance (p. 390)
- International Business (p. 390)
- Real Estate Development (p. 390)

Courses

FINC 2400 PERSONAL FINANCE (3) LEC. 3. Plans for managing personal financing problems involving insurance, housing, household budgeting, investments, personal and bank loans, personal credit and time value of money.

FINC 3010 PROFESSIONAL DEVELOPMENT IN FINANCE (1) LEC. 1. SU. Pr. (P/C FINC 3610 or FINC 3613 or FINC 3617) and P/C BUSI 2010. Career planning and preparation for employment in the finance industry.

FINC 3100 FUNDAMENTALS OF GLOBAL TRADE (3) LEC. 3. COB academic standards. Export management skills, including basic global supply chain management and trade finance. Junior standing.

FINC 3200 RISK AND INSURANCE (3) LEC. 3. Essentials of risk management, with emphasis on the use of insurance, including the characteristics of property, liability, life and health insurance. Junior standing.

FINC 3250 PRINCIPLES OF REAL ESTATE (3) LEC. 3. Fundamental principles and practices as applied to the purchase, sale and lease and management of real estate. Junior standing.

FINC 3270 SUSTAINABLE REAL ESTATE (3) LEC. 3. Pr. FINC 3250. Everyone’s story is rooted in real estate: the ways we fund, plan, build, use, and exchange real property have informed our past and will dictate our future. This course surveys the wide variety of topics that intersect to maximize sustainable development projects, including investment analysis, green building, and project certifications. Through lectures, case studies and simulations, you will learn how people, property and capital interact to help shape the evolving real estate industry.

FINC 3610 PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117 or ACCT 2810 or ACCT 3110 or ACCT 3113 or ACCT 2813. Corporate finance from the perspective of a financial manager. Topics include time value of money, valuation, and capital budgeting. May count either FINC 3610 or FINC 3810.

FINC 3617 HONORS PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. Honors College. ACCT 2117. Corporate finance from the perspective of a financial manager. Topics include financial planning and forecasting cash budgeting, capital budgeting, basic valuation, dividends. Fall, Spring. Junior standing.

FINC 3620 SMALL BUSINESS FINANCE (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Financial control, financial forecasting, working capital and sources of financing in a small and closely-held business environment.

FINC 3630 ADVANCED BUSINESS FINANCE (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3610). C or better in FINC 3610. In-depth analysis of financial concepts including valuation capital budgeting, cost of capital, leasing, financial analysis, and capital structure.

FINC 3640 INVESTMENTS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Types of investment security markets, investment instruments, concepts and strategies for institutional and individual investors.

FINC 3700 FINANCIAL MARKETS INSTITUTIONS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Overview of the financial system, organization and regulation of financial markets and institutions, the behavior and structure of interest rates.

FINC 3750 FINANCIAL MODELING (3) LEC. 3. Pr. P/C FINC 3630 and P/C FINC 3640. Application of financial management and investments concepts through Excel modeling. Topics include capital budgeting, capital asset pricing, cost of capital, stock and bond valuation. Advanced topics include DCF modeling, portfolio optimization and VBA.

FINC 3810 FOUNDATIONS OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2810 or ACCT 2813 or ACCT 2110 or ACCT 2117. Foundations of Business Finance is a broad based introductory course that will focus on finance functions and applications of finance principles. This course is not open to undergraduates majoring in business. Junior standing. May count either FINC 3610 or FINC 3810.

FINC 4210 PROPERTY AND LIABILITY INSURANCE (3) LEC. 3. Pr. FINC 3200. Commercial risks and the insurance contracts used to address these risks.

FINC 4410 FIXED INCOME (3) LEC. 3. Pr. FINC 3640. Overview of fixed income characteristics, markets, and trading. Topics include Treasuries, yield curves, corporate bond analysis, asset-backed securities, municipal bonds, preferred stock, money market instruments, measuring interest rate risk with duration and convexity, and bond portfolio management.

FINC 4630 FINANCIAL STRATEGY (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110) and (FINC 3630 or FINC 3633). The advanced application of corporate finance through case analysis, company analysis, and current topics.

FINC 4650 FINANCIAL STATEMENT ANALYSIS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Evaluation and assessment of financial condition, performance, and reporting strategies of firms using relevant financial and market information.

FINC 4660 SECURITY ANALYSIS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110) and (FINC 3630 or FINC 3633) and FINC 3640. Analysis, techniques and selection of securities to meet specific investment objectives. Focus on individual security analysis and portfolio management.

FINC 4700 MANAGEMENT OF FINANCIAL INSTITUTIONS (3) LEC. 3. Pr. FINC 3700. Management strategies for firms including management of credit, liquidity, capital and interest rate risks in a regulated environment.

FINC 4720 FINANCIAL SECTOR REGULATION AND SUPERVISION (3) LEC. 3. Pr. FINC 3700. The course will facilitate understanding of regulatory and supervisory oversight tools used by financial sector regulators to control new and emerging issues/ risks facing financial institutions and markets, and how financial institutions and markets manage and operate to in light of these regulatory and supervisory requirements.

FINC 4750 ADVANCED FINANCIAL MODELING (3) LEC. 3. Pr. FINC 3750 and (FINC 4650 or FINC 4653). Departmental approval. The course teaches advanced financial modeling and valuation, including public and acquisition comparables, discounted cash flows, merger consequences and leveraged buyout analysis.

FINC 4760 ADVANCED SECURITY ANALYSIS (3) LEC. 3. Pr. FINC 4750 or Departmental approval. The course focuses on the comprehensive analysis of individual securities for potential inclusion in an actively managed investment portfolio. The course will cover the basics of traditional financial statement and valuation analysis in addition to macro-economic analysis, political analysis, technical analysis, derivatives, history of financial markets, commodities, competitive analysis, fixed income analysis, and trading.

FINC 4780 ADVANCED PORTFOLIO MANAGEMENT (3) LEC. 3. Pr. FINC 4760. Departmental approval. The course teaches students to analyze financial problems and develop sophisticated financial models for modern portfolio management.

FINC 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Advanced individual research and study in finance under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

FINC 4920 INTERNSHIP (1-6) AAB/INT. SU. Departmental approval. The internship program offers the opportunity to gain relevant and meaningful work experience. Course may be repeated for a maximum of 9 credit hours.

FINC 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Specialized topics and current developments and innovations in finance. Course may be repeated for a maximum of 6 credit hours.

FINC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

FINC 5250 REAL ESTATE FINANCE (3) LEC. 3. Pr. FINC 3250 and (FINC 3610 or FINC 3613 or FINC 3617 or FINC 3810). This class presents the fundamental concepts of real estate finance. Students will study the institutions and instruments of real estate finance, factors affecting the flow of funds into various real estate markets, and how lenders assess risks and price their loans. The ultimate investment outlets for many of the financing products studied in the course are also covered in some detail.

FINC 5260 REAL ESTATE INVESTMENT (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617 or FINC 3810) and FINC 3250. This class presents the fundamental concepts of real estate investment analysis. Students will study lease analysis to allow for cash flow projection based on those leases. Students will use those cash flow projections in property valuation to enable a discussion of deal structuring, ownership structures, and funding sources. Real estate as an asset class will be discussed in a broader portfolio context.

FINC 5510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 5670 MERGERS, ACQUISITIONS, AND RESTRUCTURING (3) LEC. 3. Pr. FINC 3630 or FINC 3633. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. May count either FINC 5670 or FINC 6670/FINC 6676.

FINC 5680 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 3630 or FINC 3633 or FINC 3640 or FINC 3700. Examination of derivative securities with emphasis on applying derivative securities to the management of corporate financial risk.

FINC 6250 REAL ESTATE FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or BUSI 7110 or BUSI 7116. Departmental approval. This class presents the fundamental concepts of real estate finance. Students will study the institutions and instruments of real estate finance, factors affecting the flow of funds into various real estate markets, and how lenders assess risks and price their loans. The ultimate investment outlets for many of the financing products studied in the course are also covered in some detail.

FINC 6260 REAL ESTATE INVESTMENT (3) LEC. 3. Pr. BUSI 7110 or BUSI 7116. This class presents the fundamental concepts of real estate investment analysis. Students will study lease analysis to allow for cash flow projection based on those leases. Students will use those cash flow projections in property valuation to enable a discussion of deal structuring, ownership structures, and funding sources. Real estate as an asset class will be discussed in a broader portfolio context.

FINC 6510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 6670 MERGERS, ACQUISITIONS AND RESTRUCTURING (3) LEC. 3. Pr. BUSI 7110 or BUSI 7116. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. Departmental approval. May count either FINC 6670 or FINC 6676.

FINC 6680 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or BUSI 7110 or BUSI 7116. Departmental approval. Theory and pricing of derivative securities with emphasis on applying derivative securities in corporate financial risk management.

FINC 7630 HEALTH CARE FINANCE (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110 or BUSI 7116. Departmental approval. Techniques and analysis of financial management in a health care setting. Emphasis on financial planning and forecasting, budgeting, capital investment analysis in the regulated healthcare marketplace.

FINC 7640 ADVANCED INVESTMENTS (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Types of investment securities, regulation and operation of securities markets and the theory and practice of investments.

FINC 7650 APPLIED FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110. Departmental approval. The integration of financial theory with practice through spreadsheets, case analysis, company analysis, and current topics in finance.

FINC 7660 SECURITY ANALYSIS AND MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Advanced analytical methods for security valuation, managing investment portfolios, and developing appropriate investment strategies.

FINC 7690 GLOBAL FINANCIAL MARKETS (3) LEC. 3. Analysis and examination of financial institutions and markets in an evolving regulatory and global marketplace for financial services and products.

FINC 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth research and study under the direction of a faculty member. Topics are variable within finance and finance-related areas. Course may be repeated for a maximum of 6 credit hours.

FINC 7970 SPECIAL TOPICS (1-3) DSL. Departmental approval. Specialized topics in finance and finance-related areas not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

FINC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FINC 8620 THEORY OF FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Choice under certainty and uncertainty, time-state preference models, stochastic dominance, the mean-variance criterion, and asset pricing models Miller-Modigliani propositions would be developed.

FINC 8640 INVESTMENTS (3) SEM. 3. Pr. FINC 8620. This course focuses on current literature in Investments. Students should develop the insights necessary to identify problems and conduct research in Investments.

FINC 8650 SEMINAR IN CORPORATE FINANCE (3) SEM. 3. Pr. FINC 86250. This course focuses on current literature in Corporate Finance. Students should develop the insights necessary to identify problems and conduct research in Corporate Finance.

FINC 8690 FINANCIAL MARKETS AND INTERMEDIATION (3) LEC. 3. Pr. FINC 8620. This course focuses on current literature in financial markets and intermediation. Students should develop the insights necessary to identify problems and conduct research in this area.

FINC 8700 SPECIAL TOPICS IN FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Varies according to faculty and students interests. This could be a course like Options, Futures and Derivatives, or a course with several participating faculty members discussing their own research.

FINC 8800 SEMINAR ON FACULTY RESEARCH AND EXTENSIONS (1-3) LEC. 3. SU. Departmental approval. Rotating faculty members will present their current published and unpublished research. Readings will be assigned. Student/faculty discussions are expected to follow the usual seminar format.

FINC 8880 SEMINAR (1) SEM. SU. Admission to the Ph.D. in Business with a Concentration in Finance. Seminar presentations by visiting scholars, Finance Faculty and Ph.D. students.

FINC 8990 RESEARCH AND DISSERTATION (1-12) DSR. Course may be repeated for a maximum of 60 credit hours.

Finance (FINC)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
World History I or II	3	World History I or II or Social Science Core Elective	3
Core Science I	4	Core Science II	4
MATH 1680 Calculus with Business Applications I	4	Core Fine Arts	3
BUSI 1010 Professional and Career Development in Business I	1	COMM 1000 Public Speaking	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2110 Principles of Financial Accounting	**3**	ACCT 2210 Principles of Managerial Accounting	3
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
BUAL 2600 Business Analytics I	3	BUAL 2650 Business Analytics II	3
Core Literature	3	Core Literature II or Humanities Core Elective	3
SCMN 2150 Principles of Supply Chain Management	2	ACCT 2700 Business Law	3
BUSI 2010 Professional and Career Development in Business II	1		
	15		**15**

Junior

Fall	Hours	Spring	Hours
FINC 3610 Principles of Business Finance	**3**	**FINC 3630 Advanced Business Finance**	**3**

FINC 3010 Professional Development in Finance	**1**	**FINC 3640 Investments**	**3**
ACCT 5110 Intermediate Accounting I	3	**FINC 3750 Financial Modeling**	**3**
MKTG 3310 Principles of Marketing	3	ENGL 3080 Business Writing ***or*** 3040 Technical Writing	3
MNGT 3100 Principles of Management	3	ISMN 2140 Introduction to Management Information Systems	2
CTCT 3250 Information Analysis	3	Elective	1
	16		**15**

Senior

Fall	Hours	Spring	Hours
FINC 3700 Financial Markets Institutions	**3**	**Finance Elective (4000-5000 level)**[1]	**3**
Finance Elective (3000-4000 level)[1]	**3**	**Finance Elective (4000-5000 level)**[1]	**3**
Finance Elective (3000-4000 level)[1]	**3**	MNGT 4800 Strategic Management	3
BUSI 4010 Professional and Career Development in Business IV	1	Elective	6
Elective	6	UNIV 4AA0 Achieve the Creed	0
	16		**15**

Total Hours: 123

1 See the Harbert College advising website for approved courses.

Finance Minor

15 semester hours in minor (3000-level or above)

Code	Title	Hours
Elective Courses - See advisor for approved course listing.		15
Total Hours		**15**

International Business Minor

15 semester hours in minor (3000-level or above)

Code	Title	Hours
FINC 5510	Multinational Financial Management	3
ECON 4300	International Economics	3
MKTG 4400	International Marketing	3
Elective Courses - See advisor for approved course listing.		6
Total Hours		**15**

Real Estate Development Minor

The minor in real estate development will be composed of a series of established courses taught in the School of Architecture, Planning, and Landscape Architecture (APLA), the McWhorter School of Building Science (BSCI), the Department of Finance (FINC). The minor requires a minimum of 15 credit hours through a combination of required and elective courses. Each minor pathway, determined by the student's major, is designed to complement the respective major courses.

Code	Title	Hours
Pathway for FINC Majors		
Required courses (9 credit hours):		

ARCH 3500	**Seminar in Methods and Processes**	**3**
BSCI 4300	**Principles of Construction & Design**	**3**
FINC 3250	**Principles of Real Estate**	**3**
Elective courses (6 credit hours):		
ARCH 2600	The Art of Architecture, Place, and Culture	3
BSCI 2300	Construction Methods and Materials	3
FINC 5250	Real Estate Finance	3
FINC 5260	Real Estate Investment	3

Code	Title	Hours
Pathway for BSCI Majors		
Required courses (9 credit hours):		
ARCH 3500	**Seminar in Methods and Processes**	**3**
FINC 3250	**Principles of Real Estate**	**3**
FINC 3810	**Foundations of Business Finance**	**3**
Elective courses (6 credit hours):		
ARCH 2600	The Art of Architecture, Place, and Culture	3
FINC 5250	Real Estate Finance	3
FINC 5260	Real Estate Investment	3

Code	Title	Hours
Pathway for APLA Majors		
Required courses (12 credit hours):		
ACCT 2810	**Fundamentals Of Accounting** *	**3**
ARCH 3500	**Seminar in Methods and Processes**	**3**
FINC 3250	**Principles of Real Estate**	**3**
FINC 3810	**Foundations of Business Finance**	**3**
Elective courses (3 credit hours):		
ARCH 2600	The Art of Architecture, Place, and Culture	3
BSCI 2200	Construction Documents	3
BSCI 2300	Construction Methods and Materials	3
FINC 5250	Real Estate Finance	3
FINC 5260	Real Estate Investment	3

* Prerequisite for FINC 3810

Department of Management and Entrepreneurship

The Department of Management and Entrepreneurship prepares students in basic business functions as well as the process of management. The program imparts knowledge that will assist future managers to be good decision makers for their organizations.

Management

The Management program provides students a comprehensive overview of the skills necessary to compete in a managerial position in business. The program emphasizes such areas as behavioral dynamics, leadership skills, project management, business processes and logistics, international relations, as well as the management of information technology. It is designed to focus on those issues generic to both the manufacturing and service industries. These management skills, when complemented with the solid foundation provided by the business core courses, equip students with the necessary knowledge to become successful mangers. One unique aspect of the program is a community service project geared toward helping the students understand the importance of community service and philanthropy in today’s global economy.

Several complementary minors are offered for the management major: Human Resource Management, Entrepreneurship and Family Business, and Organizational Leadership.

College of Business pre-requisites are strictly enforced. Junior standing and compliance with College of Business academic standards are required for all 3000 and above level courses.

Business Administration

The Business Administration program is an interdepartmental degree designed to provide maximum course flexibility and a broad-based preparation for future career opportunities. Students are required to demonstrate basic oral and written communication skills, familiarity with technological tools, and an understanding of the interrelationship between the United States and foreign countries with a comprehensive education in business management. The Business Administration program prepares students for entry-level managerial and staff responsibilities in business, government, and non-profit organizations.

Majors

- Management (p. 398)
- Business Administration — On-Campus Option (p. 395)
- Business Administration — Online Degree Completer Program (p. 396)

Minors

- Entrepreneurship and Family Business (p. 397)
- Human Resource Management (p. 398)
- Organizational Leadership (p. 399)

Entrepreneurship Family Bus Courses

ENFB 3140 ESSENTIALS OF ENTREPRENEURSHIP (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2030 or ECON 2033 or ECON 2037. The application of basic business principles to the entrepreneurial environment.

ENFB 4160 FAMILY BUSINESS MANAGEMENT (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of aspects of managing an established family business, on a day-to-day basis, and of planning for succession to the next generation.

ENFB 4170 MANAGING ENTREPRENEURIAL START-UPS (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of aspects of managing and marketing concepts and processes that can be utilized to launch new ventures or a new division within an existing business.

ENFB 4180 GROWTH STRATEGIES FOR EMERGING COMPANIES (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of the important aspects of starting and managing a franchise business.

ENFB 4190 NEW VENTURE CREATION (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Analysis of industrial, competitive, market and financial aspects of starting a business.

ENFB 4200 BUSINESS PLAN FOR THE NEW VENTURE (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Application of business principles to a practical, hands-on project.

ENFB 4210 CORPORATE VENTURING-ENTREPRENEURS IN ORGANIZATIONS (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of the entrepreneurial process as it applies to the operations of a department or functional area within an established organization.

ENFB 4220 DIGITAL ENTREPRENEURSHIP AND EMERGING TECHNOLOGIES (3) LEC. 3. Pr. ENFB 3140. Examines how digitalization and emerging technologies impact entrepreneurship and innovation by changing the functional areas of business including marketing, management, finance, and supply chain management.

ENFB 4920 INTERNSHIP (1-6) INT. Pr. 2.50 GPA. Departmental approval. Approval by departmental internship program committee. Course may be repeated for a maximum of 6 credit hours.

ENFB 4950 SEMINAR IN ENTREPRENEURSHIP AND FAMILY BUSINESS (3) LEC. 3. This seminar covers emerging issues in entrepreneurship. Prequisite: ENFB 3140 or Departmental Approval. Course may be repeated for a maximum of 6 credit hours.

ENFB 4970 SPECIAL TOPICS IN ENTREPRENEURSHIP & FAMILY BUSINESS (3) LEC. 3. Pr. ENFB 3140 or Departmental approval. This course covers current topics in entrepreneurship and family business. Course may be repeated for a maximum of 6 credit hours.

ENFB 5900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

ENFB 5960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

ENFB 6900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

ENFB 6960 SPECIAL PROBLEMS (3) DSL/IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

Human Resource Mngt Courses

HRMN 3420 HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Management of human resources dealing with selection, training, placement, appraisal, compensation, and employee representation.

HRMN 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. Departmental approval. Approval by departmental intern program committee and minimum 2.50 GPA. Course may be repeated for a maximum of 6 credit hours.

HRMN 4970 SPECIAL TOPICS IN HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Pr. MNGT 3100. This course covers current and emerging topics related to human resource management. Course may be repeated for a maximum of 6 credit hours.

HRMN 5430 LABOR RELATIONS (3) LEC. 3. General survey of the development of collective bargaining, major provisions of labor law, and bargaining issues of craft and industrial unions.

HRMN 5460 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 5470 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Modern compensation systems, strategic planning, wage and salary management, benefits administration and pay incentive development.

HRMN 5510 HUMAN RESOURCE PLANNING, DEVELOPMENT, AND APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice and design of managerial systems in these functions.

HRMN 5540 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or BUAL 2603 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3600 or STAT 3610). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 5900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 5960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 6460 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 6470 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Study of the theory, procedures, techniques, and practices used to administer modern organization compensation systems.

HRMN 6510 HR PLANNING DEV & APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice, and design of managerial systems and these functions.

HRMN 6540 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 6900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

HRMN 6960 SPECIAL PROBLEMS (3) IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

Management Courses

MNGT 3010 PROFESSIONAL DEVELOPMENT IN MANAGEMENT (1) LEC. 1. SU. Pr. (P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107) and P/C BUSI 2010. Career planning and preparation for employment in a management position.

MNGT 3100 PRINCIPLES OF MANAGEMENT (3) LEC. 3. Management functions and the applications of management principles in organization. Junior standing. May count either MNGT 3100 or MNGT 3810.

MNGT 3107 HONORS PRINCIPLES OF MANAGEMENT (3) LEC. 3. Pr. Honors College. Management functions and the applications of management principles in organization. Fall, Spring. Junior standing.

MNGT 3460 ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Study, analysis and application of theories and techniques for understanding, predicting and managing human behavior in the organizational context.

MNGT 3810 MANAGEMENT FOUNDATIONS (3) LEC. 3. Management Foundations is a broad based introductory course that will focus on management functions and applications of management principles. This course is not open to undergraduates majoring in business. Junior standing. May count either MNGT 3100 or MNGT 3810.

MNGT 3970 GLOBAL PERSPECTIVES IN BUSINESS IN SPAIN (6) LEC. 6. The objective of the course is to learn about business in Spain by immersing the student totally into the Spain language and culture. Course may be repeated for a maximum of 12 credit hours.

MNGT 4100 MANAGEMENT IN GLOBAL BUSINESS ENVIRONMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Issues unique to managing operations in the global business environment.

MNGT 4400 ORGANIZATIONAL CHANGE (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. The complexities involved in implementing change in organizations.

MNGT 4610 INTERNATIONAL FIELD ANALYSIS PROJECT COURSE (3) LEC. 3. Field analysis team projects with local or multinational organizations in a foreign county. Course will be taught in conjunction with COB International Studies Programs.

MNGT 4690 ETHICAL ISSUES IN MANAGEMENT (3) LEC. 3. Pr. (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). The course is designed to help students gain a better understanding of how ethical dilemmas can impact managerial decisions.

MNGT 4800 STRATEGIC MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization. College of Business Information Technology requirement.

MNGT 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. MNGT 3100 or MNGT 3103 or MNGT 3107. Departmental approval. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

MNGT 4950 SEMINAR IN MANAGEMENT (1-10) AAB/SEM. Departmental approval. Course may be repeated for a maximum of 10 credit hours.

MNGT 4970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. Pr. MNGT 3100. This course covers current topics related to managing people and organizations. or Departmental Approval. Course may be repeated for a maximum of 6 credit hours.

MNGT 5560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 5900 DIRECTED STUDIES (1-3) AAB/IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 5960 SPECIAL PROBLEMS IN MANAGEMENT (1-3) AAB/IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 6560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 6900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

MNGT 6960 SPECIAL PROBLEMS (1-3) AAB/IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

MNGT 6970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. This course covers emerging and current topics related to managing people and organizations that are not otherwise covered in existing courses.

MNGT 7970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. Departmental approval. Current topics in management.

MNGT 8030 RESEARCH METHODS IN MANAGEMENT I (3) LEC. 3. Pr. MNGT 8400. Research methodologies used in conducting research with emphasis on empirical organizational behavior research methods. A graduate-level course taken in major field, and working knowledge of SPSS or SAS.

MNGT 8310 SEMINAR IN ADVANCED ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Departmental approval. Advanced study of theories and research in organizational behavior. Overarching organizational behavior paradigms and theoretical perspectives and research findings at the individual and group levels of analysis.

MNGT 8320 SEMINAR IN STRATEGY IMPLEMENTATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy implementation.

MNGT 8330 SEMINAR IN STRATEGY FORMULATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy formulation.

MNGT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (4) LEC. 3. LAB. 1. Pr. STAT 7000. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models. STAT 7000 or approved equivalent.

MNGT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Business Administration (BSAD)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
World History I or II	3	World History I or II or Social Science Core Elective	3
Core Science I	4	Core Science II	4
MATH 1680 Calculus with Business Applications I	4	Core Fine Arts	3
BUSI 1010 Professional and Career Development in Business I	1	COMM 1000 Public Speaking	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2110 Principles of Financial Accounting	3	ACCT 2210 Principles of Managerial Accounting	3
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
BUAL 2600 Business Analytics I	3	BUAL 2650 Business Analytics II	3
Core Literature	3	Core Literature II or Humanities Core Elective	3
SCMN 2150 Principles of Supply Chain Management	**2**	ACCT 2700 Business Law	3

BUSI 2010 Professional and Career Development in Business II	1
	15

Junior

Fall	Hours	Spring	Hours
MNGT 3100 Principles of Management	**3**	**MNGT Elective[1]**	**3**
ISMN 2140 Introduction to Management Information Systems	**2**	**Business Elective[1]**	**3**
MNGT 3010 Professional Development in Management	**1**	**Business Elective[1]**	**3**
MKTG 3310 Principles of Marketing	3	FINC 3610 Principles of Business Finance	3
CTCT 3250 Information Analysis	3	Elective	3
Elective	4		
	16		**15**

Senior

Fall	Hours	Spring	Hours
Accounting or Finance Elective[1]	**3**	**MNGT 4800 Strategic Management**	**3**
International Business Elective[1]	**3**	**Marketing or Supply Chain Elective[1]**	**3**
Business Elective[1]	**3**	Business Elective[1]	3
Business Elective[1]	3	Business Elective[1]	3
BUSI 4010 Professional and Career Development in Business IV	1	Elective	3
Elective	3	UNIV 4AA0 Achieve the Creed	0
	16		**15**

Total Hours: 123

1 See the Harbert College advising website for approved courses.

Business Administration — Online Completer Program (BSAD)

The Bachelor of Business Administration is designed as a completer degree, in which non-major coursework is satisfied by acceptable transfer credit, which could include credit earned for a first bachelor's degree at a regionally accredited institution.

Online BSBA Course Requirements

Code	Title	Hours
ACCT 2110	Principles of Financial Accounting	3
ACCT 2700	Business Law	3
BUSI 2010	Professional and Career Development in Business II	1
BUSI 4010	Professional and Career Development in Business IV	1
CTCT 3250	Information Analysis	3
FINC 3610	Principles of Business Finance	3
MNGT 3100	**Principles of Management**	**3**
MKTG 3310	Principles of Marketing	3
BUAL 2600	Business Analytics I	3
BUAL 2650	Business Analytics II	3
MNGT 4800	**Strategic Management**	**3**

ISMN 2140	**Introduction to Management Information Systems**	**2**
SCMN 2150	**Principles of Supply Chain Management**	**2**
Management Elective [1]		**3**
Finance / Accounting Elective [2]		**3**
International Business Elective [3]		**3**
Marketing / Supply Chain Elective [4]		**3**
Business Elective [5]		**3**
Business Elective [5]		**3**
Business Elective [5]		**3**
Business Elective [5]		3
Business Elective [5]		3
Business Elective [5]		3
Total Hours		**63**

* Other transfer courses could satisfy a degree requirement pending review by an Academic Advisor.
** Courses in **bold** will count towards the major GPA.
1 Management Electives: HRMN 3420, MNGT 3460
2 Finance / Accounting Electives: ACCT 3210, ACCT 3310, FINC 3620, FINC 4650
3 Marketing / Supply Chain Electives: MKTG 4390, MKTG 4410, SCMN 3710
4 International Business Elective: MKTG 4400
5 Business Electives: ACCT 3210, ACCT 3310, FINC 3620,FINC 4650, HRMN 3420, MKTG 4390, MKTG 4410, MNGT 3460,SCMN 3710

Core Requirements (pre-admission)

Code	Title	Hours
ENGL 1100	English Composition I	3
ENGL 1120	English Composition II	3
Core Lab Science I		4
Core Lab Science II		4
Core Fine Arts		3
COMM 1000	Public Speaking	3
ECON 2020	Principles of Microeconomics	3
ECON 2030	Principles of Macroeconomics	3
MATH 1610	Calculus I	4
Core History		3
Core Literature		3
Core History or Literature (sequence)		3
Core Humanities (2 histories) or Core Social Science (2 Literatures)		3
Free Electives		18
Total Hours		**60**

Entrepreneurship and Family Business Minor

The Entrepreneurship and Family Business Minor is a 15-hour program designed around the creation and management of an individual's own business as well as the fostering of an entrepreneurial mindset within a larger organization. The minor is open to business and non-business majors.

The minor consists of two required courses (6 semester hours) and 9 semester hours of approved electives.

Code	Title	Hours
ENFB 3140	Essentials of Entrepreneurship	3
ENFB course 4000 level or higher		3

Approved Electives	9
Total Hours	**15**

See the College of Business website for the list of approved electives.

Courses taken to fulfill the University Core Curriculum requirements or other major/minor program requirements may not be used to fulfill the minor. See course descriptions for appropriate prerequisites. Non-business majors who are seeking this minor should declare the minor at https://www.aub.ie/NBdeclareminor. Students must earn an overall GPA of at least 2.0 in all minor courses.

Human Resource Management Minor

This minor is available only to Management majors.

Code	Title	Hours
15 semester hours in minor		
HRMN 5460	Human Resource Legislation	3
HRMN 5470	Employee Compensation	3
HRMN 5510	Human Resource Planning, Development, and Appraisal	3
HRMN 5540	Human Resources Selection and Placement	3
Selective One of the Following Electives:		3
MNGT 4400	Organizational Change	
MNGT 4690	Ethical Issues in Management	
MNGT 5560	Leadership	
PSYC 2130	Analytics for Social and Behavioral Sciences	
SOCY 3700	Methods of Social Research	
Total Hours		**15**

Management (MNGT)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
World History I or II	3	World History I or II or Social Science Core Elective	3
Core Science I	4	Core Science II	4
MATH 1680 Calculus with Business Applications I	4	Core Fine Arts	3
BUSI 1010 Professional and Career Development in Business I	1	COMM 1000 Public Speaking	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2110 Principles of Financial Accounting	3	ACCT 2210 Principles of Managerial Accounting	3
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
BUAL 2600 Business Analytics I	3	BUAL 2650 Business Analytics II	3
Core Literature	3	Core Literature II or Humanities Core Elective	3
SCMN 2150 Principles of Supply Chain Management	**2**	**ACCT 2700 Business Law**	**3**

BUSI 2010 Professional and Career Development in Business II		1			
		15			**15**

Junior

Fall	**Hours**		**Spring**	**Hours**	
MNGT 3100 Principles of Management		**3**	**HRMN 3420 Human Resource Management**		**3**
MNGT 3010 Professional Development in Management		**1**	MKTG 3310 Principles of Marketing		3
FINC 3610 Principles of Business Finance		**3**	Designated Minor Course[1]		3
ISMN 2140 Introduction to Management Information Systems		**2**	Designated Minor Course[1]		3
CTCT 3250 Information Analysis		3	Elective		4
Elective		3			
		15			**16**

Senior

Fall	**Hours**		**Spring**	**Hours**	
MNGT 3460 Organizational Behavior		**3**	**MNGT 4800 Strategic Management**		**3**
Designated Elective[1]		**3**	Designated Elective[1]		3
BUSI 4010 Professional and Career Development in Business IV		1	Designated Minor Course[1]		3
Designated Minor Course[1]		3	Management Elective[2]		3
Designated Minor Course[1]		3	Elective		3
Elective		3	UNIV 4AA0 Achieve the Creed		0
		16			**15**

Total Hours: 123

1 See the Harbert College advising website for approved courses.
2 Choose any management elective (MNGT, ENFB, HRMN) not already counting toward the chosen management minor.

Organizational Leadership Minor

This minor is available only to Management majors.

Code	Title	Hours
15 semester hours in minor		
MNGT 4100	Management in Global Business Environment	3
MNGT 4400	Organizational Change	3
MNGT 4690	Ethical Issues in Management	3
MNGT 5560	Leadership	3
Elective - Choose one 3-hour course from the Designated Electives in the MNGT curriculum		3
Total Hours		**15**

Department of Marketing

Marketing majors discover the interrelationship of marketing with other functional areas of business. Marketing is the fundamental revenue driver within the organization. The interface with consumers helps to inform the directions companies and organizations can take to better anticipate and solve consumer needs. Marketing majors have rich and robust careers through business to business engagement that involves partnerships through professional selling and sales management. Our students have opportunities to conduct

internships and work for advertising agencies and digital marketing firms. Some of our students find ways to take strategic marketing into aspects of supply chain management careers. Also, retail offers opportunities for marketing majors as well as entrepreneurial ventures.

Majors

- Marketing (p. 402)

Minors

- Marketing (p. 403)
- Professional Sales (p. 403)

Courses

MKTG 3010 PROFESSIONAL DEVELOPMENT IN MARKETING (1) LEC. 1. SU. Pr. (P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317) and P/C BUSI 2010. Career planning and preparation for employment in the marketing industry.

MKTG 3310 PRINCIPLES OF MARKETING (3) LEC. 3. Study of functions, institutions, and basic problems in marketing of goods and services in a global economy. Credit will not be given for both MKTG 3310 and MKTG 3810. Junior standing.

MKTG 3317 HONORS PRINCIPLES OF MARKETING (3) LEC. 3. Pr. Honors College. Study of functions, institutions, and basic problems of marketing goods and services in a global economy. Junior standing.

MKTG 3810 FOUNDATIONS OF BUSINESS MARKETING (3) LEC. 3. Broad-based course for non-business majors that focuses on marketing functions and applications of marketing principles. Students enrolled in a business major or the Marketing minor may not enroll in this course. May count either MKTG 3310 or MKTG 3810; credit will not be awarded for both MKTG 3310 and MKTG 3810. Junior standing.

MKTG 4310 SPORTS AND ENTERTAINMENT MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Application of marketing theory and practice to the sports and entertainment business.

MKTG 4330 RETAIL MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Principles of retail operation: facility location, layout, purchasing, pricing and merchandise control.

MKTG 4340 MARKETING AND NEW PRODUCT DEVELOPMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Marketing-based analysis of profitable new products and brand extensions involving the invention, development, and product launch plus sustaining market success.

MKTG 4390 PERSONAL SELLING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Selling strategy as an interdisciplinary business activity.

MKTG 4400 INTERNATIONAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Strategy, policy, and the variables affecting international marketing decisions.

MKTG 4410 CONSUMER BEHAVIOR (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Critical review and analysis of possible pragmatic applications of consumer behavior theories used for marketing decision making.

MKTG 4420 ADVANCED PERSONAL SELLING (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810) and (MKTG 4390 or MKTG 4393). Grade of C or better in prerequisite courses. Advanced personal selling skills, practices and programs are covered. Emphasis is placed on sales presentations, demonstrations, negotiations and relationship building skills.

MKTG 4430 BUSINESS TO BUSINESS MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Marketing strategy and applications for business-to-business companies and markets.

MKTG 4440 MARKETING ETHICS AND CORPORATE SOCIAL RESPONSIBILITY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Explores marketing ethics and social responsibility from an organizational perspective.

MKTG 4450 CUSTOMER RELATIONSHIP MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3810 or MKTG 3317. This course is designed to compare and contrast the basic concepts of customer relationship management (CRM) as related to sales strategy. Grade of C or better in prerequisite course.

MKTG 4460 ADVERTISING STRATEGY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. The course applies research in psychology and the behavioral sciences to advertising strategy, including the methodology for planning, execution, and evaluation of advertising campaigns.

MKTG 4470 PHARMACEUTICAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. This course will examine the current pharmaceutical marketing environment from a practical perspective. Grade of C or better in prerequisite course.

MKTG 4480 PRICING STRATEGY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. The examination of pricing objectives, strategy, and tactics in marketing. Grade of C or better in prerequisite course.

MKTG 4490 NEGOTIATING AND CONFLICT RESOLUTION (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. The course integrates conceptual understanding with practical application of negotiation, with a particular emphasis on sales negotiations.

MKTG 4800 MARKETING STRATEGY (3) LEC. 3. Pr. MKTG 4360 or MKTG 5360 and Completed courses from MKTG 4050-5500 or BUSI 3250 or MKTG 4050-5500. and MKTG 3310 or MKTG 3313 or MKTG 3317. Strategic perspectives of market dynamics in different competitive environments across organizational levels. Pr MKTG 3310/3317 and Pr/Cr MKTG 4360/5360 and Pr 9 hours of Marketing electives between MKTG 4050 - 5500 or BUSI 3250. All Pr and Cr courses require a C or better. Credit will not be given for both MKTG 4800 and MKTG 4980.

MKTG 4900 DIRECTED STUDIES (1-3) AAB/IND. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Advanced research, reading and study in marketing. Department approval. Course may be repeated for a maximum of 6 credit hours.

MKTG 4920 MARKETING STUDENT INTERNSHIP PROGRAM (3) AAB/INT. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Grade of C or better. Provides a relevant and meaningful work experience in a marketing or marketing-related business, industry or organization.

MKTG 4970 SPECIAL TOPICS IN MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of current marketing topics. Course may be repeated for a maximum of 9 credit hours.

MKTG 5350 SERVICES MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Examination of marketing in service industries and implementation of service marketing strategies. Credit will not be given for both MKTG 4350 and MKTG 5350.

MKTG 5360 MARKETING RESEARCH AND ANALYTICS (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810) and (BUAL 2650 or BUAL 2653). Grade of C or better in prerequisite courses. Research methods in marketing and their application to marketing problems. Credit will not be given for both MKTG 4360 and MKTG 5360.

MKTG 5370 SALES MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810) and (P/C MKTG 4390 or P/C MKTG 4393). Grade of C or better in prerequisite courses. Principles and practices of organization and administration of sales organizations. Credit will not be given for both MKTG 4370 and MKTG 5370.

MKTG 5500 DIGITAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Use of electronic media and the Internet for marketing strategy. Credit will not be given for both MKTG 4500 and MKTG 5500.

MKTG 5507 HONORS DIGITAL MARKETING (3) LEC. 3. Pr. Honors College. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Use of electronic media and the Internet for marketing strategy. Credit will not be given for both MKTG 4500 and MKTG 5500 (5507).

MKTG 6350 SERVICES MARKETING (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Examination of marketing in service industries and implementation of service marketing strategies.

MKTG 6360 MARKETING RESEARCH AND ANALYTICS (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Research methods in marketing and their application to marketing problems.

MKTG 6370 SALES MANAGEMENT (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Principles and practices of organization and administration of sales organizations.

MKTG 6380 CUSTOMER INSIGHTS AND MARKETING SOLUTIONS (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Study of tools and strategies that businesses use to gather deep understanding about their customers' needs, behaviors, and preferences, then leverage that information to create targeted and effective marketing campaigns, ultimately leading to improved customer engagement and sales.

MKTG 6500 DIGITAL MARKETING (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Use of electronic media and the Internet for marketing strategy.

MKTG 7970 SPECIAL STUDIES IN MARKETING (3) LEC. 3. Pr. BUSI 7210. Departmental approval. Grade of C or better in prerequisite course. Variable content in the marketing area. Course may be repeated for a maximum of 6 credit hours.

Marketing (MKTG)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
World History I or II	3	World History I or II or Social Science Core Elective	3
MATH 1680 Calculus with Business Applications I	4	Core Science II	4
Core Science I	4	Core Fine Arts	3
BUSI 1010 Professional and Career Development in Business I	1	Core Humanities	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
Core Literature	3	Core Literature II or Humanities Core Elective	3
BUAL 2600 Business Analytics I	3	ACCT 2210 Principles of Managerial Accounting	3
COMM 1000 Public Speaking	**3**	ACCT 2700 Business Law	3
ACCT 2110 Principles of Financial Accounting	3	BUAL 2650 Business Analytics II	3
BUSI 2010 Professional and Career Development in Business II	1		
	16		**15**

Junior

Fall	Hours	Spring	Hours
MNGT 3100 Principles of Management	3	**ISMN 2140 Introduction to Management Information Systems**	**2**
CTCT 3250 Information Analysis	**3**	**Marketing Elective**[2]	**6**
FINC 3610 Principles of Business Finance	3	Marketing Elective[2]	3
SCMN 2150 Principles of Supply Chain Management	2	Elective	4
MKTG 3310 Principles of Marketing[1]	**3**		
MKTG 3010 Professional Development in Marketing	**1**		
	15		**15**

Senior				
Fall	**Hours**		**Spring**	**Hours**
MKTG 5360 Marketing Research and Analytics		**3**	**MNGT 4800 Strategic Management**	**3**
Marketing Elective[2]		**3**	**MKTG 4800 Marketing Strategy**	**3**
Marketing Elective[2]		3	MKTG ELEC Marketing Elective	3
BUSI 4010 Professional and Career Development in Business IV		1	Elective	6
Elective		6	UNIV 4AA0 Achieve the Creed	0
		16		**15**

Total Hours: 123

1 Must earn a "C" in this course.
2 See the Harbert College advising website for approved courses.

Marketing Minor

Code	Title	Hours
Elective Courses - See advisor for approved course listing.		15
Total Hours		**15**

Professional Sales Minor

15 semester hours in minor, as follows:

*Required Courses (12 hours):**

Code	Title	Hours
MKTG 4390	Personal Selling	
MKTG 4450	Customer Relationship Management	
MKTG 5370	Sales Management **	
MKTG 4420	Advanced Personal Selling **	

3 hours from the following:

Code	Title	Hours
MKTG 4430	Business to Business Marketing	
MKTG 4490	Negotiating and Conflict Resolution	
MKTG 4900	Directed Studies	
MKTG 5500	Digital Marketing (Honors College students may choose MKTG 5507)	

* MKTG 3310 or MKTG 3810 (with grade of C or better) is the prerequisite for all courses
** MKTG 4390 (with grade of C or better) is the prerequisite

Department of Supply Chain Management

The Supply Chain Management program combines logistics and operations management knowledge to provide a comprehensive education for students interested in careers with manufacturers, retailers, consultancies, and logistics services providers. The primary goal of the program is to provide a practical understanding of procurement, operations, logistics, and transportation so that graduates will excel in entry-level management positions, graduate school, and future opportunities.

Information regarding careers, internships, scholarships, and student organizations is available through the program coordinators. College of Business pre-requisites are strictly enforced. Junior standing and compliance with College of Business academic standards are required for all 3000 and above level courses.

Majors

- Supply Chain Management (p. 407)

Minors

- Supply Chain Management (p. 408)

Courses

SCMN 2150 PRINCIPLES OF SUPPLY CHAIN MANAGEMENT (2) LEC. 2. Fundamental concepts, activities, and tools of supply chain management.

SCMN 3100 FOUNDATIONS OF BUSINESS LOGISTICS (3) LEC. Pr. SCMN 2150. The course provides an introduction to logistics activities and processes from a supply chain perspective. Foundational concepts, current issues, and strategies used to obtain competitive advantage in a global business environment will be addressed. For Non-SCM Majors and Non-SCM Minors only. Credit will not be given for both SCMN 3710 and SCMN 3100.

SCMN 3710 LOGS: MNGT OF FULFILLMENT PROC (3) LEC. 3. Pr. SCMN 2150 or SCMN 2153 or SCMN 3150 or SCMN 3153. SCMN 2150/2153 requires a grade of 'C' or better. Management of logistics processes involved in meeting customer demand, including inventory, transportation, distribution, and related activities. Fall, Spring, Summer.

SCMN 3720 TRANSPORTATION AND ORDER FULFILLMENT (3) LEC. 3. Pr. SCMN 2150. Pre-requisite requires a grade of 'C' or better. Management of transportation and distribution activities involved in the order fulfillment process. Fall, Spring.

SCMN 3730 STRATEGIC SOURCING (3) LEC. 3. Pr. SCMN 2150. Pre-requisite requires a grade of 'C' or better. Addresses the scope of activities and various roles of the procurement function within the organization and between firms. Fall, Spring.

SCMN 3740 SUPPLY & DEMAND INTEGRATION (3) LEC. 3. Pr. SCMN 2150. Credit will not be given for both SCMN 3710 and SCMN 3740. SCMN 3740 is a foundational supply chain course that is focused on the key concepts and decisions needed to align supply with demand. This course is designed to provide an overview of supply chain planning to achieve integration in all time horizons-short, intermediate, and long term.

SCMN 3810 PROFESSIONAL DEVELOPMENT IN SUPPLY CHAIN MANAGEMENT (1) LEC. 1. SU. Pr. SCMN 2150 and P/C BUSI 2010. SCMN majors only. Career planning and preparation for supply chain internships and professional experience opportunities. Credit will not be given for both SCMN 3810 and BUSI 3010 or SCMN 4810. Fall, Spring.

SCMN 3910 PRACTICUM IN SUPPLY CHAIN MANAGEMENT (1-3) PRA. 1-3. SU. Pr. (SCMN 2150 or SCMN 2153 or SCMN 3150) and (CTCT 3250 or CTCT 3253). Departmental approval. CTCT 3250/3253 requires a grade of 'C' or better. SCMN majors only. Cooperatively selected field activity to gain practical SCM experience. Course may be repeated for a maximum of 6 credit hours.

SCMN 3920 INTERNSHIP IN SUPPLY CHAIN MANAGEMENT (0-6) INT. SU. Pr. (SCMN 3720 or SCMN 3730 or SCMN 3740) and (CTCT 3250 or CTCT 3253) and SCMN 3810. Departmental approval. Prerequisites require a grade of 'C' or better. SCMN majors only. Professional work experience in a supply chain focused position. Course may be repeated for a maximum of 6 credit hours.

SCMN 4620 SUSTAINABLE SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Pr. SCMN 3730. Pressure from customers, policy makers and non-governmental organizations compels companies to address the environmental footprint of their operations and the social impact they have on local communities. This course focuses on the “triple bottom line,” which addresses how a company must strategically incorporate environmental, social and economic dimensions.

SCMN 4700 SUPPLY CHAIN PERFORMANCE MANAGEMENT (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3740) and SCMN 3720 and SCMN 3730 and CTCT 3250. Pre-requisites require a grade of 'C' or better. Understanding and managing supply chain performance through the use of metrics, analysis, and improvement strategies. Fall, Spring.

SCMN 4730 SUPPLY CHAIN TOOLS AND TECH (3) LEC. 3. Pr. SCMN 3730 and SCMN 3720. Tools, techniques and technologies of various supply chain processes.

SCMN 4750 ENTERPRISE SYSTEMS IN SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Pr. SCMN 4700 and SCMN 4730. This course provides detailed hands –on training on ERP systems using SAP. The course will cover end to end ERP operation, including procurement, manufacturing, sales & distribution, human resources, cost and management accounting, etc. At the end of this class, students who complete it with a B or above will automatically be eligible for their SAP Recognition Certificate provided they have also passed SCMN 4730 and SCMN 4700 with B or above.

SCMN 4770 SUPPLY CHAIN OPERATIONS MANAGEMENT (3) LEC. 3. Pr. SCMN 3730 and SCMN 3720. Review and application of current supply chain strategies processes and information technologies required to compete in today's global marketplace. The course will focus on presenting key manufacturing management techniques used to balance supply with demand to ensure customer satisfaction.

SCMN 4800 SUPPLY CHAIN STRATEGY: A GLOBAL PERSPECTIVE (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713 or SCMN 3740) and SCMN 3720 and SCMN 3730 and (CTCT 3250 or CTCT 3253). Pre-requisites require a grade of "C" or better. Capstone course providing an intensive study of strategies used to facilitate global flows of product, information, and payments. Fall, Spring, Summer

SCMN 4820 SUPPLY CHAIN CONSULTING (3) LEC. 3. Pr. (BUAL 2600 or BUAL 2603 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3600) and BUAL 2650 and SCMN 3920. This special topic course is intended to help develop essential skills in planning and executing a company-focused consulting project.

SCMN 4900 DIRECTED STUDIES IN SUPPLY CHAIN MANAGEMENT (1-3) LEC/SEM. Departmental approval. Advanced individual research of SCM topic under direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

SCMN 4970 SPEC TOPS IN SUPPLY CHAIN MGNT (3-6) LEC. 3-6. Pr. SCMN 3720 and SCMN 3730. Current topics and issues related to the field of supply chain management. Course may be repeated for a maximum of 6 credit hours.

SCMN 5390 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713) and SCMN 3720. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. May count either SCMN 5390 or SCMN 6390.

SCMN 5500 INVENTORY AND WAREHOUSE MANAGEMENT (3) LEC. 3. Pr. SCMN 3710 and SCMN 3720. Departmental approval. Course focuses on issues related to managing inventories in a supply chain. Topics include: role of inventory in supply chains, inventory-related policies and decisions, and dealing with supply and demand uncertainty. Issues related to safety stock and replenishment planning, impact of lead times, and management of multi-echelon supply chains are covered. Additional issues related to warehousing inventory, such as storage and slotting policies, receiving and put away, order picking strategies and warehouse management are covered.

SCMN 5600 SUPPLY CHAIN PLANNING (3) LEC. 3. Pr. SCMN 3710 and SCMN 3720. Departmental approval. This course focuses on long-term and short-term planning of supply chains to provide a strategic fit with business objectives. Topics include: framework for supply chain planning and decision-making, distribution network designs and managing uncertainty, demand forecasting and aggregate planning. Issues related to supply chain coordination and planning for product availability under service levels are also covered. Additional issues related to sales and operations planning, managing economies of scale and revenue management are also covered.

SCMN 5720 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Pr. SCMN 2150 and (BUAL 2600 or BUAL 2603 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3600) and P/C BUAL 2650. Fundamentals of process improvement; techniques for performing quality control functions; quality management systems.

SCMN 6390 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. LAB. 0. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. Credit will not be given for both SCMN 5390 and SCMN 6390.

SCMN 6500 INVENTORY AND WAREHOUSE MANAGEMENT (3) LEC. 3. This course focuses on issues related to managing inventories in a supply chain. Topics include: role of inventory in supply chains, inventory-related policies and decisions, and dealing with supply and demand uncertainty. Issues related to safety stock and replenishment planning, impact of lead times, and management of multi-echelon supply chains are covered. Additional issues related to warehousing inventory, such as storage and slotting policies, receiving and put away, order picking strategies and warehouse management are covered.

SCMN 6600 SUPPLY CHAIN PLANNING (3) LEC. 3. This course focuses on long-term and short-term planning of supply chains to provide a strategic fit with business objectives. Topics include: framework for supply chain planning and decision-making, distribution network designs and managing uncertainty, demand forecasting and aggregate planning. Issues related to supply chain coordination and planning for product availability under service levels are also covered. Additional issues related to sales and operations planning, managing economies of scale and revenue management are also covered.

SCMN 6720 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Fundamentals of process improvement; techniques for performing quality control functions; quality management systems. Fall, Spring. Student should have completed a basic statistics course prior to enrolling in SCMN 6720.

SCMN 6900 DIRECTED STUDIES (3) IND. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 6960 SPECIAL PROBLEMS (3) IND. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 7600 SUPPLY MNGT AND MANUFACTURING (3) LEC. 3. Pr. P/C BUSI 7150. The management of purchasing, supply and materials management, manufacturing processes related to the fulfillment of supply chain requirements. Spring.

SCMN 7700 DEMAND MNGT & FULFILLMENT (3) LEC. 3. Pr. P/C BUSI 7150. The management of logistical processes related to the fulfillment of supply chain requirements. Primary topics include tin integrated planning, operations, and performance analysis of demand, inventory, transportation, distribution, and customer relationships. Summer.

SCMN 7770 SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Problems and analysis in the design and management of the retail, industrial and service supply chain.

SCMN 7800 SUPPLY CHAIN STRATEGY (3) LEC. 3. Pr. P/C BUSI 7150. Advanced study of integrated supply chain theory, strategy, and practice. Topics include network design, collaboration, inventory visibility, process synchronization, information management, and financial analysis. Fall.

SCMN 7900 DIRECTED STUDIES (3) IND. SU. Departmental approval. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 8150 DOCTORAL SEMINAR ON CURRENT TOPICS IN SCM RESEARCH (3) LEC. 3. LAB. 0, SEM. 0. The class is a rigorous, seminar style course on Current Topics in SCM Research. Each class will familiarize you with the key insights in a current research topic (i.e., the “hot topics”) in the SCM area. The instructor has chosen to cover a broad range of active research to give you an overview of topics that people are working on currently and are likely to work on in the future.

SCMN 8250 LSCM INTERORGANIZATIONAL THEORY SEMINAR (3) LEC. 3. LAB. 0, SEM. 0. This is an advanced theories seminar in logistics and supply chain management (LSCM). This seminar is designed to expose doctoral students to accepted research grounding in LSCM and train students to be successful researchers. Management history and ten core theories are covered. We will be discussing seminal articles in-depth with a connection to recent works. These articles are published in top journals in LSCM, Economics, International Business, Management, Marketing, and Sociology.

SCMN 8350 EMPIRICAL METHODS IN SUPPLY MANAGEMENT RESEARCH (3) LEC. 1.5. LAB. 1.5. This course provides students with an overview of quantitative empirical research in major supply chain journals. Students will read and synthesize articles in top SCM journals which employ a variety of quantitative, empirical strategies. They will be provided with instruction on the application of a variety of approaches in Stata to analyze data. Students will also perform their own quantitative analysis with data of their choice.

SCMN 8450 HISTORY OF SUPPLY CHAIN MANAGEMENT & OPERATIONS RESEARCH (3) LEC. 3. LAB. 0, SEM. 0. In this seminar, students should gain a broad understanding of SCM topics in which prior scholars have conducted academic research. A review of the key ideas and principles scholars have addressed is undertaken to critically assess how the primary research streams in SCM have developed. Understanding this development will require considerable reading and thoughtful analysis outside of class.

SCMN 8550 SEMINAR IN GLOBAL SUPPLY CHAIN MANAGEMENT (3) LEC. 3. LAB. 0, SEM. 0. In this seminar, students will gain a broad understanding of global topics connected with SCM. A review of the key ideas and principles in International Business, Cross Border Trade, and Customs Unions are discussed. The role of tariffs, import and export barriers, and free trade on local and global economies are discussed and debated in detail.

SCMN 8650 RESEARCH METHODS IN SUPPLY CHAIN MANAGEMENT - 2 (3) LEC. 0. LAB. 0, SEM. 0. In this seminar, students will gain a deep understanding of statistical and methodological issues in SCM scholarship (especially latent variables). A review of the advanced topics is offered including usage in STATA or SAS. Students may be expected to demonstrate hands on expertise in these topics including writing code, implementing the methods, interpreting results and understanding their implications.

SCMN 8750 EXPERIMENTAL METHODS IN SUPPLY CHAIN MANAGEMENT (3) LEC. 0. LAB. 0, SEM. 0. In this seminar, students will gain a deep understanding of statistical and methodological issues in SCM scholarship (with a focus on experiments). A review of the topics is offered including usage in STATA or SAS. Students may be expected to demonstrate hands on expertise in these topics including writing code, implementing the methods, interpreting results and understanding their implications.

SCMN 8900 DIRECTED STUDIES (3) IND. SU. Departmental approval. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Must be degree seeking PhD student in the Business with concentration in the Supply Chain Management program.

Supply Chain Management (SCMN)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
World History I or II	3	World History I or II or Social Science Core Elective	3
Core Science I	4	Core Science II	4
MATH 1680 Calculus with Business Applications I	4	Core Fine Arts	3
BUSI 1010 Professional and Career Development in Business I	1	COMM 1000 Public Speaking	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2110 Principles of Financial Accounting	3	ACCT 2210 Principles of Managerial Accounting	3
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
BUAL 2600 Business Analytics I	3	BUAL 2650 Business Analytics II	3
Core Literature	3	Core Literature II or Humanities Core Elective	3
SCMN 2150 Principles of Supply Chain Management	**2**	CTCT 3250 Information Analysis	3
BUSI 2010 Professional and Career Development in Business II	1		
	15		**15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
SCMN 3810 Professional Development in Supply Chain Management	**1**	MNGT 3100 Principles of Management	3	SCMN 3920 Internship in Supply Chain Management	3
SCMN 3720 Transportation and Order Fulfillment	**3**	FINC 3610 Principles of Business Finance	3		
SCMN 3730 Strategic Sourcing	**3**	**SCMN 3740 Supply & Demand Integration**	**3**		
MKTG 3310 Principles of Marketing	3	**SCMN Elective**	**3**		
Elective	3	Elective	4		
ISMN 2140 Introduction to Management Information Systems	2				
	15		**16**		**3**

Senior

Fall	Hours	Spring	Hours
SCMN 4700 Supply Chain Performance Management	**3**	**SCMN 4800 Supply Chain Strategy: A Global Perspective (SCMN Elective)**	**3**
SCMN Elective[1]	**3**	**SCMN Elective**[1]	**3**
BUSI 4010 Professional and Career Development in Business IV	1	MNGT 4800 Strategic Management	3
Elective	6	Elective	3
ACCT 2700 Business Law	3	UNIV 4AA0 Achieve the Creed	0
	16		**12**

Total Hours: 123

1 See the Harbert College advising website for approved courses.

Supply Chain Management Minor

Requirements

The minor is 15-17 semester hours (3000-level or above), depending on whether you are a business major.

You must meet all prerequisites for the required courses and chosen electives. Prerequisites will not be waived. Visit the AU Bulletin to see course descriptions and their respective prerequisites (abbreviated as “Pr”).

Courses completed to satisfy the school/college core curriculum or a major requirement (e.g. counting toward the GPA "in the major") may not be used to fulfill a minor. Supporting coursework may be used in satisfying the requirements for a minor if a minor is not required by the student's academic major.

Code	Title	Hours
Required courses (9 - 11 hours):		
SCMN 2150	Principles of Supply Chain Management**	2
SCMN 3720	Transportation and Order Fulfillment	3
SCMN 3730	Strategic Sourcing	3
SCMN 3740	Supply & Demand Integration	3

Elective courses (6 hours):	
Choose two 3-hour electives from the list of approved elective courses provided on the Harbert College of Business website.	6
Total Hours	**17**

**Business majors who pursue this minor will exclude the SCMN 2150 requirement resulting in a 15-hour minor. SCMN 2150 was formerly 3150.

Majors

- Accountancy — On-Campus Option for First Degree Candidates (p. 372)
- Accountancy — Online Option for Second Degree Candidates (p. 373)
- Business Administration — On-Campus Option (p. 395)
- Business Administration — Online Degree Completer Program (p. 396)
- Business Analytics (p. 382)
- Finance (p. 389)
- Information Systems Management (p. 384)
- Management (p. 398)
- Marketing (p. 402)
- Supply Chain Management (p. 407)

Minors

Business Minor

A business minor is available within the College of Business for non-business majors. The minor includes four required courses and one elective course. Courses correspond with the common body of knowledge as specified by AACSB International. Completion of these courses provides a basic understanding of the foundations of business administration and facilitates progress toward graduate work in business.

Required Courses:

Code	Title	Hours
ACCT 2810	Fundamentals Of Accounting	3
or ACCT 2110	Principles of Financial Accounting	
FINC 3810	Foundations of Business Finance	3
or FINC 3610	Principles of Business Finance	
MKTG 3810	Foundations of Business Marketing	3
or MKTG 3310	Principles of Marketing	
MNGT 3810	Management Foundations	3
or MNGT 3100	Principles of Management	

Elective Courses (choose one):

Code	Title	Hours
BUSI 3250	International Business	3
or ECON 2030	Principles of Macroeconomics	

The Foundations courses (ACCT 2810, FINC 3810, MKTG 3810, MNGT 3810) are designed for non-business majors and are highly recommended for students pursuing the business minor. While the Principles courses are options for students pursuing the minor, students should be aware that those course options are designed for business majors.

If any of these courses are taken to fulfill a University Core Curriculum requirement or a requirement in the major/professional option, alternative courses may be substituted with departmental approval. See course descriptions for appropriate prerequisites. Non-business majors who are seeking a business minor should declare the minor at https://www.aub.ie/NBdeclareminor. Students seeking a business minor must earn an overall GPA of at least 2.0 in all courses required for the minor.

Honors Business Minor

The Honors Business minor is 15 hours consisting of five 3-hour courses: four required courses (12 hours) and one elective course (3 hours). Four of the five courses must be taken at the honors level to successfully complete the minor. The minor is limited to students in the Honors College.

Code	Title	Hours
Required Courses:		
ACCT 2110/2117	Principles of Financial Accounting *	3
FINC 3610/3617	Principles of Business Finance	3
MNGT 3100/3107	Principles of Management	3
MKTG 3310/3317	Principles of Marketing	3
Elective Courses (choose one):		
BUSI 3250/3257	International Business	3
ECON 2030/2037	Principles of Macroeconomics	3

* Students completing this minor in the College of Business summer abroad program will satisfy the Accounting requirement with ACCT 2817: Honors Fundamentals of Accounting.

College of Education

JEFFREY T. FAIRBROTHER, *Dean and Wayne T. Smith Distinguished Professor*
JARED RUSSELL, *Associate Dean for Academic and Faculty Affairs*
DAVID CROWE, *Assistant Dean for Assessment and Certification Officer*
RODNEY GREER, *Assistant Dean for Research*

THE COLLEGE OF EDUCATION is home to innovative thinkers and doers, working together to meet society's education and health challenges, building better futures for all. College of Education graduates are equipped for a variety of career options as educators, administrators, health professionals, counselors, rehabilitation specialists, and more, transforming their communities, our nation, and the world. Through our shared commitment to service and equity, undergraduate and graduate students have unique opportunities for hands-on, experiential learning, real-world research, and compelling outreach.

The College of Education prepares students to excel as education, health, and rehabilitation leaders through several distinct academic areas represented by:

- Department of Curriculum and Teaching (p. 471)
- Department of Educational Foundations, Leadership, and Technology (p. 510)
- Department of Special Education, Rehabilitation, and Counseling (p. 539)
- School of Kinesiology (p. 521)

Admission to the College

Review Auburn University admission requirements (p. 134) for general admission guidelines and specific degree or program sections for any additional requirements. On-campus students may request a transfer into the College of Education by contacting their current academic advisor for their program area. Although currently enrolled students may transfer into any of the college's undergraduate majors, students transferring into the Teacher Education Majors should review GPA restrictions and other admission requirements. Please discuss progression and completion requirements with an academic advisor in the College of Education (https://education.auburn.edu/about/student-services/current-students.php).

Additionally, College of Education students are charged a fee for professional liability insurance.

Accreditation and Approvals

Auburn University's College of Education is accredited by the Council for the Accreditation of Educator Preparation (CAEP). All programs preparing teachers and other professional school personnel are approved by the Alabama State Board of Education (ALSBE). In addition, the state of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of AU's graduates who have met all Alabama State Department of Education

(ALSDE) certification requirements when they apply for certification in other states. Students planning to teach in a state other than Alabama, should contact that state's certification agency to ensure compliance with any additional state requirements.

Undergraduate Degrees (p. 412)

The College of Education offers many undergraduate degree options, including several minors, with a focus on teacher preparation, health, and rehabilitation studies.

Teacher Education Majors

The college's teacher education majors are designed to ensure that program graduates have the knowledge, skills, and dispositions to help all students learn. These programs maintain selective admission, retention, and graduation requirements and are in compliance with the Alabama State Board of Education's (ALSBE) rules for educator preparation. Therefore, it is critical that students meet with their academic advisor for guidance throughout the program to ensure state guidelines are followed to meet certification requirements. All transfer courses must have been completed at a regionally accredited institution. Detailed information on the specific requirements for teacher education admission, clinical experiences, clinical residency, graduation, certification, and assurance of competence is available in the Teacher Education Majors Section (p. 468) or on the College of Education (https://education.auburn.edu/) website.

AUTeach

AUTeach is a teacher preparation program designed for undergraduate science students in the College of Sciences and Mathematics (COSAM). Students completing the AUTeach program along with their COSAM degree will explore the profession of science teaching through a hands-on approach, graduate with a double major, and will be certified to teach secondary science in Alabama public schools. Currently, students majoring in Chemistry, Physics, or the Interdisciplinary Health Sciences Concentration of Biomedical Sciences can complete the double-major in four years. Other programs might require additional time. Please visit https://auburn.edu/auteach (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fauburn.edu%2Fauteach&data=05%7C02%7Cckc0023%40auburn.edu%7C37b0e6f00efb41d1222308dc79ce1d67%7Cccb6deedbd294b388979d72780f62d3b%7C0%7C0%7C638519173363226223%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=WmHHajSy246Av755yoKjJXzxJdeHl4kCqspP99ZNbVs%3D&reserved=0) for details on the program and to request additional information.

Health and Rehabilitation-related Majors

Exercise science and exercise, performance, and health optimization programs are offered in the School of Kinesiology (https://education.auburn.edu/kinesiology/). These programs promote knowledge about physical activity and performance. They prepare students for careers in physical therapy, occupational therapy, medicine, corporate wellness or cardiac rehabilitation, coaching, strength and conditioning, or personal training. The Department of Special Education, Rehabilitation, and Counseling offers one program in rehabilitation and disability studies (https://education.auburn.edu/serc/academic-programs/rehab-disability-studies/). This program prepares undergraduates to work in the professional positions that assist individuals with disabilities in achieving maximum independence through expanding knowledge of the complexities of disability within the context of society. Students are prepared to become professionals in the fields of disability studies and services that include counseling, allied health fields (occupational therapy/physical therapy), case management, human services, and supported employment.

Graduate Degrees (p. 412)

The College of Education offers graduate programs that prepare professionals in the fields of education, kinesiology, counseling, and rehabilitation. Offerings include M.Ed., M.S., Ed.S., D.PT., and Ph.D. degree programs, graduate minors, and graduate certificates.

Non-degree Programs

The Physical Activity and Wellness program is a non-degree program that requires 8 hours (4 courses), including KINE 1100 (https://bulletin.auburn.edu/search/?P=KINE%201100), Wellness, and 3 courses (each one from a different category of physical activity). Categories include cardio-respiratory fitness (PHED 1200s), fitness and conditioning (PHED 1300s), team sports (PHED 1400s), individual sports (PHED 1500s), performance activities (PHED 1600s), and aquatic skills (PHED 1700s). Students who complete the 8-hour program may apply for a Physical Activity and Wellness Certificate, issued by the School of Kinesiology. Students may also elect to take individual courses, without completing the 8-hour program. Of course, students may elect to take more than four courses if they desire to use the program to ensure a regular physical activity program.

The Education to Accomplish Growth in Life Experiences for Success, or EAGLES (https://education.auburn.edu/serc/academic-programs/eagles/) program is a comprehensive transition program (CTP) for students with intellectual disabilities. EAGLES provides

a post-secondary education opportunity for students with intellectual disabilities to engage in a two or four-year campus experience to help students achieve their employment and independent living goals upon successful completion of the program. The EAGLES program is a non-degree program focusing on (1) academic enrichment, (2) personal and social skills, (3) independent living skills, (4) health and wellness, and (5) integrated work experiences. Students in the program receive an inclusive post-secondary education providing them with an enriching and rewarding Auburn experience as they prepare to transition to gainful employment, that aligns with the student's strengths and interests and independent living. The EAGLES program curricula are structured to help students become contributing members of society through their career interests both now and in the future.

Minors (p. 40)

The College of Education offers five undergraduate minors, including community music, counseling, office systems management, sport coaching, and training and workforce development.

Additionally, graduate minors include critical studies in education, psychology of learning, and sport management.

Minors

- Community Music (p. 493)
- Counseling (p. 553)
- Office Systems Management (p. 507)
- Special Education for Health and Related Service Professionals (p. 510)
- Sport Coaching (p. 538)
- Training and Workforce Development (p. 521)

Graduate Programs

The College of Education offers graduate programs that prepare professionals in the fields of education, kinesiology, counseling, and rehabilitation. Offerings include M.Ed., M.S., Ed.S., D.PT., and Ph.D. degree programs, graduate minors, and graduate certificates.

Departments

- Curriculum and Teaching — Graduate Certificate, MEd, MS, EdS, PhD (p. 1586)
- Educational Foundations, Leadership and Technology — Graduate Certificate, MEd, MS, EdS, PhD, Minor (p. 1641)
- School of Kinesiology — Graduate Certificate, MS, PhD, DPT, Minor (p. 1693)
- Special Education, Rehabilitation, and Counseling — Graduate Certificate, MA, MEd, MS, EdS, PhD (p. 1766)

Curriculum and Teaching — Graduate Certificate, MEd, MS, EdS, PhD

Degree Programs

- Agriscience Education — MS, MEd, EdS (p. 1588)
- Business and Marketing Education — MS, MEd, EdS (p. 1591)
- Career and Technical Education — PhD (p. 1594)
- Early Childhood Education — MS, MEd, EdS, PhD (p. 1595)
- Elementary Education — MS, MEd, EdS, PhD (p. 1602)
- English for Speakers of Other Languages — MEd (p. 1608)
- English Language Arts Education — MS, MEd, EdS, PhD (p. 1605)
- French Education — MS, MEd, EdS (p. 1597)
- Mathematics Education — MEd, EdS, PhD (p. 1609)
- Music Education: Instrumental — MS, MEd, EdS, PhD (p. 1612)
- Music Education: Vocal — MS, MEd, EdS, PhD (p. 1612)
- Reading Education — MS, MEd, PhD (p. 1616)
- Science Education: General Science — MS, MEd, EdS, PhD (p. 1617)
- Science Education: Biology — MS, MEd, EdS, PhD (p. 1617)

- Science Education: Chemistry — MS, MEd, EdS, PhD (p. 1617)
- Science Education: Physics — MS, MEd, EdS, PhD (p. 1617)
- Social Science Education: General Social Science — MEd, EdS, PhD (p. 1627)
- Social Science Education: History — MEd, EdS, PhD (p. 1627)
- Spanish Education: Spanish — MS, MEd, EdS (p. 1597)
- Teaching English for Specific Purposes — MS (Non-Certification) (p. 1632)

Graduate Certificates

- Community Music (p. 1632)
- Reading Instruction (p. 1633)
- Teaching English as a Second Language (TESL)/Teaching English as a Foreign Language (TEFL) (p. 1633)

Educational Foundations, Leadership and Technology — Graduate Certificate, MEd, MS, EdS, PhD, Minor

Degree Programs

- Administration of Elementary and Secondary Education — MEd, PhD (p. 1643)
- Administration of Higher Education — MEd, PhD (p. 1645)
- Administration of Supervision and Curriculum — MEd, PhD, EdS (p. 1647)
- Adult Education — MS, MEd, PhD, EdS (p. 1648)
- Educational Psychology — PhD (p. 1651)
- Educational Research, Measurement, and Evaluation — MS (p. 1651)

Graduate Certificates

- Adult Education and English Language Teaching (p. 1649)
- College/University Teaching (p. 1649)
- Educational Leadership (p. 1650)
- Extension Educator (p. 1650)
- Instructional Leadership (p. 1652)
- Instructional Technology for Distance Education (p. 1652)
- Program Evaluation (p. 1653)
- Technology Educator (p. 1653)
- Workforce Education, Training, and Development (p. 1654)

Minors

- Critical Studies in Education (p. 1650)
- Psychology of Learning (p. 1800)
- Sport Management (p. 1699)

School of Kinesiology — Graduate Certificate, MS, DPT, PhD, Minor

Degree Programs

- Exercise, Performance and Health Optimization — MS (p. 1695)
- Exercise Science — MS (p. 1695)
- Kinesiology — PhD (p. 1696)
- Physical Therapy — DPT (p. 1698)
- Physical Education/Teacher Education — MS (p. 1696)

Graduate Certificate

- Movement Skill Analysis (p. 1696)

Graduate Minor

- Sport Management (p. 1699)

Special Education, Rehabilitation, and Counseling — Graduate Certificate, MA, MEd, MS, EdS, PhD

Degree Programs

- Clinical Mental Health Counseling (Option within Counselor Education program) — MEd (p. 553)
- Clinical Rehabilitation Counseling — MEd (p. 1771)
- Collaborative Teacher Special Education: K–12 — MS, MEd, EdS (p. 1772)
- Counseling Psychology — MA, PhD (p. 554)
- Counselor Education — PhD (p. 555)
- Early Childhood/Elementary Special Education: P–6 — MS, MEd (p. 1778)
- Rehabilitation and Special Education — PhD (p. 1780)
- School Counseling (Option within Counselor Education program, Certification) — MEd (p. 561)

Graduate Certificates

- Inclusive Elementary Education Practices (p. 561)
- Intervention for Students with Autism and Developmental Disabilities (p. 1781)
- Transition Specialist (p. 1781)
- Vocational Evaluation Forensic (p. 1781)
- Vocational Evaluation Forensic DE (p. 1782)

Special Requirements for Graduate Programs that Lead to Educator Certification

Each academic department in the College of Education offers one or more degree programs that prepare educator professionals. These program offerings include the Master's of Education (M.Ed.), Master's of Science (M.S.), and Education Specialist (Ed.S.).

Master's Degrees (MEd or MS)

The college offers two options for master's degrees that lead to certification. Most traditional M.Ed./M.S. programs are designed for individuals to further develop knowledge and skills within the same subject area as their initial certification. However, there are special cases for individuals pursuing a traditional M.Ed./M.S. for the following fields: English for speakers of other languages, reading specialists, special education, school counseling, and instructional leadership. The Alternative M.Ed./M.S. option is designed for individuals who have a baccalaureate degree in another field and want to earn their first teaching certificate.

Traditional Master's Option

Admission Requirements to the Traditional Master's Option

- An ALSDE approved criminal history background check
- A valid bachelor's-level certificate in the same teaching field for which the master's level certification is sought (except for special education, English for speakers of other languages [ESOL], reading specialists, school counseling, and instructional leadership)**
- Special Cases**
  - English for speakers of other languages requires a valid bachelor's level certificate in any teaching field
  - Special Education requires a valid bachelor's level certificate in any teaching field
  - Reading Specialists requires either:
    - A valid bachelor's level professional educator certificate in early childhood education, elementary education, or collaborative special education (K-6), and two full years of full-time classroom teaching experience OR
    - A valid bachelor's level professional educator certificate in any area of education, two full years of full-time classroom teaching experience, and a passing score on the Praxis Teaching Reading test validated for use in Alabama
  - School Counseling has two options that vary depending on a valid bachelor's level certificate as well as two years of full-time classroom teaching experience; or a bachelor's degree from an accredited institution in a related field with no experience requirement
  - Instructional Leadership requires three full years of full-time professional educational work experience in a P-12 setting, which must include teaching experience, and the submission of an admission portfolio before an interview

Program Progression and Retention Requirements

- Program specific requirements are outlined in the COE Graduate Student Handbook

Program Completion

- Successful completion of a survey of special education course unless that course was taken for prior level certification (An individual who completed a survey of special education course prior to meeting requirements for unconditional admission to the M.Ed. [Class A] program July 1, 2017, and thereafter, must take an ALSDE approved diversity course from the college that focuses on one of the following categories: methods of accommodating instruction to meet the needs of students with exceptionalities in inclusive settings, multicultural education, teaching English language learners, rural education, or urban education)
- Satisfactory completion of the program checklist meeting the minimum ALSDE GPA requirements
  - Unconditional Admissions prior to July 1, 2017, individuals must have a GPA of 3.0 on the program check sheet
  - Unconditional Admissions on or following July 1, 2017, individuals must have a GPA of 3.25 on the program check sheet
- Special Cases**
  - Successful completion of all internship requirements for ESOL, Reading Specialists, and School Counseling programs
  - All programs (special education, English for speakers of other languages [ESOL], reading specialists, school counseling, and instructional leadership) are required to pass the appropriate content assessment(s) in the area of specialization as required by the Alabama State Department of Education

Certification

- At least a valid Class B Professional Educator Certificate (If an individual is unconditionally admitted to a Class A program based on a valid bachelor's-level certification from another state, completes the M.Ed. [Class A] program and subsequently applies for Alabama certification at the Class A level, then the individual must hold a valid Alabama Class B certificate before applying for Class A certification.)
- The graduate's Auburn University transcript documenting an earned Master's degree
- A completed certification application submitted to the Office of Student Services

Alternative Master's (MEd or MS)

Admission Requirements

- An ALSDE approved criminal history background check
- An official transcript from an accredited institution documenting either:
  - An earned bachelor's degree with the following minimum GPA's OR
    - For Unconditional Admissions prior to July 1, 2017, individuals must have a GPA of 2.50 on the degree granting transcript
    - Unconditional Admissions on or following July 1, 2017, individuals must have a GPA of 2.75 on the degree granting transcript
    - For Unconditional Admissions on or following February 25, 2022, individuals must have a GPA of 2.50 on the degree granting transcript
  - An earned Master's degree with at least a 3.0 GPA on the degree granting transcript
- Documentation of the Teaching Field requirement
  - Programs in Early Childhood Special Education and Collaborative Special Education (K-6 or 6-12)
    - Shall have earned at least 12 semester hours of acceptable credit, as verified on the official transcripts, in each of the following areas: English language arts, mathematics, science and social studies OR
    - Shall have earned a current passing score on the prescribed Praxis subject assessment
  - Programs in the Secondary Teaching Fields
    - Shall have earned at least 30 semester hours of credit appropriate to the field including at least 18 semester hours of upper division credit OR
      - For English language arts, coursework must include courses in literature, grammar, reading skills, writing, speech, theatre, and print or broadcast journalism
      - For general science, coursework must include courses in biology, chemistry, Earth or space science, and physics
      - For social science, coursework must include courses in economics, geography, history, and political science
    - Shall have earned a current passing score on the prescribed Praxis subject assessment required for the area of specialization
  - Programs in Career and Technical Education and P-12 Programs (e.g., Physical Ed.)
    - Shall have earned at least 30 semester hours appropriate to the teaching field including at least 18 semester hours of upper-division credit

Admission to Clinical Residency (Internship)

- Completion and submission of the Clinical Residency (Internship) Application one year in advance
- Unconditional Admission to Educator Preparation Program
- Satisfactory completion of all courses on the program checklist designated as prerequisites for clinical residency
- Meeting current ALSDE GPA requirements based on the date of Unconditional Admissions
  - For students admitted to educator preparation program prior to July 1, 2017 - Minimum 2.50 grade-point average on all college coursework counting towards the program checklist
  - For students admitted to teacher education July 1, 2017, and thereafter - Minimum 2.75 grade-point average on all college coursework counting towards the program checklist
- Passing score(s) on the appropriate content assessment(s) required for the area of specialization
- Demonstrated potential for teaching with program approval

Students who fail to meet these criteria may submit new evidence in an effort to satisfy admission to clinical residency/internship requirements. Specific programs may have additional requirements for this transition point. Students should meet with their academic advisor to discuss any additional program specific requirements.

Exit from Clinical Residency (Internship)

- Satisfactory completion of all key assessments including submission of edTPA portfolio for official scoring
- Satisfactory completion of teaching requirements (20 full days of teaching, including 10 consecutive days)
- Satisfactory completion of attendance requirements (full-time, full semester)
- Satisfactory compliance with all rules and regulations outlined in the Clinical Residency Handbook

Specific programs may have additional requirements for this transition point. Students should meet with their academic advisor to discuss any additional program specific requirements.

Graduation

- Completion of all courses on the program checklist (Note: Approvals of Course Substitution Requests must be on file in the Office of Student Services, 3464 Haley)
- Meeting the minimum GPA requirements:
  - For students admitted to the educator preparation program prior to July 1, 2017 - Minimum 2.50 grade-point average all coursework counting towards the program check sheet
  - For students admitted to teacher education July 1, 2017, and thereafter - Minimum 3.25 grade-point average on all college coursework counting towards the program check sheet
- Satisfactory grade in clinical residency/internship including completion of all requirements

Specific programs may have additional requirements for this transition point. Students should meet with their academic advisor to discuss any additional program specific requirements.

Education Specialist (EdS)

The Ed.S. (Class AA) program prepares educators to expand their knowledge, teaching abilities, and leadership potential. Persons who complete Class AA programs shall have acquired knowledge and skill above the level required for completion of a M.Ed. (Class A) program.

Admission Requirements to the Education Specialist (Ed.S.)

- An ALSDE approved criminal history background check
- A valid Master's level professional educator certificate in the same field for which the Ed.S. (Class AA) is sought
- Special cases:
  - A teacher with a valid bachelor's level certificate in early childhood education, elementary education, or English language arts and a valid master's level certificate in reading specialists may be unconditionally admitted to the Ed.S. (Class AA) program in the subject field of the bachelor's level certificate (i.e., early childhood education or elementary education)
  - A teacher with a valid bachelor's level certificate in any teaching field and a valid master's level certificate in English for speakers of other language (ESOL) may be unconditionally admitted to the Ed.S. (Class AA) program in the same teaching field for which the teacher holds a valid bachelor's level certificate

- While the ALSDE allows, “A teacher with a valid bachelor’s level certificate in a teaching field may be unconditionally admitted to an Ed.S. (Class AA) program in special education or English for speakers of other languages”; Auburn University does not offer these options.

Program Progression and Retention Requirements

- Program specific requirements are outlined in the COE Graduate Student Handbook

Program Completion

- Successful completion of a survey of special education course unless that course was taken for prior level certification (An individual who completed a survey of special education course prior to meeting requirements for unconditional admission to the Ed.S. [Class AA] program July 1, 2017, and thereafter, must take an ALSDE approved diversity course from the college that focuses on one of the following categories: methods of accommodating instruction to meet the needs of students with exceptionalities in inclusive settings, multicultural education, teaching English language learners, rural education, or urban education)
- Satisfactory completion of the Program checklist meeting the minimum ALSDE GPA requirements
  - Unconditional Admissions prior to July 1, 2017, individuals must have a GPA of 3.25 on the program check sheet
  - Unconditional Admissions on or following July 1, 2017, individuals must have a GPA of 3.50 on the program check sheet
- Successful completion of any testing requirement(s)
  - At the present time, there is no testing requirement for Class AA certificate for teachers except for teachers who earn initial Class AA certification in a special education teaching field. While the ALSDE allows for initial Class AA certification in special education, Auburn University does not allow for students to be admitted to the Class AA program in special education without prior level certification. Such teachers must meet the Praxis requirements of the Alabama Educator Certification Assessment program as a precondition for graduation and certification.
- Special Cases:
  - Successful completion of a practicum shall be required for initial certification in special education teaching field. For programs that meet rules for Grades K-6 and 6-12 or Grades P-12, the practicum must include both elementary and secondary placements.

Certification

- At least a valid Class A Professional Educator Certificate (If an individual is unconditionally admitted to a Class AA program based on a valid bachelor’s-level certification from another state, completes the Ed.S. (Class AA) program and subsequently applies for Alabama certification at the Class AA level, then the individual must hold a valid Alabama Class A certificate before applying for Class AA certification.
- The graduate’s Auburn University transcript documenting an earned Master’s degree
- A completed certification application submitted to the Office of Student Services

Adult Education Courses

ADED 4010 LEARNING RESOURCES IN AREA OF SPECIALIZATION (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

ADED 4050 METHODS OF TEACHING IN ORGANIZATIONS (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education.

ADED 4600 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing, and life-long learning.

ADED 4610 DIRECTED WORK EXPERIENCE (3) LEC. 3. SU. In-service, supervised work experience individually designated for part-time or summer work experience.

ADED 4620 COMMUNITY CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources.

ADED 4650 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3. Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities.

ADED 4660 TEACHING IN THE NON-SCHOOL SETTING (3) LEC. 3. Planning, conducting, and supervising instruction for adults in varied non-school settings.

ADED 4900 INDEPENDENT STUDY (1-6) IND. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 4910 PRACTICUM (1-6) PRA. SU. Departmental Approval. Experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 4920 PROFESSIONAL INTERNSHIP IN ADULT EDUCATION (9) INT. 9. SU. Supervised internship experiences in a school or other appropriate setting. Evaluation and analysis of the internship experience. Or Minor.

ADED 4970 SPECIAL TOPICS (1-6) LEC. Current or special topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 7010 LEARNING RESOURCES (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. May count either ADED 7010 or ADED 7016.

ADED 7050 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 3. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education. May count either ADED 7050 or ADED 7056.

ADED 7060 CURRICULUM AND PROGRAM PLANNING IN ADULT EDUCATION (3) LEC. 3. Introduction to principles and practices involved in designing education programs in the area of specialization. May count either ADED 7060 or ADED 7066.

ADED 7600 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing and life-long learning. May count either ADED 7600 or ADED 7606.

ADED 7620 CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources. May count either ADED 7620 or ADED 7626.

ADED 7640 WORKFORCE EDUCATION (3) LEC. 3. Identification and evaluation of basic skills problems in the workplace. Strategies for addressing workplace education issues. May count either ADED 7640 or ADED 7646.

ADED 7650 TEACHING DIVERSE POPULATIONS IN ADULT EDUCATION (3) LEC. 3. This course is designed to define, analyze, and understand diverse populations of adult learners with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in workforce education, community agencies, higher education, or other educational roles.

ADED 7670 ADULT EDUCATION IN COOPERATIVE EXTENSION (3) LEC. 3. Exploration of the unique relationship between adult education and the Cooperative Extension System. May count either ADED 7670 or ADED 7676.

ADED 7680 EXPERIENTIAL LEARNING IN ADULT EDUCATION (3) LEC. 3. This course is designed to introduce the key theories of teaching and learning related to experiential learning in adult education and training.

ADED 7690 MEETING DIVERSE NEEDS IN ADULT EDUCATION SETTINGS (3) LEC. 3. This course provides an innovative look at disability services in post-secondary institutions. Learners will study the history of disability services, legislation, campus accessibility, assessment of the accessibility of adult education settings and other topics of interest.

ADED 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 3 credit hours.

ADED 7910 PRACTICUM (1-3) DSL/PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 3 credit hours.

ADED 7920 INTERNSHIP (1-10) DSL/INT. SU. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. May count either ADED 7920 or ADED 7926. Course may be repeated for a maximum of 10 credit hours.

ADED 7950 SEMINAR (1-3) DSL/SEM. SU. Presentation of research projects, analysis of procedures, and findings. Course may be repeated for a maximum of 3 credit hours.

ADED 7960 READINGS (1-3) DSL/IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

ADED 7970 SPECIAL TOPICS (1-6) LEC. 1-6. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

ADED 7990 RESEARCH AND THESIS (1-10) DSL/MST. Departmental approval. Individualized support and direction for students writing their thesis. Course may be repeated with change in topics.

ADED 8900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 8910 PRACTICUM (1-6) DSL/PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college, or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

ADED 8950 SEMINAR (1-6) DSL/SEM. SU. Presentation by graduate students of research projects and/or analysis of procedures and findings. Course may be repeated for a maximum of 6 credit hours.

ADED 8960 SPECIAL PROBLEMS (1-6) IND. Departmental approval. Critical analysis of current and classical research writings. Course may be repeated for a maximum of 6 credit hours.

ADED 8970 SPECIAL TOPICS (1-6) DSL. Departmental approval. Current or advanced topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 8980 FIELD PROJECT (1-10) DSL/FLD. SU. Field project formulated, planned, conducted, evaluated, and reported in appropriate written form and oral formats under the direction of the student's major professor. Course may be repeated for a maximum of 10 credit hours.

ADED 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Departmental approval. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours

Middle School Education Courses

CTMD 4190 CURRICULUM AND TEACHING IN THE MIDDLE SCHOOL (3) LEC. 2. LAB. 2. Admission to Teacher Education. To introduce and prepare undergraduate education students for the middle school student, middle school teaching, and middle level philosophy while incorporating reflective decision making.

CTMD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 4910 PRACTICUM IN MIDDLE SCHOOL EDUCATION (1-6) PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTMD 4920 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTSE 4200 or P/C CTSE 4203. Admission to Clinical Residency. Supervised teaching in a public middle or secondary school, abroad, accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTMD 4920 or CTMD 4923.

CTMD 4970 SPECIAL TOPICS (1-4) LEC. Course may be repeated for a maximum of 4 credit hours.

CTMD 5010 TEACHING MATHEMATICS: MIDDLE SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. The prospective middle school or junior high school mathematics teacher must examine the characteristics of students this age. Teaching strategies must be developed which lead not only to the learning of correct mathematics but also address the needs of a wide variety of learners. May count either CTMD 5010 or CTMD 6010.

CTMD 5011 PRACTICUM IN MIDDLE SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTMD 5010. Admission to Teacher Education. This course is designed to provide 21 clock hours of teaching and experience in Middle School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTMD 6010 TEACHING MATHEMATICS: MIDDLE SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. The prospective middle school or junior high school mathematics teacher must examine the characteristics of students this age. Teaching strategies must be developed which lead not only to the learning of correct mathematics but also address the needs of a wide variety of learners. May count either CTMD 5010 or CTMD 6010.

CTMD 6011 PRACTICUM IN MIDDLE SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTMD 6010. This course is designed to provide 21 clock hours of teaching and experience in Middle School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTMD 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to the respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 7970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

Career and Technical Courses

CTCT 2100 POWER EQUIPMENT TECHNOLOGY (3) LEC. 2. LAB. 3. Repair and maintenance of small air-cooled engines and power equipment in Agriculture. May count either CTCT 2100 or CTCT 3100.

CTCT 2200 COMPUTER LITERACY IN BUSINESS EDUCATION (3) LEC. 1. LAB. 4. Advanced formatting, processing, and evaluation of business correspondence, as well as administrative and employment documents. Includes basic computer literacy skills. May count either CTCT 2200 or CTCT 2203.

CTCT 3000 LEADERSHIP SKILLS FOR PERSONAL AND ORGANIZATIONAL DEVELOPMENT (3) LEC. 3. Organizational and leadership skills needed to become successful professionals in work or community activities; skills and strategies for conducting efficient meetings.

CTCT 3250 INFORMATION ANALYSIS (3) LEC. 3. Decision-making and business problem solving using microcomputer software applications including spreadsheets, database management programs, and operating systems. May count either CTCT 3250 or CTCT 3253.

CTCT 4000 CLASSROOM/LABORATORY MANAGEMENT, ORGANIZATION AND EVALUATION IN CAREER AND TECHNICAL EDUCATION (2) LEC. 2. Admission to Teacher Education. Organization, objectives, principles, management, and evaluation of career and technical education classrooms, laboratories, and programs. May count either CTCT 4000 or CTCT 4003.

CTCT 4030 CAREER AND TECHNICAL STUDENT ORGANIZATIONS (3) LEC. 3. Survey of career and technical student organizations; procedures involved in developing and implementing informal and co-curricular educational programs for students and preparing students for state and national competitions.

CTCT 4140 AGRICULTURAL STRUCTURE AND METAL FABRICATION TECHNOLOGY (3) LEC. 2. LAB. 3. Materials selection and construction procedures for carpentry, concrete, masonry, electricity, plumbing, and metal fabrication.

CTCT 4160 SUPERVISED AGRICULTURAL EXPERIENCE PROGRAMS (2) LEC. 2. Responsibility for SAEP planning, supervision, and evaluation of entrepreneurship, placement, exploratory, analytical, and experimental SAEPs and record books; completing award applications.

CTCT 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. The student's learning efforts are guided toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTCT 4920 CLINICAL RESIDENCY (12) AAB/DSL. 40. SU. Admission to Clinical Residency. Supervised clinical residency experiences abroad in a school or other appropriate setting. Evaluation and analysis of the clinical residency experience. May count either CTCT 4920 or CTCT 4923.

CTCT 4940 DIRECTED FIELD EXPERIENCE IN AREA OF SPECIALIZATION (1-3) DAG/FLD. SU. Supervised occupational work experience in an approved specialization-related occupation. Departmental approval. May count either CTCT 4940 or CTCT 4943. Course may be repeated for a maximum of 3 credit hours.

CTCT 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) DSL. Departmental approval. Current or special topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 5050 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Admission to Teacher Education. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within career and technical education. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 5060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Admission to Teacher Education. Introduction to principles and practices involved in designing education programs in the area of specialization. May count CTCT 5060, CTCT 5063, CTCT 6060, or CTCT 6066.

CTCT 5080 PRINCIPLES OF COORDINATION (3) LEC. 3. Admission to Teacher Education. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080 or 6080.

CTCT 5200 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, systems, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 6200 or CTCT 6200/CTCT 6206.

CTCT 5240 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 5240/CTCT 5243 or CTCT 6240/CTCT 6246.

CTCT 5250 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May Count Either CTCT 3250/CTCT 3253 or CTCT 5250/CTCT 5253 CTCT 6250/CTCT 6256.

CTCT 5260 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/CTCT 6266.

CTCT 5940 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience in a Commerce and Information Technology environment. May count either CTCT 4940/CTCT 4943 or CTCT 5940/CTCT 5943 or CTCT 6940/CTCT 6946.

CTCT 6050 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within the area of specialization. Admission to alternative master's program. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 6060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Introduction to principles and practices involved in designing educational programs in the area of specialization. Admission to alternative master's program. May count CTCT 5060, CTCT 6060, or CTCT 6066.

CTCT 6080 PRINCIPLES OF COORDINATION (3) LEC. 3. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080, CTCT 5083, CTCT 6080, or CTCT 6086.

CTCT 6200 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 5203 or CTCT 6200/CTCT 6206.

CTCT 6240 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 6240/CTCT 62406 or CTCT 5240/5243.

CTCT 6250 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May count either CTCT 6250/CTCT 6256 or CTCT 5250/5253.

CTCT 6260 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/6266.

CTCT 6940 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience and software application in a Commerce and Information Technology environment. May count either CTCT 6940/CTCT 6946 or CTCT 5940/5943.

CTCT 7000 FOUNDATIONS OF CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Philosophical, historical, economic, and sociological perspectives of vocational education in relation to the organization of vocational education programs. May count either CTCT 7000 or CTCT 7006.

CTCT 7010 YOUTH PROGRAM DEVELOPMENT (3) LEC. 3. Developing, managing, and evaluating formal and informal youth education programs; training volunteers for youth development programs; securing and developing supporting resources. Departmental approval. May count either CTCT 7010 or CTCT 7016.

CTCT 7100 TEACHING MECHANICAL TECHNOLOGY (3) LEC. 2. LAB. 2. Theory and practice of managing agricultural mechanics laboratories, theories of machine operation, and maintaining laboratory equipment. May count either CTCT 7100 or CTCT 7106.

CTCT 7120 COURSES OF STUDY IN AGRISCIENCE EDUCATION (3) LEC. 3. Departmental approval. Emerging technologies in agriscience education; principles and procedures of curriculum construction applied to courses of study in agriscience education.

CTCT 7200 CAREER AND OCCUPATIONAL INFORMATION (3) LEC. 3. Trends and issues in occupational structure, job qualifications and requirements, and sources of occupational information for new and emerging occupations; analysis of career education models for students.

CTCT 7240 ADMINISTRATIVE MANAGEMENT (3) LEC. 3. Management of office systems, information and personnel. Managing and controlling administrative services.

CTCT 7300 INTEGRATING TECHNOLOGY IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

CTCT 7400 AGRICULTURAL LITERACY EDUCATION (3) LEC. 3. Theories and application of agricultural literacy related scientific and technologically based concepts and processes required for personal decision making, participating in civic and cultural affairs, and economic productivity.

CTCT 7710 ADVANCED TEACHING METHODS (3) LEC. 3. Analysis of research in theories of teaching and learning, effective teacher characteristics, learning styles, teaching methodologies, and diversity in teaching.

CTCT 7720 ADVANCED PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Issues affecting the development and management of educational programs; strategies for improving educational programs.

CTCT 7730 PROGRAM EVALUATION (3) LEC. 3. Principles and procedures used in evaluating academic- related programs. Alternative approaches to evaluation and practical guidelines for conducting evaluations.

CTCT 7750 ADMINISTRATION OF CAREER AND TECHNICAL EDUCATION (3) DAG. Introduction to concepts, theories and practices related to administration, organizational behavior, and leadership in secondary and post-secondary vocational education programs.

CTCT 7760 COMPREHENSIVE PLANNING IN CAREER AND TECHNICAL EDUCATION (3) LLB. Processes of comprehensive planning for vocational education programs at high school and secondary school levels using local, state, and regional data.

CTCT 7770 CLINICAL SUPERVISION (3) LEC. 3. Theories, concepts, models, and techniques of student teacher and beginning teacher supervision by administrators, school district personnel, and university supervisors. Recommended for individuals who supervise or plan to supervise student teachers.

CTCT 7780 RESEARCH IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Review, analysis and interpretation of research procedures and data with emphasis on designing new research in vocational and adult education.

CTCT 7810 SUPERVISED COLLEGE TEACHING (1) LEC. 1. SU. Departmental approval. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 2 credit hours.

CTCT 7900 DIRECTED STUDIES (1-3) DAG. SU. Departmental approval. Independent learning effort directed toward desired objectives. Includes evaluation at regular intervals by student and professor. Course may be repeated for a maximum of 3 credit hours.

CTCT 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-3) DAG. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 3 credit hours.

CTCT 7920 CLINICAL RESIDENCY (9-12) AAB. 40. SU. Admission to Clinical Residency. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Departmental approval. May count either CTCT 7920 or CTCT 7926. Course may be repeated for a maximum of 12 credit hours.

CTCT 7950 SEMINAR IN AREA OF SPECIALIZATION (1-3) DBU/SEM. SU. Presentation by graduate students of research projects and/or findings. Analysis of procedures and findings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) DAG. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTCT 8730 CURRICULUM DEVELOPMENT IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Principles of career and technical education curriculum planning, identification of educational needs of students, selecting technical content, and evaluating materials.

CTCT 8770 SUPERVISION OF INSTRUCTION (3) LEC. 3. Theories and models to become effective supervisors of vocational and adult education programs; philosophies and styles of supervision used to improve schools, instruction, curriculum and personnel.

CTCT 8800 TEACHER EDUCATION (3) LEC. 3. Emphasis on beliefs, philosophy, issues, research, roles, student selection, curriculum, methodology, internships, organization, and administration of teacher education programs.

CTCT 8810 SUPERVISED COLLEGE TEACHING (1-10) LEC. 3. SU. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 10 credit hours.

CTCT 8900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent learning efforts at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 8910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 6 credit hours.

CTCT 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

CTCT 8950 SEMINAR IN AREA OF SPECIALIZATION (1-6) DSL/SEM. Departmental approval. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 6 credit hours.

CTCT 8960 SPECIAL PROBLEMS (1-6) DSL/IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

CTCT 8970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) DSL. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 8980 FIELD PROJECT (1-10) DAG. 1. SU. Departmental approval. Field project. Course may be repeated for a maximum of 10 credit hours.

CTCT 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated for a maximum of 20 credit hours.

Counselor Ed, Counseling Psych Courses

COUN 1000 CAREER ORIENTATION EXPLORATION (2) LEC. 1. LAB. 2. The process of career decision-making through hands- on activities, in-class exercises, and job shadowing.

COUN 2000 LIVING AND COMMUNICATING IN A DIVERSE SOCIETY (3) LEC. 3. The class developing cultural competence in context of relationships, issues, and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, and mental and physical abilities/disabilities.

COUN 2007 HONORS LIVING AND COMMUNICATING IN A DIVERSE SOCIETY (3) LEC. Pr. Honors College. The class developing cultural competence in context of relationships, issues, and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, and mental and physical abilities/disabilities.

COUN 2020 INTRODUCTION TO LGBTQ STUDIES (3) LEC. 3. The class focuses on content addressing and introduces lesbian, gay, bisexual, and transgender studies. The course will examine the historical, scientific, psychological, and cultural contexts of relationships, issues and trends in a diverse society related to sexual orientation.

COUN 2300 MENTAL HEALTH DISPARITIES (3) LEC. 3. This course will introduce students to mental health disparities and strategies for addressing the social factors of mental health.

COUN 2900 DIRECTED STUDIES (1-3) IND. SU. Reading, research, or other work undertaken by a student focused on an area of special interest. Directed by faculty member. Course may be repeated for a maximum of 9 credit hours.

COUN 2940 DIRECTED FIELD EXPERIENCE (1-3) DSL/FLD. Course may be repeated for a maximum of 9 credit hours.

COUN 2950 THRIVING THROUGH TRANSITIONS (1) SEM. 1. This course requires participation in activities that support healthy living and assignments that facilitate understanding of mechanisms that promote well-being. Course content reviews the process of recovery from addiction and mechanisms used to support long-term recovery. Course may be repeated for a maximum of 12 credit hours.

COUN 2970 SPECIAL TOPICS IN COLLEGE STUDENT DEVELOPMENT (1-3) DSL. Selected topics in college student development. Fall, Spring. Course may be repeated for a maximum of 12 credit hours.

COUN 3000 CAREER SUCCESS (2) LEC. 2. Developing a career plan via instruction on researching careers, writing resumes, developing portfolios, interviewing, net working and other career development practices. May count either COUN 3000 or COUN 3003.

COUN 3100 COUNSELING AND HUMAN SERVICES (3) LEC. 3. Counseling concepts and skills appropriate in the helping professions. Not open to graduate students in counseling education.

COUN 3980 SUPERVISED RESEARCH EXPERIENCE IN COUNSELING (3) LAB. 3. SU. This course provides students with the opportunity to gain supervised research experience in counselor education, counseling psychology, and special education programs. Students will work with the faculty instructor to gain experience in a range of research activities. Course may be repeated for a maximum of 12 credit hours.

COUN 4000 INTRODUCTION TO COUNSELING AND PSYCHOTHERAPY (3) LEC. 3. Pr. COUN 2000 or COUN 2007. Current theory, research, and practice regarding counseling and psychotherapy. We will cover several current issues related relevant to counseling and psychotherapy, including the process of change, theoretical perspectives, ethical issues.

COUN 4010 INTRODUCTION TO PREVENTION AND MENTAL HEALTH PROMOTION (3) LEC. 3. Pr. COUN 2000 or COUN 2007. Addressing the ideas of prevention and health promotion in counseling psychology. We will address such concepts as positive psychology, mindfulness, stress, health promotion, body image, social justice theory, social advocacy, and prevention theory.

COUN 4910 PRACTICUM (1-3) PRA. SU. This course provides students with the opportunity to be actively involved in social justice efforts that affect the region and nation through gaining hands-on experience in a social justice agency. Course may be repeated for a maximum of 6 credit hours.

COUN 4970 SPECIAL TOPICS IN COUNSELING (3) DSL/ST1. Introduction to selected topic in counseling. Course will provide a semester-long introduction and introduction into research in the topic of interest using a seminar style of instruction. Course may be repeated for a maximum of 9 credit hours.

COUN 7010 MEDICAL VOC & PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. An introduction to medical terminology, body systems, common physical and cognitive conditions therapeutic/restorative services, and psychosocial & vocational considerations of various disabilities. May count COUN 7010 or RSED 6010.

COUN 7110 OCCUPATIONAL, CAREER AND PLACEMENT SERVICES (3) DSL/LEC. The course is designed to familiarize students with career theory and methods used by rehabilitation practitioners to analyze and apply vocational techniques to place individuals with disabilities. May count COUN 7110 or RSED 6220.

COUN 7130 VOCATIONAL EVALUATION (3) LEC. 3. Principles, process and techniques used to diagnose vocationally-related assets and liabilities of the individual with disabilities. May count either RSED 7130, COUN 7130.

COUN 7200 INTRODUCTION TO MEASUREMENT AND ASSESSMENT (3) LEC. 3. Pr. COUN 7100 or COUN 7400. Introduction to the history and theory of measurement and assessment as it applies to counselors and psychologists.

COUN 7220 INTELLECTUAL ASSESSMENT OF CHILDREN AND ADOLESCENTS (3) LEC. 3. Pr. COUN 7200. Theory and measurement of children's intelligence. Administration and interpretation of selected tests.

COUN 7230 CAREER DEVELOPMENT AND VOCATIONAL APPRAISAL (3) LEC. 3. Career development theories appraising vocationally related interests, aptitudes, and personal characteristics. Laboratory practice in test procedures.

COUN 7240 COUNSELING CHILDREN AND ADOLESCENTS (3) LEC. 3. Course provides awareness, knowledge, and skills for counseling children and adolescents using effective theoretical approaches, counseling modalities, and specific techniques.

COUN 7250 ADVANCED ASSESSMENT AND DIAGNOSIS IN COUNSELING (3) LEC. 3. Assessment/diagnostic skills related to counseling: intake, assessment, diagnostic criteria, treatment planning, counseling interventions.

COUN 7310 COUNSELING APPLICATIONS OF LIFESPAN DEVELOPMENT (3) LEC. 3. Theories and current research in development across the lifespan with emphasis on applications to counseling.

COUN 7320 COUNSELING THEORIES (3) LEC. 3. Study of major counseling theories.

COUN 7330 COUNSELING DIVERSE POPULATIONS (3) LEC. 3. Departmental approval. Special counseling and advocacy issues. Needs of diverse populations are considered.

COUN 7340 GROUP COUNSELING (3) LEC. 3. Leading, developing, evaluating a counseling group; including group proposal, session development, group dynamics, group leadership and evaluation, treatment planning; group intervention, counseling skills.

COUN 7350 INTRODUCTION TO COUNSELING PRACTICE (3) LEC. 3. Pr. COUN 7320 or COUN 7400 or COUN 8530. Methods, interventions, and skills essential to counseling.

COUN 7360 ADVANCED COUNSELING PRACTICE: FAMILY SYSTEMS (3) LEC. 3. This course will introduce students to Marriage/ Couple and Family Counseling theories. Using a learning-centered educational approach, students will be introduced to systemic, cognitive-behavioral, and postmodern family therapy theories using clinical case documentation. Diversity, evidence-based therapies, and the research foundations will also be covered.

COUN 7370 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count as COUN 7370 or RSED 6340.

COUN 7400 ORIENTATION TO PROFESSIONAL COUNSELING (3) LEC. 3. Orientation to the counseling field with emphasis on philosophical, historical, psychological, and organizational foundations of professional practice.

COUN 7410 ORIENTATION TO CLINICAL MENTAL HEALTH COUNSELING (3) LEC. 3. Orientation to clinical mental health counseling to include roles, responsibilities, systems, theories, professional issues, and history.

COUN 7420 ORIENTATION TO SCHOOL COUNSEL (3) LEC. 3. Orientation to the role and activities of the K-12 school counselor. Emphasis on the components of a developmentally-oriented school counseling program.

COUN 7450 FOUNDATIONS OF SCHOOL COUNSELING (3) LEC. 3. This course is designed to extend beyond the orientation to counseling course and expand the practical knowledge of school counselors-in-training to prepare students to work as effective school counselors based on current research and practical experiences. Restricted to students in Master's Program in School Counseling.

COUN 7460 LEADERSHIP AND ADVOCACY FOR SCHOOL COUNSELORS (3) LEC. 3. This course is designed to provide an overview of school counseling leadership and advocacy. School counselors in training will develop a deeper knowledge of their role of educational leaders while serving as school counselors. Restricted to students in Counselor Education.

COUN 7500 CRISIS INTERVENTION IN COUNSELING (3) LEC. 3. Development of skills and knowledge for crisis intervention and management in counseling, including prevention planning, intervention strategies and evaluation.

COUN 7510 ADVANCED CLINICAL MENTAL HEALTH COUNSELING INTERVENTIONS (3) LEC. 3. Pr. COUN 7320. Advanced counseling interventions, practices, techniques and methods for mental health counselors, including treatment planning, counseling processes, and evaluation.

COUN 7520 INTRODUCTION TO REHABILITATION AND CASE MANAGEMENT IN REHABILITATION COUNSELING (3) LEC. 3. Program organization and development of materials for curriculum improvement and teaching practices in a disability specialization area. COUN 7520 may be repeated for a maximum combined total of 9 credits with a change in disability specialization.

COUN 7900 DIRECTED STUDIES (1-3) IND. SU. Independent learning effort directed at desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

COUN 7910 PRACTICUM (3) LEC. 3. SU. Supervised experiences appropriate to student's program emphasis area. Course may be repeated for a maximum of 9 credit hours.

COUN 7920 INTERNSHIP (1-9) INT. SU. Pr. COUN 7910 or COUN 7916. Supervised on-the-job experiences. Course may be repeated for a maximum of 9 credit hours.

COUN 7930 ADVANCED THEORIES IN COUNSELING PRACTICE (3) LEC. 3. Intensive study of advanced theories within rehabilitation counseling, as well as an examination of outcome research relating to the use and application of these theories and techniques. May count COUN 7930 or RSED 7940.

COUN 7950 EMERGING ADULTHOOD AND TRANSITION IN REHABILITATION (3) LEC. Introduction to the transition process of youth with disabilities from school to adulthood and employment with emphasis on the developmental stage emerging adulthood. May count COUN 7950 or RSED 7950.

COUN 7960 SPECIAL PROBLEMS (1-10) IND. SU. May be repeated. Course may be repeated for a maximum of 10 credit hours.

COUN 7970 SPECIAL TOPICS (1-3) AAB. An in-depth study of a current topic(s) impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8110 COUNSELING ASSESSMENT ACROSS THE LIFESPAN (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, and attitude tests across the lifespan.

COUN 8120 APPRAISAL IN COUNSELING AND PSYCHOLOGY (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, attitude tests. Includes assessment interview, behavioral observation.

COUN 8200 INTELLECTUAL ASSESSMENT OF ADULTS (3) LEC. 2. LAB. 3. Pr. COUN 8120. Theory and measurement of adult intelligence. Administration and interpretation of selected tests.

COUN 8210 TEST ADMINISTRATION AND PROFESSIONAL PRACTICE (3) LEC. 3. Pr. COUN 8530. Administration and scoring of selected tests, primarily WAIS-IV, to familiarize students with measurements for assessment of adult intelligence.

COUN 8220 PSYCHOLOGICAL SCIENCE AND HEALTH (3) LEC. 3. Pr. PSYC 7150 and PSYC 7180 and COUN 7330 and COUN 7310. In this course, fundamental science relating to health and psychology will be reviewed, focusing on major theoretical foundations, research findings, and empirically supported interventions. Students will be expected to integrate foundational knowledge in psychological science with particular emphasis on biological.

COUN 8230 COLLOQUIUM IN COUNSELING PSYCHOLOGY I (1) SEM. 1. SU. This course provides pre-practicum students with training in the conduct of counseling psychology research to provide foundational skills in research design and implementation.

COUN 8240 COLLOQUIUM IN COUNSELING PSYCHOLOGY II (2) LAB. 1, LAB/SEM. 1. SU. This course provides continued education and training in counseling psychology research and provides opportunities to demonstrate an ability to evaluate psychotherapy research in order to achieve readiness for practicum in research skills.

COUN 8250 COLLOQUIUM IN COUNSELING PSYCHOLOGY III (3) LAB. 1, LAB/SEM. 2. Pr. COUN 8240. This course provides advanced education and training in the development, conduct, and dissemination of counseling psychology research and provides opportunities to demonstrate an ability to contribute to meaningful scholarship in Counseling Psychology.

COUN 8260 COLLOQUIUM IN COUNSELING PSYCHOLOGY IV (3) LAB. 1, SEM. 2. Pr. COUN 8250. This course provides advanced education and training in the development, conduct, and dissemination of counseling psychology research and provides opportunities to demonstrate an ability to integrate concepts of equity and justice in the contribution to meaningful scholarship in Counseling Psychology.

COUN 8300 RESEARCH DESIGN IN COUNSELING AND EVALUATION (3) LEC. 3. Departmental approval. Methods for counseling research design . Studies, experimental, quasi-experimental, non-experimental, survey, between subjects and within subjects.

COUN 8310 COGNITION AND EMOTION (3) LEC. 3. Theory and empirical evidence on the cognitive and affective bases of human behavior. Integration of scientific knowledge regarding cognition and emotion.

COUN 8320 GREAT IDEAS IN PSYCHOLOGY (3) LEC. 3. Orientation to the individuals and ideas that shaped psychology using a history and systems perspective.

COUN 8400 PROFESSIONAL SEMINAR COUNSELING PSYCHOLOGY (1-3) LEC. Scientific foundations of the counseling psychology profession and application of that foundational knowledge in counseling interventions. Course may be repeated for a maximum of 9 credit hours.

COUN 8510 CONTEMPORARY ISSUES IN COUNSELOR EDUCATION (3) LEC. 3. Departmental approval. History, development, current issues. Philosophical assumptions, legal and ethical considerations, new research service initiatives.

COUN 8530 CONTEMPORARY ISSUES IN COUNSELING PSYCHOLOGY (3) LEC. 3. History, development, and current professional issues. Philosophical and cultural assumptions, legal and ethical considerations, and current research topics.

COUN 8540 COUN SUPERVISION-THEORY & PRAC (3) LEC. 3. Advanced theories, skills, models and methods used in counseling supervision including counselor development, supervisory processes and evaluation.

COUN 8550 COUNSELOR EDUCATION PEDAGOGY (3) LEC. 3. Counselor Education pedagogical skills and knowledge including; theories, course and curriculum development methods, and professional responsibilities.

COUN 8610 ADVANCED THEORIES: EXISTENTIAL/HUMANISTIC (3) LEC. 3. Theory and practice of humanistic/existential approaches to individual and group therapy.

COUN 8620 ADVANCED COUNSELING THEORIES AND PRACTICE (3) LEC. 3. Advanced study of counseling theories. Includes research relating to application of theories and techniques. Course will emphasize integration, evidence-based approaches, case conceptualization and models for evaluation.

COUN 8630 ADVANCED THEORIES: PSYCHODYNAMIC THEORIES (3) LEC. 3. Departmental approval. The origins, current status, and emerging applications of psychodynamic approaches to counseling.

COUN 8700 DIVERSITY AND SOCIAL JUSTICE IN COUNSELOR EDUCATION (3) LEC. 3. Must be admitted to the Counselor Education Doctoral Program. This advanced course provides students with information about issues of diversity and social justice. Students apply this information to their roles in the counseling profession, specifically as future counselor educators, leaders of the profession, and advocates.

COUN 8800 PROFESSIONAL DEVELOPMENT INTERNSHIP SKILLS (3) LEC. 3. This three-hour required course is designed to help students solidify their professional identity and effectively apply for their one-year Counseling Psychology internship.

COUN 8910 PRACTICUM (1-3) LEC. 1-3. SU. Advanced supervised experiences appropriate to student's program emphasis. Course may be repeated for a maximum of 15 credit hours.

COUN 8920 INTERNSHIP (1-9) INT. SU. Advanced supervised on-the-job experiences appropriate to doctoral-level study. Course may be repeated for a maximum of 9 credit hours.

COUN 8930 INTERNSHIP IN COUNSELING PSYCHOLOGY (0) INT. SU. Departmental approval. Supervised, full-time experience in Counseling Psychology at the doctoral level. May be repeated to satisfy 2000 clock hour accreditation requirement.

COUN 8970 SPECIAL TOPICS (1-3) SEM. An in-depth study of the current educational, sociological, psychological, economic, health, legal, technological, and professional issues impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated. Course may be repeated with change in topics.

EAGLES Program Courses

EAGL 0100 POSITIVE CHOICES (0) SEM. 3. Departmental approval. In this course, students explore positive choices on healthy relationships, sexuality, and safe boundaries. The course is designed to increase critical thinking about relationships.

EAGL 0110 TRANSITION TO POSTSECONDARY EDUCATION (0) SEM. 3. Departmental approval. This course introduces life as a student on a college campus. It includes an overview of skills needed to manage daily life, support health, and wellness goals, and engage in social interactions on a college campus.

EAGL 0130 TRANSITION TO INDEPENDENT LIVING: ON-CAMPUS LIVING (0) SEM. 3. Departmental approval. This course prepares students for living independently in that of maintaining a clean-living space. This includes but is not limited to, educating on the proper cleaning tools for different tasks, following a chore list and or chart, and the aspect of courtesy of keeping shared spaces clean, especially when living with others.

EAGL 0140 FINANCIAL LITERACY (0) DSL/SEM. 3. Departmental approval. In this course, students build their knowledge of financial literacy as it relates to all settings (school, work, community, and home). Students demonstrate an understanding of counting money, managing their finances, budgeting, and relating their financial security to their chosen career area.

EAGL 0150 EMPLOYMENT EXPLORATION (0) SEM. 3. Departmental approval. In this course, EAGLES students explore career paths related to their personal interests and goals. Students identify occupational areas of interest using assessment results that they might prepare for and pursue while in the program and beyond.

EAGL 0200 EMPLOYMENT PREPARATION (0) SEM. 3. Departmental approval. This course focuses on strengthening skills learned and acquired as a first-year college student. This course also focuses on developing healthy habits for employment through the creation of a detailed habit plan and incorporates application-based activities, and real-world practice in the students' everyday lives. Students identify healthy habits and how they will personally incorporate them into all domains of their lives: Academics, Employment, Independent Living, Personal/Social, and Health and Wellness.

EAGL 0210 TRANSITION TO INDEPENDENT LIVING - MEAL PREP GROCERY SHOPPING (0) SEM. Departmental approval. The purpose of this course is to provide the EAGLES students with independent skills involving meal preparation and grocery shopping. These skills help the students transition to an independent lifestyle by learning how to prepare, shop, and cook meals while developing healthy eating habits.

EAGL 0220 LIVING IN THE MODERN WORLD (0) SEM. Departmental approval. This course prepares students to live independently and in the modern world by learning about challenges and pressures, self-determination, and resilience. Students will learn different strategies for self-care and develop an individualized plan for their personal self-care needs. Students will learn about community resources and community safety through outdoor exploration and guest speakers.

EAGL 0230 LIVING ARRANGEMENTS 101 (0) SEM. 3. Department approval required. Students have access to almost all their basic needs on a college campus; however, to successfully transition, students need to learn how to access these supports in their community and how to access them independently. The goal of this course is to teach second-year EAGLES students how to create a Housing Plan according to their independent living goals, financial means, and supports required to be successful at living on their own. This course is meant to introduce students to the real world of living independently through application-based lessons in the community.

EAGL 0310 EMPLOYMENT IMPLEMENTATION (0) LEC. 0. The goal of this course is to teach third year EAGLES students how to generalize skills they have learned into a community setting. Students are taught how to access all supports, like going to the post office, the eye doctor, and taking their animal to the vet, in their community independently. This course is meant to introduce students to the Auburn community so they can be engaged citizens through application-based lessons. Departmental Approval.

EAGL 0320 TRANSITION TO INDEPENDENT LIVING- OFF-CAMPUS LIVING (0) SEM. Departmental approval. The goal of this course is to teach third and fourth year EAGLES students how to generalize skills they have learned into a community setting. Students have access to almost all their basic needs on a college campus, however, to successfully transition, students need to learn how to access these supports in their community and how to access them independently.

EAGL 0330 HOT TOPICS IN TRANSITION (0) SEM. 3. Departmental approval required. In this course, students build upon their knowledge from the first financial literacy class and create a personal budget and finance portfolio to plan their future expenses across all domains for living based on their income, family support, SSI benefits, and a nest egg to support the student while living on their own. Additionally, this course reviews how to protect oneself from fraud.

EAGL 0340 MEDICAL ASPECTS (0) SEM. 3. Assist students in developing working knowledge of medical aspects of their disability and the routine medical needed to live a healthy life. This course helps students develop a medical binder to help them be autonomous when answering questions at routine medical appointments. Additionally, this course explains the process of how insurance works, medical services needed, like routine physicals, dental health, and women’s health and how to address acute issues like the common cold, headaches, etc. Departmental approval required.

EAGL 0410 EAGLES CAPSTONE PREPARATION (0) SEM. Departmental approval. Students will create an online portfolio including sections reflecting the five pillars of the EAGLES Program: academic enrichment, personal and social skills, independent living skills, health and wellness, and integrated work experiences. Students will explore areas of interest and set goals when it comes to career-making decisions and obtaining meaningful employment. Students will identify and learn to navigate resources available to them both while they are in the program and once they are alumni of the program, such as Auburn Career Services, LinkedIn, Indeed, and more. Students will hear from guest speakers focused on presenting valuable information regarding each area of the EAGLES Program’s five pillars and how students can sustain their focus on these areas after completion of the advanced program.

EAGL 0420 WORK READY, WORLD READY (0) SEM. Departmental approval. In this course, students identify, explore, and interact with agencies that will benefit them post-program. Students learn resources available to individuals with intellectual disabilities and how to access and utilize the agencies. Students learn the benefits of each agency related to employment, independent living, and community living upon completion of the program.

EAGL 0430 BECOMING AN EAGLES ALUMNI (0) SEM. 3. The purpose of this course is to assist students in developing S.O.A.R. Planning documents in preparation for life after the EAGLES Program. The course helps students work through the 5 domains of the EAGLES Program to identify accommodations needed, personal goals, supports to achieve goals and action steps. Additionally, this course will assist EAGLES students in developing and updating important documents needed post-program. Departmental approval required.

Early Childhood Education Courses

CTEC 3020 PRIMARY MATH AND SCIENCE (3) LEC. 3. Exploration of learning and pedagogy for the development of math and science concepts appropriate for children in Kindergarten through Grade 3.

CTEC 3030 INTEGRATED CURRICULUM IN PRESCHOOL: EARLY LITERACY (3) LEC. 3. Coreq. CTEC 4911. This course focuses on the foundations of literacy learning including play, developmentally appropriate practices, and integration within and across disciplines through multisensory, multimodal means, connecting to the Alabama Developmental Standards. Admission to Teacher Education.

CTEC 3200 A WORKING THEORY FOR THE CONSTRUCTIVIST EDUCATOR (3) LEC. 3. Constructivist theory for pre-service teachers preparing to teach at the early childhood level.

CTEC 4200 THE CONSTRUCTIVIST TEACHER: STRATEGIES AND TECHNIQUES (3) LEC. 3. Construction of an operational knowledge of established constructive curriculum strategies and techniques.

CTEC 4210 THE CONSTRUCTIVIST TEACHER: GROWING PROFESSIONALLY (1) AAB/DSL. 1. Pr. P/C CTEC 4920 or P/C CTEC 4923. Admission to Clinical Residency. The roles and responsibilities of being an early childhood professional. May count either CTEC 4210 or CTEC 4213.

CTEC 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research or other work undertaken independently by a student focused on a content area of special interest. Course may be repeated for a maximum of 6 credit hours.

CTEC 4910 PRACTICUM (1-6) PRA. SU. Departmental approval. Students and faculty cooperatively select and execute an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEC 4911 PRACTICUM IN THE PRESCHOOL (1-2) LEC. 1-2. SU. Laboratory experiences with children from birth to five years of age designed to help students relate theory to practice. Course may be repeated for a maximum of 2 credit hours.

CTEC 4912 PRACTICUM IN PRIMARY GRADES (3) LEC. 0. LAB. 3, AAB/PRA. 0. SU. Laboratory experiences with children 5 through 9 years of age help students relate theory to practice.

CTEC 4920 CLINICAL RESIDENCY (1-12) AAB/DSL. 1-12. SU. Pr. P/C CTEC 4210 or P/C CTEC 4213. Admission to Clinical Residency. Experience in a setting serving pre-primary or primary-school children with varying abilities. Admission to internship. May count either CTEC 4920 or CTEC 4923. Course may be repeated for a maximum of 12 credit hours.

CTEC 7200 EARLY CHILDHOOD EDUCATION PERSPECTIVE (3) LEC. 3. Historical overview of current issues, trends, and programs in early childhood education. May count either CTEC 7200 or CTEC 7206.

CTEC 7210 ORIGINS OF THOUGHT (3) LEC. 3. Piaget's theories of how thought develops in young children. Comparison of the social and biological roots of thought. May not count either CTEC 7210 or CTEC 7216.

CTEC 7260 PLAY AND EARLY CHILDHOOD EDUCATION (3) LEC. 3. Examination of children's play from a constructivist theoretical perspective and translation of theory into early childhood educational practice. May count either CTEC 7260 or CTEC 7266.

CTEC 7270 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of a problem related to the thought, writing and research that form the theoretical foundations of constructivist approaches in early childhood education. May count either CTEC 7270 or CTEC 7276. Course may be repeated for a maximum of 9 credit hours.

CTEC 7510 RESEARCH STUDIES IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. How to read, review, analyze and interpret significant research studies in early childhood education. May count either CTEC 7510 or CTEC 7516.

CTEC 7520 CURRICULUM AND TEACHING IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Reappraisal of experiences and content for children by focusing on the nature of the learner and the nature of the knowledge to be learned. May count either CTEC 7520 or CTEC 7526.

CTEC 7530 ORGANIZATION OF PROGRAM IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Organization, administration, and supervision of early childhood programs. May count either CTEC 7530 or CTEC 7536.

CTEC 7540 EVALUATION OF PROGRAMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Assessment and evaluation of all program components from a constructivist perspective. May count either CTEC 7540 or CTEC 7546.

CTEC 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent learning objectives related to the student's area of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEC 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Experience relating theory and practice, usually in a school setting. Departmental approval. May count either CTEC 7910 or CTEC 7916. Course may be repeated for a maximum of 6 credit hours.

CTEC 7970 SPECIAL TOPICS (3-9) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 7990 RESEARCH AND THESIS (1-10) DSL/MST. Course may be repeated with change in topics.

CTEC 8240 RESEARCH IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the needs of young children. May count either CTEC 8240 or CTEC 8246.

CTEC 8270 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of problems related to the thought, writings, and research that form the theoretical foundations of constructivist approaches to early childhood education. Master's Degree. May count either CTEC 8270 or CTEC 8276. Course may be repeated for a maximum of 6 credit hours.

CTEC 8720 DESIGNING EARLY CHILDHOOD CURRICULUM (3) LEC. 3. Application of early childhood history, philosophy, program analysis and constructivist theory to the design of early childhood curriculum. Master's Degree. May count either CTEC 8720 or CTEC 8726.

CTEC 8850 CONSTRUCTIVIST INVESTIGATIONS IN EARLY CHILDHOOD SETTINGS (3) LEC. 3. Analysis and interpretation of the design of constructivist investigation. Master's Degree.

CTEC 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEC 8970 SPECIAL TOPICS (3-9) DSL. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 8980 FIELD PROJECT (1-3) DSL/FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May not count either CTEC 8980 or CTEC 8986. Course may be repeated for a maximum of 3 credit hours.

CTEC 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with a change in topic. Course may be repeated with change in topics.

Ed Resrch, Methods, Analysis Courses

ERMA 2400 APPLIED QUANTITATIVE DATA ANALYSIS IN EDUCATION AND HEALTH PROFESSIONS (3) LEC. 3. This course provides undergraduate students who are interested in education, counseling, school psychology, or health professions with data management, data analysis reasoning, and data-based decision-making skills.

ERMA 4330 INTRODUCTION TO SPORTS ANALYTICS (3) LEC. 3. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683. This course provides an introduction to the field of sports analytics, which is the use of scientific techniques to model sports performance. This course will introduce students to individual and team performance measures, their interpretation and basic analyses using those measures.

ERMA 7100 ADVANCED STUDY OF EDUCATIONAL MEASUREMENT AND EVALUATION (3) LEC. 3. Educational measurement and evaluation with special emphasis on uses of measurement data such as standardized testing and emerging evaluation models such as alternative and authentic assessment.

ERMA 7110 EDUCATIONAL PSYCHOLOGY AND ASSESSMENT (3) LEC. 3. Study of educational psychology as it applies to understanding the teaching-learning process. Measurement and evaluation skills will also be covered.

ERMA 7200 BASIC METHODS IN EDUCATION RESEARCH (3) LEC. 3. Major modes of inquiry in contemporary educational research including experimental, casual comparative, descriptive, qualitative inquiry, and action research models.

ERMA 7210 THEORY AND METHODOLOGY OF QUALITATIVE RESEARCH (3) LEC. 3. Major modes of qualitative research, their underlying philosophical assumptions about knowledge, and the major strategies for collecting and analyzing relevant data.

ERMA 7220 APPLIED QUALITATIVE RESEARCH (3) LEC. 3. Pr. ERMA 7210 or ERMA 7216 or FOUN 7210. Study of detailed strategies of data collection, principles of observation, interviewing, focus groups, recording and coding data, triangulation, strategies for analyzing coded data, and writing up of one's findings.

ERMA 7230 WRITING AS INQUIRY IN QUALITATIVE RESEARCH (3) LEC. 3. Pr. ERMA 7210 or ERMA 7216. This course is based on the assumption that qualitative researchers learn their trade through both scholarship (i.e., deskwork) and firsthand experience (i.e., fieldwork). We take away lessons from doing our own research and from the research experiences of others. For this reason, the course has three aims: to hone your skills reading methodological and empirical literature; to experiment with analysis via writing, including crafting reports of findings and other pieces of writing; and to reflect meaningfully on these processes, including their theoretical, methodological, and ethical dimensions.

ERMA 7240 THINKING WITH THEORY IN QUALITATIVE RESEARCH (3) LEC. 3. Pr. ERMA 7210 or ERMA 7216. This course is designed to give an overview and introduction to a variety of theorists and theoretical approaches that are often used in qualitative inquiry. We will compare and contrast the assumptions, design, and methods of different philosophies and theories in qualitative research.

ERMA 7300 DESIGN AND ANALYSIS IN EDUCATION I (3) LEC. 3. Departmental approval. Basic methods of inferential analysis including t-tests, between and within subjects ANOVA, mixed ANOVAs and hierarchical designs as they are utilized in educational research.

ERMA 7310 DESIGN AND ANALYSIS IN EDUCATION II (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300) or (FOUN 7306 or ERMA 7306). Bivariate and multiple correlation and regression analysis, trend analysis, analysis of covariance, and logistic regression, as they are utilized in educational research. Departmental approval. May count either ERMA 7310 or ERMA 7316.

ERMA 7320 APPLIED QUANTITATIVE RESEARCH (3) LEC. 3. Pr. (ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206) and (ERMA 7300 or ERMA 7306 or FOUN 7300 or FOUN 7306). The study and application of detailed strategies of research study designs, data collection, analysis, and reporting of quantitative data. Course may be repeated for a maximum of 6 credit hours.

ERMA 7400 MIXED METHODS RESEARCH (3) LEC. 3. Pr. ERMA 7200 or ERMA 7206 or ERMA 7210 or ERMA 7216 or ERMA 7300 or ERMA 7306. Overview and introduction to the use of mixed methods research in the social and behavioral sciences.

ERMA 7410 RESEARCH METHODS FOR SOCIAL JUSTICE AND EQUITY (3) LEC. 3. Pr. ERMA 7300 or ERMA 7306 or ERMA 7210 or ERMA 7216 or ERMA 7400. This course focuses on critical educational research in the scholar-activist model. Through engaging with critical theoretical frameworks, critical empirical research, and research methods, this course prepares students to produce research and scholarship for social justice and equity in education.

ERMA 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

ERMA 7910 PRACTICUM IN EDUCATIONAL RESEARCH, MEASUREMENT, AND EVALUATION (1-3) LEC. 1-3. SU. Pr. (ERMA 7210 or ERMA 7216) and (ERMA 7300 or ERMA 7306). Supervised experience related to area of specialization within educational research, measurement, and evaluation. Course may be repeated for a maximum of 6 credit hours.

ERMA 7970 SPECIAL TOPICS IN EDUCATION RESEARCH METHODS & ASSESSMENT (1-6) DSL/LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be with a change in topic. Course may be repeated with change in topics.

ERMA 8100 PROGRAM EVALUATION (3) LEC. 3. Study of various theories and models of curriculum evaluation, methodological issues regarding planning and conducting evaluation studies, reporting and using information from evaluation.

ERMA 8120 TEACHER EVALUATION (3) LEC. 3. Analysis of research on teaching, classroom observation methods, teaching portfolios, supervision of teachers, license and certification assessment, ethical and legal consideration, and using information to improve teaching.

ERMA 8200 SURVEY RESEARCH METHODS (3) LEC. 3. Overview of survey research, sampling issues, selection and construction of survey instruments, response effects, issues influencing response rate, reliability and validity of survey data, and analysis of survey data.

ERMA 8210 PREP RESEARCH FOR PUBLICATION (3) LEC. 3. SU. Pr. (ERMA 7300 or ERMA 7306) and (ERMA 7310 or ERMA 7316) and (ERMA 7210 or FOUN 7210 or FOUN 7300 or FOUN 7306 or FOUN 7310 or FOUN 7316). Preparation of graduate student research for publication or presentation at professional conference through practice, group discussions, peer review and feedback from experienced editorial board members. May count either ERMA 8210 or ERMA 8216.

ERMA 8320 DESIGN AND ANALYSIS IN EDUCATION III (3) LEC. 3. Pr. (FOUN 7310 or ERMA 7310) or (ERMA 7316 or FOUN 7316). Departmental approval. Discriminate analysis, MANOVA, canonical correlation, path analysis, exploratory and confirmatory factor analysis, and hierarchical linear modeling as they are utilized in educational research.

ERMA 8330 NON-PARAMETRIC DATA ANALYSIS IN EDUCATION RESEARCH (3) LEC. 3. Pr. FOUN 7300 or FOUN 7306 or ERMA 7300 or ERMA 7306. Departmental approval. Common non-parametric statistical tests appropriate for use with nominal and ordinal data in educational applications. These include rank-order correlation, sign tests, median tests, analysis of variance of ranks and log-linear analysis.

ERMA 8340 A PRACTICAL INTRODUCTION TO STRUCTURAL EQUATION MODELING (3) LEC. 3. Pr. (FOUN 8320 or ERMA 8320 or ERMA 8326). Departmental approval. Theory and practice of structural equation modeling techniques as they are utilized in educational research will be developed by expanding concepts of multiple linear regression and exploratory factor analysis to allow for correlation and causally related latent constructs.

ERMA 8350 ADVANCED MEASUREMENT THEORY (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300 or ERMA 7306 or FOUN 7306) and (FOUN 7310 or ERMA 7310 or FOUN 7316 or ERMA 7316). Introduction to classical and modern (IRT) test theory, measurement properties, differential item functioning, standard and adaptive testing.

ERMA 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with change in topics.

Educational Leadership Courses

EDLD 7200 SUPERVISION AND PERSONNEL MANAGEMENT (3) LEC. 3. Supervision theory and practice with responsibility for leadership in the recruitment, evaluation and staff development of employees. May count either EDLD 7200 or EDLD 7206.

EDLD 7210 MULTIPROFESSIONAL LEADERSHIP FOR EQUITY (3) LEC. 3. National, state, and local evidence will inform students' understanding of diversity issues in schools. Theories, concepts and principles of leadership from a multidisciplinary, multiprofessional perspective, will be applied to addressing issues of equity in schools. May count either EDLD 7210 or EDLD 7216.

EDLD 7220 ORGANIZATIONAL AND SCHOOL MANAGEMENT (3) LEC. 3. This course will prepare students in understanding legal and ethical responsibilities of school leaders, fiscal revenues and expenditures of Alabama public schools, using action research and components of a comprehensive, ongoing, planning and budgeting program. May count either EDLD 7220 or EDLD 7226.

EDLD 7330 INTRODUCTION TO CURRICULUM AND INSTRUCTIONAL LEADERSHIP (3) LEC. 3. Principles of curriculum development and the leadership skills required to enact it with emphasis on school settings.

EDLD 7340 OVERVIEW OF CURRICULUM PROCESSES (3) LEC. 3. Curriculum as a field of study; the first course required for the ASC concentration in curriculum; an overview of curriculum history, processes, models, and designs.

EDLD 7500 PRINCIPAL LEADERSHIP (3) LEC. 3. Designed to serve instructional leaders in K-12 settings concerning leadership dispositions and leadership theory important to promoting student success and achievement. May count either EDLD 7500 or EDLD 7506.

EDLD 7510 ACTION RESEARCH AND DATA ANALYSIS (3) LEC. 3. Research methodologies to improve instructional and school-based decision-making action, qualitative, and case study techniques applied to school, classroom, or school-community observation. May count either EDLD 7510 or EDLD 7516.

EDLD 7520 LEADERSHIP AND THE LEARNING ORGANIZATION (3) LEC. 3. Management of schools as learning organizations; issues related to student learning and achievement through attention to organizational components. May count either EDLD 7520 or EDLD 7526.

EDLD 7530 PLANNING AND CONTINUOUS IMPROVEMENT (3) LEC. 3. Development of frameworks for collection, analysis, and use of school data for the improvement of instruction, the learning environment, and student achievement. May count either EDLD 7530 or EDLD 7536.

EDLD 7540 INSTRUCTIONAL AND CURRICULAR LEADERSHIP (3) LEC. 3. Curriculum design and development; areas of study include student needs, organizational mission and goals, data driven improvement, change process, diverse faculty, curriculum alignment tools. May count either EDLD 7540 or EDLD 7546.

EDLD 7550 EDUCATIONAL FINANCE AND RESOURCE MANAGEMENT (3) LEC. 3. Preparation of pro-active leaders in school business affairs; use of action research and components of a comprehensive, ongoing, planning and budgeting program; facilities management. May count either EDLD 7550 or EDLD 7556.

EDLD 7560 EDUCATIONAL SYSTEMS AND COMMUNITIES (3) LEC. 3. Change theory, forecasting, trend analysis and application of these concepts to student achievement and school improvement efforts.

EDLD 7570 LEGAL AND ETHICAL ISSUES (3) LEC. 3. Ethical and legal provisions for education communities: emphasis on the support of and belief in the cultural value of a diverse and educated democratic society. May count either EDLD 7570 or EDLD 7576.

EDLD 7580 SUPERVISION AND PERSONNEL ISSUES IN EDUCATION (3) LEC. 3. Policies and practices related to teacher recruitment, selection, evaluation, and professional development; faculty/staff developmental processes that impact student achievement and school improvement efforts. May count either EDLD 7580 or EDLD 7586.

EDLD 7900 DIRECTED STUDIES (1-9) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

EDLD 7910 PRACTICUM (1-6) PRA. Experience closely relating theory and practice, usually conducted in realistic settings. May count either EDLD 7910 or EDLD 7916. Course may be repeated for a maximum of 6 credit hours.

EDLD 7920 ADMINISTRATIVE INTERNSHIP (1-6) AAB/INT. Departmental approval. Opportunities for interns to internalize and employ administrative skills learned during graduate coursework. Course may be repeated for a maximum of 6 credit hours.

EDLD 7930 ADMINISTRATIVE INTERNSHIP/RESIDENCY (1-3) INT. Ongoing field-based experiences in educational administration; observation, participation, and leading with practicing administrators in school systems. Course may be repeated for a maximum of 3 credit hours.

EDLD 7970 SPECIAL TOPICS (1-9) LEC. Variable content for advanced studies in the area of educational leadership. Course may be repeated for a maximum of 9 credit hours.

EDLD 8200 ASSESSMENT AND EVALUATION IN LEARNING ORGANIZATIONS (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making purposes. May count either EDLD 8200 or EDLD 8206.

EDLD 8210 EDUCATIONAL LEADERSHIP: THEORY AND PRACTICE (3) LEC. 3. Educational leadership theory and applications for K-12 settings. May count either EDLD 8210 or EDLD 8216.

EDLD 8220 PERSONAL AND PROFESSIONAL DEVELOPMENT (3) LEC. 3. Includes theoretical frameworks and applications for successful and systematic mentoring of professionals in organizations. May count either EDLD 8220 or EDLD 8226.

EDLD 8230 SYSTEMIC PLANNING AND BUDGETING (3) LEC. 3. Covers the components and implementation of a comprehensive ongoing planning and budgeting program for learning organizations.

EDLD 8240 TRENDS AND ISSUES IN EDUCATIONAL ADMINISTRATION (3) LEC. 3. Trends and issues affecting educational institutions with particular attention to development of administrative procedures to cope with educational changes. May count either EDLD 8240 or EDLD 8246.

EDLD 8250 ORGANIZATIONAL POWER, POLITICS AND POLICY FORMATION (3) LEC. 3. Analysis of social forces, antecedent movements, and political actions affecting organizations. The study of policy development and practice. May count either EDLD 8250 or EDLD 8256.

EDLD 8260 THEORY AND DEVELOPMENT OF ORGANIZATIONS (3) LEC. 3. Theoretical frameworks of educational organizations. May count either EDLD 8260 or EDLD 8266.

EDLD 8270 LEADERSHIP IN FINANCE AND MANAGEMENT (3) LEC. 3. Theory and practice of instructional leadership related to personnel and fiscal management of a school or school district. May count either EDLD 8270 or EDLD 8276.

EDLD 8280 THE SUPERINTENDENCY IN EDUCATION (3) LEC. 3. Theoretical frameworks of educational organizations.

EDLD 8300 CURRICULUM THEORY AND PRACTICE (3) LEC. 3. Advanced course dealing with application of curriculum theories with an emphasis on the impact of philosophical and theoretical beliefs on practice.

EDLD 8310 LEADERSHIP IN THE DEVELOPMENT AND APPLICATION OF CURRICULUM AND THEORY DESIGN (3) LEC. 3. Application of transformative leadership in the design, delivery, and evaluation of curriculum in a wide variety of organizational settings. May count either EDLD 8310 or EDLD 8316.

EDLD 8320 CURRICULUM LEADERSHIP FOR ORGANIZATIONS (3) LEC. 3. Pr. EDLD 7340 and EDLD 8300 and EDLD 8310 or EDLD 8316. Departmental approval. For those considering a career in upper level management. Focuses on context, societal, and political influences related to curriculum processes and organizational change. May count either EDLD 8320 or EDLD 8326.

EDLD 8340 TRANSFORMATIONAL PROCESSES AND ORGANIZATIONAL CHANGE (3) LEC. 3. Organizational and transformational change at personal, interpersonal, and institutional levels. May count either EDLD 8340 or EDLD 8346.

EDLD 8400 ETHICS FOR LEADERS (3) LEC. 3. Theory and practice of ethics and the role of ethical and personal integrity for leaders in the context of educational organizations and the communities they serve. May count either EDLD 8400 or EDLD 8406.

EDLD 8480 INSTITUTIONAL RESEARCH AND DECISION SUPPORT (3) LEC. 3. Components of institutional research and assessment programs that can support the comprehensive planning, decision support, and management needs of the institution.

EDLD 8600 MENTORING FOR CAREER DEVELOPMENT (3) LEC. 3. Assist graduate students in discovering how mentioning can enhance their career/professional development and benefit their organizations. May count either EDLD 8600 or EDLD 8606.

EDLD 8940 DIRECTED FIELD EXPERIENCE IN EDUCATIONAL LEADERSHIP (1-6) FLD. Field-based experience in diverse settings to develop knowledge, skills, and abilities in an area of special interest. Course may be repeated for a maximum of 6 credit hours.

EDLD 8950 SEMINAR (3) DSL/SEM. 3. Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking. May count either EDLD 8950 or EDLD 8956. Course may be repeated for a maximum of 6 credit hours.

EDLD 8980 PROJECT ANALYSIS (3) LEC. 3. Problem solving, reflective practice and action research and used for continuous school improvement. Provides opportunities to engage in diverse field based research projects. May count either EDLD 8980 or EDLD 8986.

EDLD 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours. Course may be repeated with change in topics.

Educational Media Courses

EDMD 2000 DIGITAL LITERACY AND COMPUTER SCIENCE IN EDUCATION (4) LEC. 3. LAB. 1. Introduction of foundational computer science concepts and practices relevant to K-6 teachers. Emphasis on the application of computational thinking skills to the development of a block-based programing as well as digital literacy skill development. Limited to majors requiring teaching certification.

EDMD 2100 CONTEMPORARY LITERATURE FOR CHILDREN, YOUTH, & ADOLESCENTS (3) LEC. 3. Reading, discussion, analysis, and reflection on contemporary literature in print and other formats for an audience of ages birth-18 yrs. Applying critical skills in the evaluation and selection of titles from a range of genres & formats, including picture books, chapter books, graphic novels, e-books, audio-books, audio-visual formats, fiction, and non-fiction in its various forms. Particular emphasis on American Library Association award-winning titles.

EDMD 3300 UTILIZATION OF INSTRUCTIONAL TECHNOLOGY FOR EDUCATORS (2) LEC. 1. LAB. 2. Basics of current and emerging instructional & communication technologies with primary emphasis on curricular integration. Location, selection, and application of technology resources (WWW, commercially authored software, etc.) for curricular needs with emphasis on developmental stages, learning styles and learning technologies. Limited to majors requiring teaching certification.

EDMD 5000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments.

EDMD 6000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments. May count either EDMD 6000 or EDMD 6006.

EDMD 6100 MEDIA FOR CHILDREN (3) LEC. 3. Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 7000 INSTRUCTIONAL DESIGN AND DEVELOPMENT (3) LEC. 3. Theory, problems, procedures, and standards in the utilization of technology in instructional design and development. May count either EDMD 7000 or EDMD 7006.

EDMD 7010 INSTRUCTIONAL AND INFORMATION TECHNOLOGIES (3) LEC. 3. Evaluation, selection, and use of traditional and current technologies for instruction, information, and administration in learning environments. May count either EDMD 7010 and EDMD 7016.

EDMD 7020 PRINCIPLES OF GRAPHIC DESIGN FOR INSTRUCTION (3) LEC. 3. Principles of graphic design and visual literacy to facilitate the presentation of information. Criteria for graphics utilization examined. May count either EDMD 7020 or EDMD 7026.

EDMD 7030 DIVERSE CHILDREN'S AND YOUNG ADULT LITERATURE: ISSUES, TRENDS, & CONTROVERSIES (3) LEC. 3. Examination of current issues, trends, and controversies in diverse children's and young adult literature. Particular focus is given to literature by and about people from population groups traditionally defined by race, class, ethnicity, religion, ability, gender and sexuality. Course participants will investigate theoretical perspectives, scholarly discussions, and methodological implications for these texts.

EDMD 7100 SELECTION AND USE OF MEDIA FOR YOUTH (3) LEC. 3. Pr. EDMD 7030 or EDMD 7036. Evaluation, selection, and use of print and non-print media for youth, including materials for multi-cultural, special and gifted education. May count either EDMD 7100 or EDMD 7106.

EDMD 7110 BIBLIOGRAPHIC DESCRIPTION, ORGANIZATION AND CONTROL (3) LEC. 3. Principles and procedures of describing, classifying and organizing resources with applications using new technologies. May count either EDMD 7110 or EDMD 7116.

EDMD 7120 INFORMATION SOURCES, SERVICES AND INSTRUCTION (3) LEC. 3. An overview of information needs, services, and print and electronic resources; ways to teach information literacy skills. May count either EDMD 7120 or EDMD 7126.

EDMD 7130 ADMINISTRATION OF MEDIA AND TECHNOLOGY SERVICES (3) LEC. 3. Functions of and planning for media and technology services. Budget, evaluation, facilities, guidelines, legal issues, personnel and policies. May count either EDMD 7130 or EDMD 7136.

EDMD 7200 APPLIED INSTRUCTIONAL DESIGN (3) LEC. 3. Pr. EDMD 7000 or EDMD 7006. Applying instructional design skills, students will plan, develop, implement and assess instructional products using appropriate technologies. May count either EDMD 7200 or EDMD 7206.

EDMD 7210 INTEGRATION OF TECHNOLOGY INTO CURRICULUM (3) LEC. 3. Learner competence in integration of technology into curriculum, including designing and writing software and plans for using computers in instruction. May count either EDMD 7210 or EDMD 7216.

EDMD 7230 THEORY AND PRACTICE OF DISTANCE EDUCATION (3) LEC. 3. Theories, concepts, and tools that support distance education, with emphasis on application in design, development, and implementation of distance education instruction. May count either EDMD 7230 or EDMD 7236.

EDMD 7300 RESEARCH IN INSTRUCTIONAL TECHNOLOGY (3) LEC. 3. Pr. ERMA 7200 or FOUN 7200 or ERMA 7206 or FOUN 7206. A forum for sharing research perspectives, exploring processes involved in defining research problems and analyzing research theories, problems, and methods in instructional technology. May count either EDMD 7300 or EDMD 7306.

EDMD 7310 EVALUATION OF MEDIA AND TECHNOLOGY PROGRAMS (3) LEC. 3. Factors contributing to effective media and technology programs. Understanding of research process and experience with media and technology services assumed. May count either EDMD 7310 or EDMD 7316.

EDMD 7320 ADVANCED INFORMATION SOURCES AND SERVICES (3) LEC. 3. Electronic databases, advanced searching techniques, information representation, and the role of the media specialist in networking and creating electronic information sources. May count either EDMD 7320 or EDMD 7326.

EDMD 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor of student's work accomplished at regular intervals.

EDMD 7910 PRACTICUM (1-6) PRA. SU. Experiences closely relating theory and practice, usually conducted in realistic settings. Course may be repeated for a maximum of 6 credit hours.

EDMD 7920 CLINICAL RESIDENCY (1-6) DSL/INT. SU. Pr. (P/C EDMD 7120 or P/C EDMD 7126) and (P/C EDMD 7130 or P/C EDMD 7136). Supervised experience in a school media center or other appropriate setting. These experiences, accompanied by regularly scheduled meetings with the university supervisor, provide evaluation and analysis of the intern experience. May count either EDMD 7920 or EDMD 7926. Course may be repeated for a maximum of 6 credit hours.

EDMD 7930 TEACHING APPRENTICESHIP (3) SEM. 3. Departmental approval. A structured opportunity for students to apply educational media concepts and theories in the college classroom. Course may be repeated for a maximum of 6 credit hours.

EDMD 7940 DIRECTED FIELD EXPERIENCE (3-6) FLD. SU. Pr. FOUN 7200 or ERMA 7200 or ERMA 7206 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques. Course may be repeated for a maximum of 6 credit hours.

EDMD 7970 SPECIAL TOPICS IN INSTRUCTIONAL TECHNOLOGY (3-9) LEC. 3. Opportunity for study of current topics related to the field of instructional technology. Course may be repeated for a maximum of 9 credit hours.

EDMD 7980 FIELD PROJECT (3-6) INT. SU. Pr. ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques.

Educational Psychology Courses

EPSY 4100 LEARNING & WELLNESS IN LATER LIFE (3) LEC. 3. Relevant settings, processes, and purposes of learning for older adults. Learner characteristics will also be examined including motivations and needs. Examples of curricula and programs will be explored in-depth such as learning for family harmony, life transitions and adjustment, community involvement, recreation, reciprocity, wellness, and health.

EPSY 7100 LEARNING & WELLNESS IN LATER LIFE (3) LEC. 3. Relevant settings, processes, and purposes of learning for older adults. Learner characteristics will also be examined including motivations and needs. Examples of curricula and programs will be explored in-depth such as learning for family harmony, life transitions and adjustment, community involvement, recreation, reciprocity, wellness, and health.

EPSY 7400 ED PSYCH & EDUCATIONAL IMPLICA (3) LEC. 3. Educational psychology theory and research addressing critical problems, challenges, and opportunities in education or other growth-oriented settings. Content ranges from the study of learning to educational evaluation and authentic assessment.

EPSY 7410 THE INDIVIDUAL IN THE TEACHING-LEARNING PROCESS (3) LEC. 3. The study of human growth, development, and motivation theory and research, including culture, socio-economic status, language, gender and race as a base for understanding individual differences and their sources.

EPSY 7420 LEARNING THEORY AND EDUCATIONAL PRACTICE (3) LEC. 3. Advanced study of learning theory and research with an emphasis on application to effective design, implementation, and evaluation of instruction.

EPSY 7430 MOTIVATION AND ACHIEVEMENT (3) LEC. 3. Social, cultural, and psychological antecedents of achievement motivation are examined. This process requires reviewing theories and research, and emphasis is placed on discerning implications for practice and policy.

EPSY 7440 CLASSROOM MANAGEMENT: SKILLS AND REFLECTION (3) LEC. 3. Advanced study and analysis of existing classroom management discipline models including observation research activity.

EPSY 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

EPSY 7970 SPECIAL TOPICS IN FOUNDATION OF EDUCATION (3-6) LEC. 3-6. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

EPSY 8410 LEARNING IN THE SOCIAL CONTEXT (3) LEC. 3. Examination of the complex nature of learning as a socially-shared and individualized process. Topics may include the social construction of knowledge, scaffolded instruction, cognitive apprenticeships, and problem based learning.

EPSY 8430 TOPICAL SEMINAR IN LEARNING, COGNITION, AND INSTRUCTION (3) LEC. 3. An intensive and advanced study of research and theory on selected topics. Examples include folk theories of mind and alternative methods of studying thinking.

EPSY 8440 ED PSYCH APPRENT SEMINAR (3) LEC. 3. Focuses on the historical foundations of educational psychology as well as possibilities for future disciplinary development.

EPSY 8540 EDUCATIONAL PSYCHOLOGY RESEARCH APPRENTICESHIP SEMINAR (3) LEC. 3. A structured context for students to begin applying what they have learned from their research methods and statistic courses. Students will design and conduct research that contributes to the educational psychological knowledge base.

EPSY 8640 EDUCATIONAL PSYCHOLOGY LEARNING AND INSTRUCTION APPRENTICESHIP SEMINAR (3) LEC. 3. A structured opportunity for students to begin applying educational psychological concepts and theories in the classroom. Students will study theories of learning and instruction and begin to translate and implement these theories into practice.

EPSY 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with changes in topic.

Elementary Education Courses

CTEE 3040 PRIMARY CURRICULUM IN MATHEMATICS (3) LEC. 3, LEC. 0. Admission to Teacher Education. This course introduces primary mathematics content, pedagogy, and pedagogical content knowledge for prospective elementary school teachers. Students are provided the opportunity to explore the content and pedagogical content knowledge in the areas of: a) Foundations of Counting, b) Operations with Numbers: Base 10, and c) Operations and Algebraic Thinking. Participants will have the opportunity to delve into state and national standards, Mathematics Teaching Practices, learning trajectories, assessment and student thinking from a teaching perspective.

CTEE 3041 PRACTICUM IN ELEMENTARY EDUCATION: PRIMARY MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTEE 3040. Admission to Teacher Education. Practicum in Elementary Education: Primary Mathematics 1 credit course. This course is designed to provide 15 clock hours of teaching and experience in Primary Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTEE 3100 INTRODUCTION TO ELEMENTARY EDUCATION (3) LEC. 3. Knowledge, skills, and dispositions necessary for elementary education, with emphasis on professional expectations and school structure.

CTEE 4000 FORMATIVE ASSESSMENT AND INSTRUCTION IN INTERMEDIATE MATHEMATICS (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. This course examines mathematics content, pedagogy, and pedagogical content knowledge for prospective elementary school teachers within the intermediate grades. Students explore the areas of: a) Operations with Numbers: Base 10, c) Operations with Numbers: Fractions and c) Operations and Algebraic Thinking. Participants will have the opportunity to delve into state and national standards, Mathematics Teaching Practices, learning trajectories, assessment and student thinking from a teaching perspective.

CTEE 4010 CURRICULUM: SOCIAL SCIENCE (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. Pedagogical content knowledge in the major concepts and modes of inquiry for integrated study of social sciences for elementary learners.

CTEE 4011 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE SOCIAL SCIENCE (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4010. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Social Science Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4020 CURRICULUM: LANGUAGE ARTS (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. CTEE 4020, the final course in reading and writing instruction, deepens students' understanding of English language arts through current research in the science of reading and writing. Emphasizing expressive and receptive language in K–6 classrooms, the course highlights high-leverage teaching practices, assessment strategies, and effective feedback. Students apply learning through practicum experiences, supporting diverse learners including those with dyslexia, dysgraphia, and multilingual backgrounds, while refining their instructional approaches through lectures, readings, and guided practice.

CTEE 4021 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE LANGUAGE ARTS (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4020. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Language Arts Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4030 CURRICULUM: NATURAL SCIENCE (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of science for elementary learners.

CTEE 4031 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE NATURAL SCIENCE (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4030. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Natural Science Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4040 CURRICULUM: MATHEMATICS (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. This course examines the principles, current research, and approaches to the teaching and learning of elementary school mathematics with specific focus on geometry, measurement and data analysis. It also investigates the relationship between pedagogy and mathematical understanding appropriate for the instruction of children in kindergarten through sixth grade. Through this course, candidates explore and use major concepts and procedures in relation to geometry, measurement, probability, and data analysis.

CTEE 4041 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE MATHEMATICS (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4040. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Mathematics Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4190 EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. Through exploration, discussion, reflection, and analysis students will study issues pertaining to inclusive/multicultural K-6 classrooms. Issues related to classroom management (e.g. behavior and time management), students with special needs, parent/community relations, legal mandates, technology, planning, and professionalism.

CTEE 4191 PRACTICUM IN EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4190. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Effective Classroom Management in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research, or other work undertaken by a student focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTEE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Students and faculty cooperatively select an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEE 4920 CLINICAL RESIDENCY (11) AAB. 11. SU. Pr. P/C CTEE 4950 or P/C CTEE 4953. Admission to Teacher Education. Supervised teaching in a public elementary school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Admission to internship. May count either CTEE 4920 or CTEE 4923.

CTEE 4950 PROFESSIONAL DEVELOPMENT SEMINAR (1-4) AAB. 1. SU. Pr. P/C CTEE 4920 or P/C CTEE 4923. Admission to Teacher Education. Reflection, exploration, and study of elementary education practices in kindergarten through grade six. May count either CTEE 4950 or CTEE 4953. Course may be repeated for a maximum of 4 credit hours.

CTEE 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTEE 4970 SPECIAL TOPICS (1-6) AAB/LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTEE 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEE 7010 APPROACHES TO TEACHING (3) LEC. 3. Organizational patterns, planning and approaches to instruction in the elementary school.

CTEE 7410 CURRICULUM AND TEACHING IN SOCIAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) social science education. May count either CTEE 7410 or CTEE 7416.

CTEE 7420 CURRICULUM AND TEACHING IN LANGUAGE ARTS (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) language arts education. May count either CTEE 7420 or CTEE 7426.

CTEE 7430 CURRICULUM AND TEACHING IN NATURAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) natural science education. May count either CTEE 7430 or CTEE 7436.

CTEE 7440 CURRICULUM AND TEACHING IN MATHEMATICS (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) mathematics education. May count either CTEE 7440 or CTEE 7446.

CTEE 7490 THE ELEMENTARY SCHOOL PROGRAM (3) LEC. 3. Major curriculum areas and teaching practices in the modern elementary school. Implications of research and theory for the total elementary school program.

CTEE 7510 RESEARCH STUDIES IN EDUCATION IN AREAS OF SPECIALIZATION (3) LEC. 3. Pr. CTEE 7420 or CTEE 7426. A review, analysis and interpretation of data with emphasis on designing research to meet the changing needs of the school. May count either CTEE 7510 or CTEE 7516.

CTEE 7530 ORGANIZATION OF PROGRAMS IN ELEMENTARY EDUCATION (3) LEC. 3. Organization and development of basic and supplementary materials for guiding teachers and school systems in improvement of curriculum and teaching practices. May count either CTEE 7530 or CTEE 7536.

CTEE 7540 EVALUATION OF PROGRAMS IN AREAS OF SPECIALIZATION (3) LEC. 3. Evaluation methods and exploration of evaluation literature in areas of specialization. May count either CTEE 7540 or CTEE 7546.

CTEE 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB. SU. Departmental approval. Provides individual students with experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTEE 7970 SPECIAL TOPICS (1-6) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. May count either CTEE 7970 or CTEE 7979. Course may be repeated for a maximum of 6 credit hours.

CTEE 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTEE 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEE 8970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

CTEE 8980 FIELD PROJECT (1-10) DSL/FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May count either CTEE 8980 or CTEE 8986. Course may be repeated for a maximum of 10 credit hours.

CTEE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

English for Spkrs Other Lang Courses

CTES 5410 FOUNDATIONS OF MULTILINGUAL LEARNER INSTRUCTION (3) LEC. 3. Non-major course to introduce students to the essential components of effective instruction of multilingual students in a variety of contexts. Topics include instructional models for teaching multilingual students, linguistically and culturally responsive pedagogy, second language acquisition, formative and summative assessment.

CTES 7400 TECHNOLOGY AND MEDIA IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Application of instructional technology in second language instruction, authentic materials in the ESL classroom. May count either CTES 7400 or CTES 7406.

CTES 7410 CURRICULUM DEVELOPMENT IN ESOL EDUCATION (3) LEC. 3. LAB. 0, DSL/LEC. 0. This class will explore how to teach English for specific purposes by explaining how to create a curriculum in English for a particular context. The course will describe how to conduct a needs analysis and then create a curriculum based on the needs of the students.

CTES 7420 APPLIED LINGUISTICS IN SECOND LANGUAGE ACQUISITION (3) LEC. 3. Provides basic knowledge of phonetics, morphology, syntax, semantics, pragmatics, psycholinguistics, sociolinguistics and language variation to teach English language learners. May count either CTES 7420 or CTES 7426.

CTES 7430 TEACHING ESL LISTENING AND SPEAKING (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course will prepare ESL/EFL teachers to develop engaging and effective listening and speaking lessons in a variety of contexts. Students will design and implement effective listening and speaking lessons for a variety of proficiency levels.

CTES 7440 TEACHING ESL READING AND WRITING (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course will increase understanding of the theory and practices of reading and writing skills that actively engage English learners.

CTES 7460 TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES IN P-12 (3) LEC. 3. Teaching practices and curriculum selection in P-12 ESOL. May count either CTES 7460 or CTES 7466.

CTES 7470 ISSUES IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Examination of central issues in the teaching and learning of ESOL including language policy, language diversity and multiculturalism. May count either CTES 7470 or CTES 7476.

CTES 7480 ASSESSMENT IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL) (3) LEC. 3. Theoretical perspectives on assessment of English Language Learners. Developing, administering and analyzing assessment instruments. May count either CTES 7480 or CTES 7486.

CTES 7490 METHODS IN ESL GRAMMAR (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course will explore the English language beyond the prescriptive rules commonly taught and to develop an in-depth understanding of the challenges English language learners have with grammar. It will explore ways grammar impacts writing and speaking, best practices for grammar instruction, and considerations in error correction. Key grammar lessons will be developed and practiced.

CTES 7920 CLINICAL RESIDENCY (1-9) AAB. SU. Supervised teaching in a K-12 public school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Course may be repeated for a maximum of 9 credit hours.

Foundations of Education Courses

FOUN 3000 DIVERSITY OF LEARNERS AND SETTINGS (3) LEC. 2. LAB. 3. Pr. EDUC 1010 or EDUC 1013. Exploration of how sociopolitical factors and students' diverse identities shape their experiences and opportunities in educational settings and society, with a focus on the interaction between schooling and inequity. Includes a service-learning requirement.

FOUN 3100 CHILD DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT (6) LEC. 5. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000) or (FOUN 3000 and RSED 3003). With grades of "C" or better. Cognitive, psychosocial, and moral aspects of child development; integration of development, learning, motivation, assessment, and evaluation in context of instructional planning. May count either FOUN 3100 or FOUN 3103.

FOUN 3110 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT I (3) LEC. 2. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000) or (FOUN 3000 and RSED 3003). An integrated approach to the effective instruction of the adolescent learner in context.

FOUN 3120 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT II (3) LEC. 3. Pr. (FOUN 3110-3113 or CTSE 4070-4073 or CTSE 4090) and (EDUC 3000 or (FOUN 3000 and RSED 3000-3003)). Study of the adolescent development, learning, motivation, evaluation, and assessment concepts central to effective instruction. May count either FOUN 3120 or FOUN 3123.

FOUN 3500 DEVELOPMENT, LEARNING AND MOTIVATION (3) LEC. 3. LAB. 0, LEC. 0. The course will cover physical, cognitive, psychosocial and moral aspects of development. Next, the course will cover behavioral, cognitive, learner-centered constructivist and more contemporary theories of learning with emphasis on applications to classroom instruction. Finally, the course will cover various theories of motivation with educational applications.

FOUN 7000 CULTURAL FOUNDATIONS OF EDUCATION (3) LEC. 3. Advanced study of culture and its impact on the development and structure of education and schooling. Utilizing historical, philosophical, anthropological, and sociological perspectives, contemporary issues regarding the nature and practice of schooling will be examined. May count either FOUN 7000 or FOUN 7006.

FOUN 7010 HISTORY OF AMERICAN EDUCATION (3) LEC. 3. Examination of ideas, actors, and events which influenced the emergence of the formal school system, beginning with early American forms of education. May count either FOUN 7010 or FOUN 7016.

FOUN 7020 SOCIAL AND CULTURAL DIVERSITY IN AMERICAN EDUCATION (3) LEC. 3. Advanced study of education's response to cultural pluralism. The impact of religious, ethnic, social, and racial diversity on the structure of the American public school will be examined. May count either FOUN 7020 or FOUN 7026.

FOUN 7030 PHILOSOPHY AND EDUCATION (3) LEC. 3. Advanced study of philosophical questions and concepts as well as their application in education. May count either FOUN 7030 or FOUN 7036.

FOUN 7040 PHILOSOPHY AND EDUCATIONAL RESEARCH (3) LEC. 3. Advanced philosophical study of educational research within the context of education's professional culture.

FOUN 7050 GLOBAL PERSPECTIVES ON EDUCATION (3) LEC. 3. Exploration of global transformations in education and their implications for equity, diversity, and justice through the lens of comparative and international research.

FOUN 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

FOUN 7930 TEACHING APPRENTICESHIP (3) IND. 3. Departmental approval. A structured opportunity for students to explore social foundations of education concepts and pedagogies in the college classroom. Course may be repeated for a maximum of 6 credit hours.

FOUN 7970 SPECIAL TOPICS IN FOUNDATIONS OF EDUCATION (3-6) LEC. 3-6. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

FOUN 8010 MODERN EDUCATION AND COMPARATIVE PERSPECTIVES (3) LEC. 3. Advanced comparative study of selected contemporary educational issues within the American and international urban context.

FOUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Courses may be repeated for a maximum for 10 hours. Course may be repeated with change in topics.

Higher Ed Administration Courses

HIED 7200 ORGANIZATIONAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Theory and practice of higher education organizations with emphasis on supervision and management of personnel.

HIED 7210 LEADERSHIP IN HIGHER EDUCATION (3) LEC. 3. Exploration, discussion and application of theories, concepts and principles of leadership applied to higher education organizations. May count either EDLD 7210 or HIED 7210.

HIED 7220 HIGHER EDUCATION MANAGEMENT (3) LEC. 3. Procedures and practices in school educational management.

HIED 7230 STUDENT SERVICES ADMINISTRATION POSTSECONDARY EDUCATION (3) LEC. 3. Organization, administration and evaluation of student personnel services in postsecondary education.

HIED 7240 LEGAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Constitutional and statutory provisions for education and an analysis of judicial decisions affecting higher education.

HIED 7250 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3. Overview of major developmental theories affecting college students.

HIED 7260 COUNSELING AND ADVISING IN HIGHER EDUCATION (3) LEC. 3. Introduces counseling and advising theory and application for student services professionals in higher education.

HIED 7270 OVERVIEW OF POSTSECONDARY EDUCATION (3) LEC. 3. Overview of the history and evolution of postsecondary education in North America. May count either HIED 7270 or HIED 7276.

HIED 7400 SPORT MARKETING AND PUBLIC RELATIONS (3) LEC. 3. Marketing and public relations of sport organizations as associated with higher education institutions.

HIED 7410 SPORT ETHICS (3) LEC. 3. Covers ethical issues in sport organizations as associated with higher education institutions.

HIED 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

HIED 7910 PRACTICUM (3) PRA. 3. Departmental approval. Experience in the management of specific administrative offices. Course may be repeated for a maximum of 6 credit hours.

HIED 7920 INTERNSHIP (1-6) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 6 credit hours.

HIED 7970 SPECIAL TOPICS (1-6) LEC. 1-6. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

HIED 8200 ASSESSMENT AND EVALUATION IN HIGHER EDUCATION (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making.

HIED 8230 PLANNING AND BUDGETING IN HIGHER EDUCATION (3) LEC. 3. Components and implementation of a comprehensive, ongoing planning and budgeting program in higher education.

HIED 8270 FINANCIAL MANAGEMENT IN HIGHER EDUCATION (3) LEC. 3. Educational finance including revenues, expenditures, cost, budgeting and accounting, and the local, state and federal role in supporting education.

HIED 8480 INSTITUTIONAL RESEARCH IN HIGHER EDUCATION (3) LEC. 3. Components of institutional research and assessment that support comprehensive planning, analysis, decision support and management needs of the higher educational institution May count either EDLD 8480 or HIED 8480.

HIED 8500 THE PROFESSORIATE (3) LEC. 3. Study of differences and similarities in faculty roles, work, and career paths using various disciplinary and institutional lenses.

HIED 8510 SEMINAR IN COLLEGE TEACHING (3) LEC/SEM. 3. Overview of major issues in higher education and methods of instruction in college teaching. Involves use of experiential learning, group and collaborative activities.

HIED 8950 SEMINAR (3) LEC. 3. Presentation by graduate students of research projects and/or analysis of procedures and finding. Course may be repeated for a maximum of 6 credit hours.

HIED 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 credit hours.

Interdepartmental Education Courses

EDUC 1010 ORIENTATION TO TEACHER EDUCATION (0) LEC. 0. SU. Orientation to the teaching profession.

EDUC 5970 SPECIAL TOPICS (1-9) LEC. Opportunity for study of current topics related to the field of education in general. Course may be repeated for a maximum of 9 credit hours.

EDUC 6970 SPECIAL TOPICS (1-9) LEC. Opportunity for study of current topics related to the field of education in general. Course may be repeated for a maximum of 9 credit hours.

Kinesiology Courses

KINE 1100 WELLNESS & PUBLIC HEALTH (3) LEC. 3. Review content and theory associated with basic health information, critical health issues, economic, political, and cultural influences on health and wellness; concepts related to improving and maintaining optimal health and wellness, and basic concepts and principles of wellness for the self-appraisal of health-related physical fitness. May count either KINE 1100 or KINE 1103.

KINE 2000 PILLARS OF HEALTH: A JOURNEY TO OPTIMAL HEALTH & WELLBEING (3) LAB. 4. Students will learn and apply Mindfulness-Based Stress Reduction (MBSR) techniques and practices that have been shown, scientifically, to reduce stress and act as an aid to many health conditions that arise or are exacerbated by stress. On-campus labs are required.

KINE 2250 MOTOR DEVELOPMENT ACROSS THE LIFESPAN (2) LEC. 2. Develops understanding and skills concerning the broad concept of motor development across the lifespan. May count either KINE 2250 or KINE 2253.

KINE 2251 MOTOR DEVELOPMENT ACROSS THE LIFESPAN LABORATORY (1) LAB. 1. SU. Pr. (P/C KINE 2250 or P/C KINE 2257 or P/C KINE 2253). Develops understanding and skills concerning the broad concept of motor development across the lifespan.

KINE 2257 HONORS MOTOR DEVELOPMENT ACROSS THE LIFESPAN (2) LEC. 2. Pr. Honors College. Develops understanding and skills concerning the broad concept of motor development across the lifespan. May count either KINE 2250 or KINE 2253.

KINE 2500 SPORT OPTIMIZATION I (3) LEC. 2. LAB. 2. Basic concepts associated with the assessment of sport performance for the purpose of optimization.

KINE 2510 SPORT OPTIMIZATION II (3) LEC. 2. LAB. 2. Pr. KINE 2500 or KINE 2503 or HLHP 2500 or HLHP 2503. Concepts associated with the assessment and interpretation of sport performance for the purpose of optimization.

KINE 2800 INTRODUCTION TO KINESIOLOGY (3) LEC. 3. People, history and programs that have led to the current status of physical education, exercise science and health promotion.

KINE 3000 MEDICAL TERMINOLOGY FOR ALLIED HEALTH PROFESSIONS (3) LEC. 3. Focus on medical terminology/ abbreviations used in allied health care and application to health care documentation. Web-based delivery.

KINE 3010 INSTRUCTION AND TECHNOLOGY IN KINESIOLOGY (2) LEC. 1. LAB. 2. Communication skills, instructional strategies and technological competencies related to conveying information in the Kinesiology disciplines. May count either KINE 3010 or KINE 3013.

KINE 3030 INTRODUCTION TO PERSONAL TRAINING (3) LEC. 3. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3031 INTRODUCTION TO PERSONAL TRAINING LABORATORY (3) LAB. 3. Pr. P/C KINE 3030. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3040 HISTORY OF AMERICAN PHYSICAL CULTURE (3) LEC. 3. Appreciation of the historical and cultural aspects of health, exercise, fitness and sports activities in modern American society.

KINE 3050 CARE AND PREVENTION OF INJURIES (3) LEC. 3. Students will understand how to implement proper procedures in sports medicine care, create/lead emergency action plans, prevent injury/illness occurrence, care for basic injuries/illnesses, and analyze environmental conditions for safety, and provide important information to sports medicine health professionals. May count either KINE 3050 or KINE 3053.

KINE 3100 ADAPTIVE SPORTS (3) LEC. 3. An introduction to various competitive and recreational activities for persons with disabilities. May count either KINE 3100 or KINE 3103.

KINE 3110 PARALYMPIC SPORT (3) LEC. 3. An introduction to the Paralympic Games including the Games development, rules, and current issues related to media, marketing, and social rights.

KINE 3200 SKILLS AND CONCEPTS OF RHYTHMIC ACTIVITIES (3) LEC. 2. LAB. 2. Skillful performance in gymnastics and other rhythmic activities and an understanding of the basic movement concepts in those activities.

KINE 3210 SKILLS AND CONCEPTS OF SPORT (3) LEC. 2. LAB. 2. Skillful performance in games and sports and an understanding of the tactics in those activities. Admission to Teacher Education.

KINE 3230 TEACHING MOTOR SKILLS (3) LEC. 2. LAB. 2. Introduction to motor skills that students learn during their elementary school years in physical education.

KINE 3260 PHYSICAL EDUCATION FOR INDIVIDUALS WITH DISABILITIES (3) LEC. 2. LAB. 2. Pr. (KINE 2250 and KINE 2251 or KINE 2253) or (HLHP 2250 or HLHP 2251 or HLHP 2253). Program needs of individuals with disabilities in physical education and physical activity settings.

KINE 3300 INSTRUCTIONAL STRATEGIES IN PHYSICAL EDUCATION (3) LEC. 2. LAB. 2. Instructional and class management strategies appropriate to teach quality elementary and secondary physical education Admission to Teacher Education.

KINE 3400 HEALTH PROMOTION IN THE WORKPLACE (3) LEC. 3. Planning, implementation, evaluation and marketing of health promotion programs.

KINE 3410 REGISTERED YOGA TEACHER LEVEL I (3) LEC. 2. LAB. 2. Basic principles of teaching yoga. Concepts include the poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3410 & KINE 3420 completes a Yoga Teacher Certification.

KINE 3420 REGISTERED YOGA TEACHER LEVEL II (3) LEC. 2. LAB. 2. Pr. KINE 3413 or KINE 3410 or HLHP 3410 or HLHP 3413. Advanced principles of teaching yoga. Focus on poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3410 and KINE 3420 completes a Yoga Teacher Certification.

KINE 3620 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Coreq. KINE 3621. Understanding of anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis, will enable the student to evaluate human movement in greater detail. Departmental approval is needed for non-majors to enroll.

KINE 3621 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT LABORATORY (1) LAB. 1. Pr. P/C KINE 3620 or P/C KINE 3623 or P/C KINE 3627. Laboratory experience focuses on application of knowledge of anatomical, neuromuscular, and biomechanical principles of human movement. Content emphasizes understanding the science of exercise, how to apply and interpret common mechanical measures, and writing about findings using basic scientific writing techniques.

KINE 3627 HONORS BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Pr. Honors College. Coreq. KINE 3621. Understanding of anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis, will enable the student to evaluate human movement in greater detail. Departmental approval is needed for non-majors to enroll.

KINE 3650 MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Understanding of the basic psychological and physiological involved in the learning and control of skillful human movement.

KINE 3651 MOTOR LEARNING AND PERFORMANCE LABORATORY (1) LAB. 2. Pr. P/C KINE 3650 or P/C KINE 3653 or P/C KINE 3657. Lab experience will allow students to gain first-hand experience with modern experimental methods, data collection, and basic analysis tools in motor learning research and develop an understanding of the experience of human research participants in kinesiology research.

KINE 3657 HONORS MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Pr. Honors College. Understanding of the basic psychological and physiological involved in the learning and control of skillful human movement.

KINE 3680 PHYSIOLOGY OF EXERCISE (3) LEC. 3. Energetics of exercise and physiological responses and adaptions of various organ systems (muscular, circulatory, respiratory, etc.) to acute and chronic exercise in different environments.

KINE 3681 PHYSIOLOGY OF EXERCISE LAB (1) LAB. 2. Coreq. KINE 3680. Applying knowledge of basic energy, musculoskeletal, nervous, and cardiovascular systems using various testing procedures. Focus on understanding the science of exercise, interpreting common physiological fitness tests, and how to write about findings using basic scientific writing techniques.

KINE 3687 HONORS PHYSIOLOGY OF EXERCISE (3) LEC. 3. Pr. Honors College. Energetics of exercise and physiological responses and adaptions of various organ systems (muscular, circulatory, respiratory, etc.) to acute and chronic exercise in different environments.

KINE 3820 PRINCIPLES OF SPORT COACHING (3) LEC. 3. Basic principles of sport pedagogy and the conduct of sport training programs. Departmental approval. May count either KINE 3820 or KINE 3823.

KINE 3830 THEORY AND PRACTICE OF SPORTS OFFICIATING (3) LEC. 3. Instruction and practice of officiating a variety of sport activities.

KINE 3840 COACHING THE MENTAL SIDE OF SPORTS (3) LEC. 3. Understand athletes' psychology and how to provide them wit mental skills to enhance their performance in athletics, academics, and life.

KINE 3870 LEGAL AND ILLEGAL SPORTS SUPPLEMENTS (3) LEC. 3. Introductory approach to the safety, efficacy, and legality of popular legal and illegal sports supplements.

KINE 4130 THE NEUROBIOLOGY OF PLAY (3) LEC. 3. This course is an introduction to psychological and neuroscientific research on play and games. We will focus on play behavior in human beings, but will incorporate comparative evidence from play in other animals. Using an interdisciplinary approach, we will draw.

KINE 4200 PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. HLHP 3300. Understanding of the skill theme approach based on skill themes, movement concepts and levels of skill proficiency. Credit will not be given for both KINE 4200 and KINE 4360. Admission to Teacher Education.

KINE 4300 PHYSICAL EDUCATION IN SECONDARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. (KINE 3300 or HLHP 3300). Constructing and implementing appropriate lifetime sports and fitness programs for middle and secondary school students. Admission to Teacher Education.

KINE 4360 HEALTH EDUCATION AND PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (2) LEC. 1. LAB. 2. Critical topics in health education and physical education for prospective elementary education teachers. Credit will not be given for both KINE 4360 and KINE 4200.

KINE 4400 APPLIED ANATOMY FOR THE ALLIED HEALTH PROFESSIONAL (3) LEC. 3. Study of skeletal anatomy with an applied approach. May count either KINE 4400 or KINE 4403.

KINE 4450 PHYSICAL ACTIVITY AND PUBLIC HEALTH (3) LEC. 3. Departmental approval. Basic principles of epidemiology; health benefits of physical activity; strategies to promote physical activity at the individual and community levels.

KINE 4500 INDIVIDUAL AND GROUP FITNESS INSTRUCTION (3) LEC. 3. Principles of exercise prescription and field assessment techniques to develop, implement and evaluate individual and group exercise programs.

KINE 4560 SPORT TECHNIQUE AND MOVEMENT ANALYSIS (3) LEC. 3. Skills and knowledge for observing, evaluating, and correcting movement patterns. May count either KINE 4560 or KINE 4563.

KINE 4600 STRENGTH AND CONDITIONING DEVELOPMENT (3) LEC. 3. Basic concepts and principles of strength, endurance and speed development.

KINE 4620 EXERCISE AND SPORT PSYCHOLOGY (3) LEC. 3. Role of psychological factors in sport, exercise and physical activity.

KINE 4627 HONORS EXERCISE AND SPORT PSYCHOLOGY (3) LEC. 3. Pr. Honors College. Role of psychological factors in sport, exercise and physical activity.

KINE 4630 STRENGTH AND CONDITIONING PREPARATION (3) LEC. 3. Pr. (KINE 4600 or KINE 4603) and (KINE 3680 or KINE 3683 or KINE 3687). Preparation as a Certified Strength and Conditioning Specialist.

KINE 4640 PHYSICAL CONDITIONING AND SPEED (3) LEC. 3. Basic concepts and principles of physical conditioning and speed.

KINE 4690 CORRECTIVE EXERCISE SPECIALIST PREPARATION (3) LEC. 3. Pr. KINE 3620 and P/C KINE 3621 or P/C KINE 3627. Preparation for the National Academy of Sports Medicine corrective exercise specialist examination. May count either KINE 4690 or KINE 4693.

KINE 4760 INTRODUCTION TO EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. (KINE 3620 or KINE 3627) and (KINE 3650 or KINE 3657) and (KINE 3680 or KINE 3687). Research literature, experimental design and research interpretation in exercise science.

KINE 4767 HONORS INTRO TO EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. Honors College. Research literature, experimental design and research interpretation in exercise science.

KINE 4780 EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. (KINE 4760 or KINE 4763 or KINE 4767) and (KINE 3620 or KINE 3623 or KINE 3627) and (KINE 3650 or KINE 3653 or KINE 3657) and (KINE 3680 or KINE 3683 or KINE 3687). Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4787 HONORS EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. Honors College. KINE 3620 or KINE 3623 and KINE 3650 or KINE 3653. and KINE 4760 or KINE 4763. and KINE 3680 or KINE 3683. Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4860 EXERCISE PROGRAMMING FOR SPECIAL POPULATIONS (3) LEC. 3. Principles of exercise prescription, programming and field assessment techniques to develop, implement and evaluate exercise programs for special populations. May count either KINE 4860 or KINE 4863.

KINE 4880 TRAINING AND CONDITIONING PROGRAMMING (3) LEC. 3. Pr. (KINE 4600 or HLHP 4600 or HLHP 4640) and KINE 4640. Skills and knowledge related to sport specific annual training regimens.

KINE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 6 credit hours.

KINE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Application of basic concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 4920 CLINICAL RESIDENCY (12) LEC. 12. SU. Pr. KINE 4200 and KINE 4300. Culminating supervised work experience in school settings for K-12 Physical Education. Students must be cleared and approved for Clinical Residency by College of Education criteria.

KINE 4930 PHYSICAL ACTIVITY AND HEALTH INTERNSHIP (1-12) LEC. 1-12. SU. Pr. KINE 5400 or KINE 5403. Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. May count either KINE 4930 or KINE 4933. Course may be repeated for a maximum of 12 credit hours.

KINE 4940 FITNESS, CONDITIONING AND PERFORMANCE INTERNSHIP (1-12) DSL/INT. SU. Pr. (KINE 4690 or KINE 4693) and (KINE 4880 or KINE 4883). Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. Site must be approved by internship coordinator. May count either KINE 4940 or KINE 4943. Course may be repeated for a maximum of 12 credit hours.

KINE 4970 SPECIAL TOPICS (1-3) AAB. Advanced presentation of critical issues in physical education, health promotion or exercise science. Course may be repeated with change in topic. Course may be repeated for a maximum of 12 credit hours.

KINE 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental Approval. Directed research within the area of specialty within the School. Course may be repeated for a maximum of 6 credit hours.

KINE 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

KINE 5400 EXERCISE ASSESSMENT, PRESCRIPTION, & PROGRAMMING (3) LEC. 3. Pr. (KINE 3620 or KINE 3623 or KINE 3627) and (KINE 3680 or KINE 3683 or KINE 3687). This course is designed to develop the knowledge, skills, and abilities necessary to work with clients, performing exercise testing for health and fitness and developing exercise programs following American College of Sports Medicine (ACSM) and National Strength and Conditioning Association (NSCA) guidelines. The course will focus on the principles and guidelines for exercise testing and programming.

KINE 5500 EXERCISE ASSESSMENT AND TESTING (3) LEC. 1. LAB. 4. Pr. (KINE 3620 or KINE 3627) and (KINE 3680 or KINE 3687) and KINE 3681. Familiarization with exercise testing, exercise testing instrumentation, and application of concepts in physiological testing, test selection, and interpretation of assessments in normal populations. May count KINE 6500.

KINE 5501 CLINICAL EXERCISE TESTING LABORATORY (2) LAB. 2. Pr. KINE 3680 and (KINE 3681 or KINE 3687) and (KINE 5500 or KINE 5503). Application of concepts in physiological testing, test selection and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction.

KINE 5820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 5920 INTERNSHIP (1-12) INT. SU. Pr. (KINE 4630 or KINE 4633) and (KINE 5400 or KINE 5403). Supervised work experiences in schools, fitness or rehabilitation settings. Two hours of work experience per week for each hour course credit. Course may be repeated for a maximum of 12 credit hours.

KINE 6200 RESEARCH PROJECT IN PHYSICAL EDUCATION (3) LEC. 3. Focus on action research in teaching and learning in physical education in schools. May count either KINE 5200 or KINE 6200.

KINE 6250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2. Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress. May count either KINE 5250 or KINE 6250.

KINE 6300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2. Strategies for development of advocacy programs in physical education. May count either KINE 5300 or KINE 6300.

KINE 6350 ASSESSMENT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. P/C KINE 7920 or P/C HLHP 7920 or P/C HLHP 7926.

KINE 6400 EXERCISE ASSESSMENT, PRESCRIPTION, & PROGRAMMING (3) LEC. 3. Pr. KINE 3680 or KINE 3687. This course is designed to develop the knowledge, skills, and abilities necessary to work with clients, performing exercise testing for health and fitness and developing exercise programs following American College of Sports Medicine (ACSM) and National Strength and Conditioning Association (NSCA) guidelines. The course will focus on the principles and guidelines for exercise testing and programming.

KINE 6500 EXERCISE ASSESSMENT AND TESTING (3) LEC. 1. LAB. 4. Pr. KINE 3680 or KINE 3687. Familiarization with concepts in exercise testing, testing instrumentation, test selection & application, and interpretation of assessments in normal populations for the purpose of exercise prescription. May count either KINE 5500 or KINE 6500.

KINE 6501 CLINICAL EXERCISE TESTING LABORATORY (2) LAB. 2. Pr. KINE 3680 or KINE 3687. Coreq. KINE 6500. Learn and practice the skills to perform clinical exercise testing for health and fitness in accordance with American College of Sports Medicine (ACSM).

KINE 6600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2. LAB. 2. Pr. KINE 3680 or KINE 3687. Physiological adaptations to training and conditioning for sport performance. May count either KINE 5600 or KINE 6600.

KINE 6820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 6920 INTERNSHIP (1-12) INT. SU. Pr. (KINE 7630 and KINE 6400) or KINE 6406. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 12 credit hours.

KINE 7010 RESEARCH METHODS IN PHYSICAL ACTIVITY (3) LEC. 3. Study of research methods and analysis of current research in physical education, health promotion, and exercise science.

KINE 7180 APPLIED SOCIOLOGICAL ASPECTS OF SPORT AND EXERCISE (3) LEC. 3. Critical examination and application of sociological aspects of sport and exercise in a variety of settings. May count either KINE 7180 or KINE 7186.

KINE 7200 CURRICULUM AND TEACHING IN PHYSICAL EDUCATION (3) LEC. 3. Issues in developing and critiquing curricula in physical education.

KINE 7250 EVALUATION OF PROGRAMS IN PHYSICAL EDUCATION (3) LEC. 3. Development of tools for assessment of student learning and evaluation of physical education programs.

KINE 7260 INDIVIDUALS WITH DISABILITIES IN PHYSICAL EDUCATION (3) LEC. 3. Developing inclusive physical activity programs for children and adolescents with disabilities in physical education.

KINE 7280 NATURALISTIC INQUIRY IN PHYSICAL ACTIVITY SETTINGS (3) LEC. 3. Exploration of naturalistic inquiry in physical activity and educational settings.

KINE 7300 CONTENT AND PEDAGOGY IN PHYSICAL EDUCATION (3) LEC. 3. Instructional strategies and content for elementary and secondary physical education.

KINE 7350 ORGANIZATION AND ANALYSIS OF INSTRUCTION IN PHYSICAL EDUCATION (3) LEC. 3. Focus on the teaching-learning process in physical education.

KINE 7380 INTEGRATING CLASSROOM CONCEPTS (3) LEC. 3. Relationship of developmental foundations of young children and programming of physical activities.

KINE 7400 ADVANCED ANATOMICAL PRINCIPLES (3) LEC. 3. Clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact and utilize anatomical knowledge. May count either KINE 7400 or KINE 7406.

KINE 7420 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH I (3) LEC. 3. Introductory approach to skill analysis as well as the use of the software program Dartifish. May count either KINE 7420 or KINE 7426.

KINE 7430 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH II (3) LEC. 3. Pr. KINE 7420 or HLHP 7420 or HLHP 7426 or KINE 7426. Advanced approach to skill analysis as well as the use of the software program Dartifish. May count either KINE 7430 or KINE 7436.

KINE 7550 EFFICIENT MOVEMENT STRATEGIES (3) DSL. 3. A review of the material and tools necessary to become a National Academy of Sports Medicine Corrective Exercise Specialist.

KINE 7570 EXERCISE ELECTROCARDIOGRAPHY (3) LEC. 3. Pr. KINE 3680 or KINE 3687. Electrocardiography from a exercise scientist's perspective; recognition of normal and abnormal electrocardiographic patterns at rest and during exercise.

KINE 7620 PRINCIPLES OF BIOMECHANICS IN HUMAN MOVEMENT (3) LEC. 3. Pr. KINE 3620 or KINE 3627. Biomechanical principles and laws with applications to human movement in sport, exercise and daily activities. Departmental approval. May count either KINE 7620 or KINE 7626.

KINE 7630 STRENGTH & CONDITIONING PREPARATION (3) LEC. Preparation as a Certified Strength and Conditioning Specialist.

KINE 7650 ADVANCED MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Pr. KINE 3650 or KINE 3657. Departmental approval. Theories, experimental studies, and current issues in the acquisition, performance, and retention of motor skills.

KINE 7660 BIOMECHANICS OF SPORT INJURY AND REHABILITATION (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or HLHP 7626). Biomechanical properties of the human body as related to injuries and rehabilitation in sport and daily activities.

KINE 7670 LAB TECHNIQUES IN BIOMECHANICS (3) LEC. 1. LAB. 2. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or KINE 7626). Study of equipment and standing practices utilized by a biomechanist in measuring and analyzing motion.

KINE 7680 ADVANCED PHYSIOLOGY OF EXERCISE I (3) LEC. 3. Pr. KINE 3680 or KINE 3687. Departmental approval. Physiological responses to exercise and control of metabolism, the cardiovascular system, and the respiratory system during acute exercise and training.

KINE 7700 ADVANCED PHYSIOLOGY OF EXERCISE II (3) LEC. 3. Pr. KINE 3680 or KINE 3687. Temperature regulation and endocrine response to exercise; physiological responses and adaptations to aerobic training, strength training, and environmental extremes; limiting factors and fatigue in exercise.

KINE 7710 LAB TECHNIQUES IN EXERCISE PHYSIOLOGY (3) LEC. 1. LAB. 4. Pr. (HLHP 7680 or HLHP 7686 or KINE 7680). Techniques for measuring and evaluating physical performance.

KINE 7730 NEUROMOTOR CONTROL (3) LEC. 3. Pr. KINE 3650 or KINE 3657. Departmental approval. Structure and function of the central and peripheral systems underlying human motor control.

KINE 7740 ADVANCED MOTOR DEVELOPMENT (3) LEC. 3. Departmental approval. Examination of theoretical and empirical issues in motor development across the life span.

KINE 7750 ADVANCED SPORT PSYCHOLOGY (3) LEC. 3. Pr. KINE 4620 or KINE 4627 or departmental approval. Examination of psychological factors that influence althletic performance. Or equivalent,

KINE 7780 EXERCISE MOTIVATION AND ADHERENCE (3) LEC. 3. Pr. KINE 4620 or KINE 4627. Theoretical foundations and recent research in exercise motivation and adherence. Or equivalent.

KINE 7790 MOTOR BEHAVIOR OF INDIVIDUALS WITH DISABILITIES (3) LEC. 3. Pr. (HLHP 7650 or HLHP 7656 or KINE 7650). Examination of motor behavior characteristics of individuals with disabilities.

KINE 7820 CLINICAL/NON-CLINICAL INTERNSHIP IN KINESIOLOGY (1-10) DSL/INT. SU. Supervised work experience in physical activity, health, fitness, conditioning, performance and rehabilitation settings. This course is for non-teacher education students. May count either KINE 7820 or KINE 7826. Course may be repeated for a maximum of 10 credit hours.

KINE 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 7910 PRACTICUM (1-3) PRA. Departmental approval. Application of concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 7920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 7930 NON-THESIS RESEARCH PROJECT (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Continuation/completion of a scientific research project that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

KINE 7970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course may be repeated with change in topic.

KINE 7980 RESEARCH PROJECT IN KINESIOLOGY (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Completion of a scientific research project in Kinesiology that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7990 RESEARCH AND THESIS (1-10) IND. Course may be repeated with change in topics.

KINE 8270 EXERCISE GENETICS (3) LEC. 3. This course will describe advanced concepts related to exercise genetics. Examples include how skeletal muscle responds to exercise at the epigenetic, transcriptomic, and proteomic level. Additionally, cutting-edge research topics (e.g., miRNA and retrotransposons) will be discussed in the context of exercise science.

KINE 8300 RESEARCH IN KINESIOLOGY (3) LEC. 3. Examination and evaluation of current research trends within the field of kinesiology.

KINE 8310 SUPERVISION/ADMINISTRATION OF LABS IN KINESIOLOGY (3) LEC. 3. Skills and techniques of the daily management of kinesiology labs. Topics include budgeting, outreach, entrepreneurship, grants, and personnel management.

KINE 8320 RESEARCH MENTORSHIP (3) LEC. 3. Skills and experience in the mentorship of novice researches in the field of Kinesiology.

KINE 8710 SCIENTIFIC COMMUNICATION IN EXERCISE SCIENCE (3) LEC. 3. In-depth analysis of the major formats for scientific communication and the peer-review process in exercise science. Or equivalent.

KINE 8730 NUTRIENT TIMING FOR PERFORMANCE OPTIMIZATION (3) LEC. 3. This course will discuss how Nutrient Timing is important for optimizing endurance- or resistance training adaptations in athletes.

KINE 8750 THREE-DIMENSIONAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7620) or KINE 7620 or KINE 7620. Three-dimensional nature of body segments in human movement, with emphasis on data processing and modeling techniques.

KINE 8770 NEUROMUSCULAR ASPECTS OF EXERCISE AND TRAINING (3) LEC. 3. Pr. KINE 7680 or HLHP 7680 or HLHP 7686 or departmental approval. Examination of neuromuscular mechanisms that allow humans to perform work, including energy output, neural integration, energy metabolism and adaptations to training.

KINE 8780 BIOCHEMISTRY OF EXERCISE (3) LEC. 3. Pr. (HLHP 7680 or KINE 7680) or HLHP 7686 or departmental approval. Regulation of the metabolic pathways of energy metabolism with emphasis on the energetic response to acute exercise and exercise training.

KINE 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 8910 PRACTICUM (1-3) PRA. SU. Departmental approval. Application of basic concepts to specific work environments. Course may be repeated for a maximum of 9 credit hours.

KINE 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness and rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 8930 DIRECTED FIELD EXPERIENCES (1-10) FLD. SU. Departmental approval. Field studies away from campus. Course may be repeated for a maximum of 10 credit hours.

KINE 8950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8960 SPECIAL PROBLEMS (1-3) IND. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education. health promotion, or exercise science. Course be repeated with change in topic. Course may be repeated with change in topics.

KINE 8980 FIELD PROJECT (1-6) FLD.

KINE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Field project away from campus. Course may be repeated for a maximum of 9 credit hours. Course may be repeated with change in topics.

Music Education Courses

CTMU 1010 INTRODUCTION TO MUSIC EDUCATION (0) LAB. 1. Introduction to teaching music.

CTMU 1020 MUSIC EDUCATION LAB I (1) LAB. 3. Development and documentation of general music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 2010 MUSIC EDUCATION LAB II (1) LAB. 3. Development and documentation of vocal or instrumental music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 3040 MUSIC AND RELATED ARTS (3) LEC. 2. LAB. 1, LLB. 0. Interdisciplinary instruction appropriate for students' developmental characteristics which synthesize the content, professional resources, curriculum goals and instructional strategies of music.

CTMU 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTMU 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. Admission to Teacher Education. Cooperatively selected field experience. May count either CTMU 4910 or CTMU 4913. Course may be repeated for a maximum of 6 credit hours.

CTMU 4920 CLINICAL RESIDENCY (12) AAB/DSL. 40. SU. Admission to Clinical Residency. Supervised on-the-job experience in a school or other appropriate setting abroad with regularly scheduled discussions with supervising faculty provide evaluation and analysis of the intern. May count either CTMU 4920 or CTMU 4923.

CTMU 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTMU 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTMU 4997 HONORS THESIS (1-3) IND. Pr. Honors College. The student's thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTMU 5110 CHILDREN'S MUSIC LEARNING (4) LEC. 3. LAB. 3. Musical development and learning, birth-childhood. Curriculum, methods, and assessment for community and school children's music. Clear background check required. May count either CTMU 5110 or CTMU 6110.

CTMU 5120 SCHOOL AND COMMUNITY GENERAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, adolescence-adulthood. Curriculum, methods, and assessment for community and school general music. Clear background check required. May count either CTMU 5120 or CTMU 6120.

CTMU 5130 SCHOOL AND COMMUNITY INSTRUMENTAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, instrumentalists. Curriculum, methods, and assessment for community and school instrumental music. Clear background check required. May count either CTMU 5130 or CTMU 6130.

CTMU 5140 SCHOOL AND COMMUNITY VOCAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Admission to Teacher Education. Musical development and learning of vocalists. Curriculum, methods, and assessment for community and school vocal music. Clear background check required. May count either CTMU 5140 or CTMU 6140.

CTMU 6110 CHILDREN'S MUSIC LEARNING (4) LEC. 3. LAB. 3. Musical development and learning, birth-childhood. Curriculum, methods, and assessment for community and school children's music. Clear background check required. May count either CTMU 5110, CTMU 6110 or CTMU 6116.

CTMU 6120 SCHOOL AND COMMUNITY GENERAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, adolescence-adulthood. Curriculum, methods, and assessment for community and school general music. Clear background check required. May count either CTMU 5120 or CTMU 6120/CTMU 6126.

CTMU 6130 SCHOOL AND COMMUNITY INSTRUMENTAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, instrumentalists. Curriculum, methods, and assessment for community and school instrumental music. Clear background check required. May count either CTMU 5130, CTMU 6130 or CTMU 6136.

CTMU 6140 SCHOOL AND COMMUNITY VOCAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning of vocalists. Curriculum, methods, and assessment for community and school vocal music. Clear background check required. May count either CTMU 5140, CTMU 6140 or CTMU 6146.

CTMU 6940 ELEMENTARY/MIDDLE SCHOOL MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for elementary and middle school music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master's Certification Program.

CTMU 6960 SECONDARY MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for secondary music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master's Certification Program

CTMU 7000 SCHOOL AND COMMUNITY MUSIC (1) LEC. 1. Developing skills, disposition, community, and research planning for graduate students in school and community music. May count either CTMU 7000 or CTMU 7006. Course may be repeated for a maximum of 2 credit hours.

CTMU 7510 RESEARCH STUDIES IN MUSIC EDUCATION (3) RES. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the changing needs of school musicians. May count either CTMU 7510 or CTMU 7516.

CTMU 7520 CURRICULUM AND TEACHING IN MUSIC EDUCATION (3) LEC. 3. Teaching practices and evaluation of experiences and content for curriculum improvements. Students develop recommendations for music curriculum. May count either CTMU 7520 or CTMU 7526.

CTMU 7530 ORGANIZATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Program, organization and development of basic and supplementary materials for guiding teachers, facilities and school systems in continuous improvement of curriculum and teaching practices in music education. May count either CTMU 7530 or CTMU 7536.

CTMU 7540 EVALUATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness including the utilization of human and material resources and the coordination of areas of specialization and issues in evaluation which are unique to music education settings. May count either CTMU 7540 or CTMU 7546.

CTMU 7550 APPLICATIONS OF TECHNOLOGY IN MUSIC EDUCATION (3) LEC. 3. An overview of applications of current technology in music classroom, studios, and offices. May count either CTMU 7550 or CTMU 7556.

CTMU 7560 DIGITAL MEDIA PRODUCTION FOR MUSIC EDUCATION (3) LEC. 3. Current tools, skills, and concepts for creating aural and visual interactive applications. May count either CTMU 7560 or CTMU 7566.

CTMU 7570 MUSIC INSTRUCTION MULTIMEDIA RESEARCH AND DEVELOPMENT (3) LEC. 3. Pr. CTMU 7550 or CTMU 7556. Departmental approval. Current research music instructional technology, design of interactive applications.

CTMU 7580 PSYCHOLOGY OF MUSIC (3) LEC. 3. This course will focus on exploring the musical experience psychological, psycho-acoustic, emotional, anthropological, sociological, and assistance perspectives to better understand how philosophical and practical approaches work in music teaching, learning, and in community settings. May count either CTMU 7580 or CTMU 7586.

CTMU 7590 WEB DESIGN AND MEDIA FOR MUSIC EDUCATORS (3) LEC. 3. Exploration and creation of media for music-focused curriculum and curriulcum support focused on competent implementation and delivery via web sites and web-based platforms.

CTMU 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMU 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DMU/PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMU 7970 SPECIAL TOPICS (1-9) DMU. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 9 credit hours.

CTMU 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTMU 8950 SEMINAR (1-3) DMU. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTMU 8980 FIELD PROJECT (1-6) DMU. SU. Course may be repeated for a maximum of 6 credit hours.

CTMU 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with change in topics.

Physical Education Courses

PHED 1000 ACTIVE AUBURN (2) LEC. 2. Basic concepts associated with physical activity and the opportunities on campus to engage in health-promoting and wellness activities. Course may be repeated for a maximum of 4 credit hours.

PHED 1200 CARDIO RESPIRATORY: FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning. Activities may include, but are not limited to running (jogging) swimming, cycling and aerobic dance. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1210 CARDIO RESPIRATORY: AEROBIC DANCE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in aerobic dance.

PHED 1220 CARDIO RESPIRATORY: CIRCUIT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in circuit training.

PHED 1230 CARDIO RESPIRATORY: JOGGING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in jogging.

PHED 1240 CARDIO RESPIRATORY: SWIM FOR FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in swim for fitness.

PHED 1250 CARDIO RESPIRATORY: WATER AEROBICS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in water aerobics.

PHED 1260 MILITARY FITNESS FOR EVERYONE (2) LEC. 2. Basics of military-type physical activity training, goal-setting, and fitness principles.

PHED 1300 FITNESS AND CONDITIONING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness. Activities may include, but are not limited to calisthenics and weight training. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1310 FITNESS: BODYBUILDING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in bodybuilding.

PHED 1320 FITNESS: LIFETIME ACTIVITY (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in lifetime activity.

PHED 1330 FITNESS: WEIGHT CONTROL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight control.

PHED 1340 FITNESS: WEIGHT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training.

PHED 1350 FITNESS WEIGHT TRAINING WOMEN (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness for weight training for women.

PHED 1360 FITNESS: WEIGHT TRAINING II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training II.

PHED 1380 KETTLEBELL TRAINING (2) LEC. 1. LAB. 1. Introductory approach to kettlebell techniques and kettlebell program development.

PHED 1390 WEIGHT MANAGEMENT (2) LAB. 2. Nutrition and exercise concepts associated with maintaining healthy weight.

PHED 1400 TEAM SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport. Team sports may include, but are not limited to, volleyball, basketball and softball. Course may be repeated with change in topic.

PHED 1410 TEAM SPORTS: BASKETBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1420 TEAM SPORTS: FLAG FOOTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1430 TEAM SPORTS: SOCCER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1440 TEAM SPORTS: SOFTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1450 TEAM SPORTS: VOLLEYBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1500 INDIVIDUAL SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport. Sports may include, but are not limited to tennis, golf and racquetball. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1510 INDIVIDUAL SPORTS: BOWLING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1520 INDIVIDUAL SPORTS: GOLF (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1530 INDIVIDUAL SPORTS: GOLF II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1550 INDIVIDUAL SPORTS: TENNIS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1600 PERFORMANCE ACTIVITIES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Activities may include, but are not limited to, dance and gymnastics. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1610 PERFORM ACTIVITY - PILATES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1620 PERFORMANCE ACTIVITY: KARATE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Course may be repeated for a maximum of 6 credit hours.

PHED 1630 PERFORMANCE ACTIVITY: TAE KWON DO (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1640 PERFORMANCE ACTIVITY: YOGA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1700 AQUATICS: OTHER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills. Activities may include, but are not limited to, swimming skills instruction, lifeguard training, and scuba diving. When appropriate, successful completion of the course will lead to Red Cross certification or certification by other agencies. Course may be repeated for a maximum of 4 credit hours.

PHED 1710 AQUATICS: WHITEWATER KAYAKING I (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1720 AQUATICS: WHITEWATER KAYAKING II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1740 AQUATICS: LIFEGUARD TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1750 AQUATICS: BEGINNING SWIMMING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1760 AQUATICS: SCUBA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1800 VARSITY SPORTS: STRENGTH AND CONDITION (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topic.

PHED 1810 VARSITY MEN'S SPORTS: FOOTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1820 VARSITY MEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1830 VARSITY MEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1840 VARSITY MEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1850 VARSITY MEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1860 VARSITY MEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1870 VARSITY MEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1880 VARSITY MEN'S SPORTS: BASEBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1900 VARSITY WOMEN'S SPORTS: SOCCER (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1910 VARSITY WOMEN'S SPORTS: GYMNASTICS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1920 VARSITY WOMEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1930 VARSITY WOMEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1940 VARSITY WOMEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1950 VARSITY WOMEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1960 VARSITY WOMEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1970 VARSITY WOMEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1980 VARSITY WOMEN'S SPORTS: SOFTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1990 VARSITY WOMEN'S SPORTS: VOLLEYBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 2100 WHEELCHAIR SPORTS FOR EVERYONE (2) LEC. 2. LAB. 1. A physical education class which introduces students to various wheelchair sports.

PHED 2200 SELF DEFENSE FOR WOMEN (1) LEC. 1. The Rape Aggression Defense (RAD) System is a comprehensive program of realistic self-defense tactics and techniques for women that promotes awareness, prevention, risk reduction and risk avoidance with a progression to hands-on training and simulation exercises.

Reading Education Courses

CTRD 3000 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION I (3) LEC. 3. LAB. 0, LEC. 0. Research-based theory and teaching strategies to meet the language and literacy needs of all children, especially those at risk of reading difficulties. Includes a practicum teaching experience.

CTRD 3001 PRACTICUM IN FOUND OF LANG LITERACY INSTRUCTION I (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTRD 3000. Admission to Teacher Education. This course is designed to provide 15 clock hours of teaching and experiences in Literacy Instruction in K-3 It is an intensive, interactive experience at a strategically selected school site.

CTRD 3010 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION II (3) LEC. 3. LAB. 0, LEC. 0. Provides a scientifically based reading research foundation essential for understanding student reading development and informing explicit, systematic instruction in the core aspects of reading. Topics include understanding reading research, cognitive processes involved in reading, language development, and effective reading instruction and assessment for students in PK-6. Additionally, the course emphasizes the theoretical foundations of literacy development in children and its implications for teaching. Includes a practicum teaching experience.

CTRD 3011 PRACTICUM IN FOUND OF LANG LITERACY INSTRUCTION II (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTRD 3010. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Language and Literacy Instruction II in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTRD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTRD 5000 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. LAB. 0. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000, or CTRD 6006.

CTRD 5030 THE READING OF ADOLESCENTS (3) LEC. 3. Admission to Teacher Education. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 5700 DEVELOPMENTAL READING K-12 (3) LEC. 3. Admission to Teacher Education. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 6000 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000, or CTRD 6006.

CTRD 6030 THE READING OF ADOLESCENTS (3) LEC. 3. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 6700 DEVELOPMENTAL READING K-12 (3) LEC. 3. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 6710 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3. Strategies to enhance literacy and inquiry for students' content-area learning in the middle and secondary school. May count CTRD 5710, CTRD 6710, or CTRD 6716.

CTRD 7400 ASSESSMENT AND INSTRUCTION FOR READING INTERVENTION (3) LEC. 3. Research-based analysis of causal factors in reading difficulties, assessment strategies, and effective teaching with delayed readers. Includes practicum.

CTRD 7510 RESEARCH STUDIES IN READING EDUCATION (3) DSL/RES. 3. Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.

CTRD 7520 CURRICULUM AND TEACHING IN READING EDUCATION (3) LEC. 3. Teaching practices and reappraisal of selected experiences and content for curriculum improvement.

CTRD 7530 ORGANIZATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Program, organization, and development of basic and supplementary materials for guiding teachers, faculties, and school systems in the continuous improvement of curriculum and teaching practices.

CTRD 7540 EVALUATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness with attention to the utilization of human and material resources and the coordination of areas of specialization.

CTRD 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study directed toward desired objectives related to respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTRD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTRD 7920 CLINICAL RESIDENCY (1-9) DRD. SU. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Departmental approval. May count either CTRD 7920 or CTRD 7926. Course may be repeated for a maximum of 9 credit hours.

CTRD 7970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 6 credit hours.

CTRD 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

CTRD 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTRD 8980 FIELD PROJECT (1-10) FLD. SU. Course may be repeated for a maximum of 10 credit hours.

CTRD 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with change in topics.

Rehabilitation Special Ed Courses

RSED 2000 DISABILITY AWARENESS AND MENTORSHIP (3) LEC. 3. LAB. 3. Overview of disabilities and strategies to address disparities in society through awareness, advocacy, and international PEER certified educator/mentorship. EAGLES counselors and WINGS peer mentor requirement.

RSED 3000 DIVERSITY AND EXCEPTIONALITY OF LEARNERS (3) LEC. 3. Exploration of philosophical, social, cultural, and legal factors, and individual characteristics shaping education for individuals with disabilities; and roles/responsibilities of educators in inclusive settings. May count either RSED 3000 or RSED 3003.

RSED 3010 INTRODUCTION TO SPECIAL EDUCATION (3) LEC. 3. Orientation to special education profession including history, philosophy, federal legislation, contemporary issues and national organizations. Only CMDS Majors may take this course. Departmental approval for all other majors.

RSED 3020 INTRODUCTION TO REHABILITATION (3) LEC. 3. Orientation to the profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3110 ASSESSMENT: ELIGIBILITY FOR SPECIAL EDUCATION (3) LEC. 3. Selection, administration, scoring and interpretation of standardized aptitude and educational tests used in the field of special education. May count either RSED 3110 or RSED 3113.

RSED 3120 ASSESSMENT IN REHABILITATION (3) LEC. 3. Selection, administration, scoring and interpretation of work sample systems and standardized tests of intelligence, aptitude, achievement, interest, and dexterity used in the field of rehabilitation.

RSED 4010 BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Skills to manage the behavior of special education students including behavioral assessment, selection criteria for appropriate intervention strategies and evaluation of intervention effectiveness.

RSED 4100 PROFESSIONAL COMMUNICATION IN REHABILITATION (3) LEC. 3. Theoretical and practical aspects of written and oral communication with rehabilitation and other professionals, clients, and family members.

RSED 4120 INDEPENDENT LIVING SERVICES IN REHABILITATION (3) LEC. 3. The history, legislation and philosophy of the independent living movement and its impact on the quality of life for people with severe disabilities.

RSED 4130 ETHICAL PRACTICES IN REHABILITATION (3) LEC. 3. Departmental approval. Ethical dilemmas that are routinely faced by practitioners in human service occupations.

RSED 4140 ASSESSMENT: PROGRAM PLANNING IN SPECIAL EDUCATION (3) LEC. 3. Pr. P/C RSED 4920 or P/C RSED 4923. A framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on application assessment of students with disabilities, and how to use assessment data to inform instructional planning and IEP goal development.

RSED 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Emphasis on exceptional learners. Course may be repeated for a maximum of 3 credit hours.

RSED 4910 PRACTICUM (1-6) DSL. SU. Departmental approval. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 4911 PRACTICUM ELEMENTARY I LITERACY & NUMERACY (1-3) LEC. 2. LAB. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4920 CLINICAL RESIDENCY (9) AAB. 9. SU. Comprehensive supervised on-the job experience in a school, college or community-based setting serving individuals with disabilities. Departmental approval or admission to internship.

RSED 4931 PRACTICUM ELEMENTARY II LITERACY & NUMERACY (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4941 PRACTICUM SECONDARY I (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4951 PRACTICUM PRE-K – SECONDARY II (1-3) LEC. 2. LAB. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4970 SPECIAL TOPICS (1-3) DR4/ST1. Seminar in which upper-level students and professors engage in critical thinking regarding selected concepts, theories, research, and issues germane to the field of disabilities. Course may be repeated for a maximum of 9 credit hours.

RSED 5000 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 5010 MEDICAL ASPECTS OF DISABILITY (3) LEC. 3. Medical terminology, basic body systems, common malfunctions, therapeutic services, restorative techniques, and disability evaluation for different disability groups and the vocational implications of each. May count RSED 5010, RSED 5013, RSED 6010, or RSED 6016.

RSED 5020 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment. May count RSED 5020, RSED 5023, RSED 6020, or RSED 6026.

RSED 5070 MILD DISABILITIES (3) LEC. 3. The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. May count either RSED 5070 or RSED 6070.

RSED 5100 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 3010. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 5110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION: LITERACY AND DEVELOPMENTAL DOMAINS (3) LEC. 3. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. Admission to Teacher Education. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 5120 CURRICULUM IN ELEMENTARY: LITERACY AND MATHEMATICS IN SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum activities for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 5130 CURRICULUM IN LITERACY FOR STUDENTS WITH DISABILITIES (3) LEC. This course is designed to provide students with the understanding of language development, development of early literacy, and screening for early literacy deficits. This class will introduce language systems (orthography, phonetics, phonology, morphology, syntax, and semantics) and their role in the development of literacy. The course will provide opportunities for implementation of assessment and explicit system instruction in oral language, phonemic awareness, letter/sound correspondence, and basic reading. May count RSED 5130 or RSED 6130.

RSED 5140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Pr. RSED 3010. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 5150 LITERACY METHODS IN SPECIAL EDUCATION (3) LEC. 3. Instructional strategies in reading for students with disabilities. May count RSED 5150 or RSED 6150.

RSED 5160 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Admission to Teacher Education. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 5163, RSED 6160, or RSED 6166.

RSED 5170 TRANSITION AND SECONDARY METHODS (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on best practices, secondary methods, programs, and services. May count RSED 5170 or RSED 6170.

RSED 5180 LITERACY AND INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the understanding of literacy development and the practical application and management of interventions to support written language, vocabulary, and reading comprehension. The focus of this class will be to discuss proactive approaches to supporting students' literacy development. Students will be introduced to applied and research readings related to instructional management. These research findings will be integrated into discussions on the practical aspects of developing effective programs. After completing this class, students will be able to design and implement effective literacy and instructional strategies. May count RSED 5180 or RSED 6180.

RSED 5190 FUNCTIONAL CURRICULUM AND TRANSITION (3) LEC. 3. This course prepares teachers to support students who follow an alternative curriculum in elementary and secondary settings. This includes teaching functional skills, community-based instruction and supports for transition to post-secondary settings. May count either RSED 5190 or RSED 6190.

RSED 5200 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3. Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. May count RSED 5200, RSED 5203, RSED 6200, or RSED 6206.

RSED 5210 OCCUPATIONAL INFORMATION (3) LEC. 3. Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities. May count RSED 5210, RSED 6210, or RSED 6216.

RSED 5220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. Theories, strategies, and techniques for job development, accommodation, modification, and placement of people with disabilities with application skills needed to facilitate employment. May count RSED 5220, RSED 5223, RSED 6220, or RSED 6226.

RSED 5230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 5300 TRANSITION AND EMERGING ADULTHOOD IN REHABILITATION SERVICES (3) LEC. 3. This course is an introduction to the transition process of youth with disabilities from school to adulthood and employment with an emphasis on the developmental stages of emerging adulthood and the services surrounding this specialized area for rehabilitation professionals.

RSED 5330 ASSESSMENT FOR ELIGIBILITY (3) LEC. 3. This course provides students with a framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on standardized assessments for evaluating students with disabilities. This course will include assessment processes for eligibility for each category of special education eligibility. The course provides opportunities for application of concepts in assessment in special education as well as administration, review, and interpretation of standardized assessment data. The course covers historical, ethical, practical, and theoretical perspectives on identifying disabilities and planning individualized instructional programs for students with special needs. May receive credit for RSED 5330 or RSED 6330.

RSED 5340 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 5420 SPECIALIZED CURRICULUM IN MATHEMATICS (3) LEC. 3. This course will provide learners with understanding of a functional/developmental approach to the selection, development, implementation, and evaluation of appropriate mathematics curriculum and activities for the instruction of students with high incidence disabilities in grades 3-5. Content includes extensive exploration of various curricular theories focusing on individual and group approaches in mathematics concepts. May count for RSED 5420 or RSED 6420.

RSED 6000 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 6010 MEDICAL VOC & PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. An introduction to medical terminology, body systems, common physical and cognitive conditions therapeutic/restorative services, and psychosocial & vocational considerations of various disabilities. May count RSED 6010 or RSED 6016.

RSED 6040 LEARNING DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5040, RSED 6040, or RSED 6046.

RSED 6100 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 6110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION: LITERACY AND DEVELOPMENTAL DOMAINS (3) LEC. 3. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 6120 CURRICULUM IN ELEMENTARY: LITERACY AND MATHEMATICS IN SPECIAL EDUCATION (3) LEC. 3. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 6130 CURRICULUM IN LITERACY FOR STUDENTS WITH DISABILITIES (3) LEC. 3. This course is designed to provide students with the understanding of language development, development of early literacy, and screening for early literacy deficits. This class will introduce language systems (orthography, phonetics, phonology, morphology, syntax, and semantics) and their role in the development of literacy. The course will provide opportunities for implementation of assessment and explicit system instruction in oral language, phonemic awareness, letter/sound correspondence, and basic reading. May count RSED 5130 or RSED 6130.

RSED 6140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 6150 LITERACY METHODS IN SPECIAL EDUCATION (3) LEC. 3. Instructional strategies in reading for students who have disabilities. May count RSED 5150 or RSED 6150.

RSED 6160 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 5163, RSED 6160, or RSED 6166.

RSED 6170 TRANSITION AND SECONDARY METHODS (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on best practices, secondary methods, programs, and services. May count RSED 5170 or RSED 6170.

RSED 6180 LITERACY AND INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the understanding of literacy development and the practical application and management of interventions to support written language, vocabulary, and reading comprehension. The focus of this class will be to discuss proactive approaches to supporting children's literacy development. Students will be introduced to applied and research readings related to instructional management. These research findings will be integrated into discussions on the practical aspects of developing effective programs. After completing this class, students will be able to design and implement effective literacy and instructional strategies. May count RSED 5180, RSED 6180.

RSED 6190 FUNCTIONAL CURRICULUM AND TRANSITION (3) LEC. 3. This course prepares teachers to support students who follow an alternative curriculum in elementary and secondary settings. This includes teaching functional skills, community-based instruction and supports for transition to post-secondary settings. May count either as RSED 5190 or RSED 6190.

RSED 6220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. The course is designed to familiarize students with career theory and methods used by rehabilitation practitioners to analyze and apply vocational techniques to place individuals with disabilities. May count RSED 6220 or RSED 6226.

RSED 6230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 6330 ASSESSMENT FOR ELIGIBILITY (3) LEC. 3. This course provides students with a framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on standardized assessments for evaluating students with disabilities. This course will include assessment processes for eligibility for each category of special education eligibility. The course provides opportunities for application of concepts in assessment in special education as well as administration, review, and interpretation of standardized assessment data. The course covers historical, ethical, practical, and theoretical perspectives on identifying disabilities and planning individualized instructional programs for students with special needs. May receive credit for RSED 5330 or RSED 6330.

RSED 6340 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 6420 SPECIALIZED CURRICULUM IN MATHEMATICS (3) LEC. 3. This course will provide learners with understanding of a functional/developmental approach to the selection, development, implementation, and evaluation of appropriate mathematics curriculum and activities for the instruction of students with high incidence disabilities in grades 3-5. Content includes extensive exploration of various curricular theories focusing on individual and group approaches in mathematics concepts. May count for RSED 5420 or RSED 6420.

RSED 7010 REHABILITATION PROFESSIONS, PROGRAMS AND ETHICS (3) LEC. 3. This course exposes students to the ethics, history and development of the rehabilitation counseling movement inclusive of its legal base, philosophies, concepts, and current socio-political trends. May count either RSED 7010 or RSED 7016.

RSED 7110 ADVANCED ASSESSMENT AND INTERVENTION EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Assessment and intervention strategies for special needs children, pre-k through 3rd grade. Departmental approval. May count either RSED 7110 or RSED 7116.

RSED 7120 ADVANCED ASSESSMENT IN SPECIAL EDUCATION (3) LEC. 3. Advanced study of educational tests and procedures for diagnosing special training problems. Departmental approval. May count either RSED 7120 or RSED 7126.

RSED 7130 ADVANCED ASSESSMENT I IN REHABILITATION (3) LEC. 3. Principles, process and techniques used to diagnose vocationally-related assets and liabilities of the individual with disabilities. May count either RSED 7130 or RSED 7136.

RSED 7150 MULTICULTURAL ASPECTS OF DISABILITIES (3) LEC. 3. Study of three main areas relevant to multicultural competencies and standards for rehabilitation professionals: (a) acquisition of communication skills; (b) attitudes towards ethnic minorities, and (c) knowledge about minority populations. May count either RSED 7150 or RSED 7156.

RSED 7200 ADVANCED INTERVENTION WITH INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 7100 or RSED 7106. Administration and on-going management of early intervention programs and service coordination of individualized family service plans and family support. Departmental approval. May count either RSED 7200 or RSED 7206.

RSED 7210 ADVANCED INTERVENTION IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 7110 or RSED 7116. Curriculum methods, intervention plans, intervention methods, physical and medical management, environmental and behavioral management, and evaluation of child and family outcomes. Departmental approval. May count either RSED 7210 or RSED 7216.

RSED 7220 ADVANCED TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. This course presents principles and procedures associated with content enhancement, strategy instruction and universal design for learning. This course will emphasize research-supported strategies for individuals with high incidence disabilities. Students will engage in hands-on experiences and practice implementing instructional interventions appropriate for students with disabilities who participate in the general education curriculum.

RSED 7230 ADVANCED BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Provides skills necessary to direct academic and social performance and appropriately manage the behavior of students with special needs. Departmental approval. May count either RSED 7230 or RSED 7236.

RSED 7240 SENINAR IN REHABILITATION RESEARCH AND DESIGN (3) LEC. 3. Research in rehabilitation counseling, with focus on acquisition of knowledge about traditional and recent developments in research methods, and skill application. May count either RSED 7240 or RSED 7246.

RSED 7310 PROPRIETARY REHABILITATION (3) LEC. 3. Vocational rehabilitation in private sector including case management and expert witness for workers compensation, personal injury litigation, and social security.

RSED 7320 INDIVIDUAL COUNSELING APPROACHES IN REHABILITATION COUNSELING (3) LEC. 3. Survey of theoretical approaches involved in individual counseling with an emphasis on persons with disabilities using an eclectic point of view and psycho-educational approach. May count either RSED 7320 or RSED 7326.

RSED 7400 CURRICULUM AND TEACHING IN SPECIALIZATION (3) LEC. 3. Curriculum design, content, and materials selection related to teaching practices in areas of specialization (intellectual disability, learning disabilities, behavioral disorders, etc.). RSED 7400 and RSED 7406 may be repeated for a maximum combined total of 6 credit hours.

RSED 7410 PROGRAM IMPLEMENTATION IN SPECIALIZATION AUTISM (3) LEC. 3. This course presents principles and procedures for implementing educational programs for children and youth with autism spectrum disorders. Students will apply their knowledge of evidence-based practices for children and youth with ASD by planning and implementing accommodations, instructional methods, and behavioral supports.

RSED 7420 RESEARCH IN SPECIALIZATION (3) LEC. 3. Examination and interpretation of applied research in specialization area (intellectual disabilities, learning disabilities, behavioral disorders, etc.). Course may be repeated with a change in research area. May count either RSED 7420 or RSED 7426. Course may be repeated for a maximum of 6 credit hours.

RSED 7430 RESEARCH INTO PRACTICE (3) LEC. 3. Applied opportunities for translating instructional and behavioral research into practice. The course may be repeated with a change in research topic. Departmental approval. May count either RSED 7430 or RSED 7436. Course may be repeated for a maximum of 6 credit hours.

RSED 7440 SEMINAR IN SPECIALIZATION (3) DSL/SEM. 3. Departmental approval. Advanced students and professor(s) engage in critical thinking regarding selected concepts, theories, research and issues germane to the field of disabilities. Course may be repeated with change in topics.

RSED 7460 POSITIVE BEHAVIOR SUPPORTS (3) LEC. 3. Evaluating and implementing Positive Behavior Interventions and Supports (PBIS) for students grades PK through 12 in traditional and alternative educational settings. May count either RSED 7460 or RSED 7466.

RSED 7470 LEADERSHIP IN SPECIAL EDUCATION (3) LEC. 3. The goal of competent teacher leadership in special education is to provide the supports necessary to ensure effective instruction for all students in a variety of contexts. This course is designed to develop the knowledge, skills, understanding, and attitudes necessary to support special education leadership across an educational service delivery continuum.

RSED 7480 PROGRAM IMPLEMENTATION BIRTH TO AGE 5 (3) LEC. 3. This course provides advanced understanding of a family and child centered practices which include the development, implementation, and evaluation of appropriate routine based and curriculum activities for children ages birth to age 6 with mild learning/behavior disabilities and their families. Content also includes extensive exploration of various curricular and development theories, transition, assistive technology, assessment, and program planning.

RSED 7511 PRACTICUM PRE-K TRADITIONAL (1-3) LEC. 14. LAB. 2. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7531 PRACTICUM TRADITIONAL ELEMENTARY I (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7541 PRACTICUM ELEMENTARY II TRADITIONAL (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Departmental approval required. Course may be repeated for a maximum of 3 credit hours.

RSED 7551 PRACTICUM (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with advanced student learning guided by the instructor. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 3 credit hours.

RSED 7911 PRACTICUM ELEMENTARY I LITERACY & NUMERACY (1-3) LEC. 2. LAB. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7920 CLINICAL RESIDENCY (1-9) DSL. SU. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Course may be repeated for a maximum of 12 credit hours.

RSED 7931 PRACTICUM ELEMENTARY II LITERACY & NUMERACY (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7940 ADVANCED THEORIES IN REHABILITATION COUNSELING (3) LEC. 3. Intensive study of advanced theories within rehabilitation counseling, as well as an examination of outcome research relating to the use and application of these theories and techniques. May count either RSED 7940 or RSED 7946.

RSED 7941 PRACTICUM SECONDARY I LITERACY & MATH (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7950 EMERGING ADULTHOOD AND TRANSITION IN REHABILITATION (3) LEC. 3. Introduction to the transition process of youth with disabilities from school to adulthood and employment with emphasis on the developmental stage emerging adulthood. May count either RSED 7950 or RSED 7956.

RSED 7951 PRACTICUM PRE-K – SECONDARY II (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7980 NON-THESIS PROJECT (1-3) DSL. SU. Course may be repeated for a maximum of 10 credit hours.

RSED 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. The content focus of the study area will be translated into specific objectives with the student learning toward that end, guided by the instructor. In addition to regular meetings with the instructor, the student will be evaluated and graded according to learning performance. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 10 credit hours.

RSED 8010 DISABILITIES AND RESEARCH METHODS (3) LEC. 3. Departmental approval. History, principles, and methodology of single subject research with emphasis on the various types of research designs applied in rehabilitation and special education.

RSED 8020 DISABILITIES AND APPLIED RESEARCH IN MEASUREMENT (3) LEC. 3. Departmental approval. Classical measurement theory, individual differences determination, constructs related to diagnostic labels, measurement bias and fairness, nature-nurture controversy, and clinical versus statistical inference.

RSED 8030 DISABILITIES AND PROFESSIONAL ISSUES (3) LEC. 3. Critical and contemporary issues regarding disability and its relationship to the leadership roles of professionals in special education and rehabilitation. May count either RSED 8030 or RSED 8036.

RSED 8040 DISABILITIES AND ASSISTIVE TECHNOLOGY (3) LEC. 3. Departmental approval. Adaptive technology for use by persons with disabilities and proficiency in the use of computers and the World Wide Web as they relate to disabilities.

RSED 8050 DISABILITIES AND THE LAW (3) LEC. 3. Departmental approval. Development of rehabilitation and special education laws from a historical, policy, leadership, and advocacy. perspective.

RSED 8060 DISABILITIES AND LIFE SPAN TRANSITIONS (3) LEC. 3. Departmental approval. Advanced study of historical, legal, legislative, philosophical, and service delivery issues and trends with emphasis on research studies and programs.

RSED 8070 PROFESSIONAL SEMINAR (3) LEC. 3. SU. Departmental approval. A series of doctoral seminars devoted to professional technical writing, grant writing, management, and research. Course may be repeated with change in topics.

RSED 8230 EXAMINING DISABILITY DATABASES (3) LEC. 3. Conducting descriptive and correlational research by using existing publicly available databases in the field of disabilities.

RSED 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Course may be repeated with change in topics.

RSED 8950 SEMINAR (1-3) DSL/SEM. Departmental approval. Provides an opportunity for advanced graduate students and professors to pursue cooperatively selected concepts and theoretical formulations. Course may be repeated for a maximum of 9 credit hours.

RSED 8980 NON-THESIS PROJECT (1-10) DSL/IND. SU. Departmental approval. May be repeated with change in topic. Provides an opportunity for advanced graduate students to pursue a project of interest. Course may be repeated with change in topics.

RSED 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated. Course may be repeated with change in topics.

Secondary Education Courses

CTSE 1000 INQUIRY APPROACHES TO SCIENCE TEACHING: STEP 1 (1) LEC. 1. LAB. 2. This course allows students to explore teaching as a career. Following an introduction to the theory and practice behind excellent inquiry-based science instruction, candidates teach lessons in elementary classrooms to obtain firsthand experience in planning and implementation. An elementary school placement is chosen to help the AUTeach student connect with youth who are moving into the targeted grade band. Master teachers in AUTeach are instructors and are chosen for their experience and success in secondary classrooms. They provide candidates direct exposure to people who love teaching and view it as a rewarding career choice. Mentor teachers at the schools where candidates teach their prepared lessons demonstrate effective teaching techniques and classroom management skills, giving the future teachers a true taste of working in a supportive, diverse educational setting. The course emphasizes using the 5E Learning Cycle instructional model.

CTSE 2000 INQUIRY APPROACHES TO SCIENCE TEACHING: STEP 2 (1) LEC. 1. LAB. 2. This course allows students to continue developing the lesson planning and teaching skills explored in CTSE 1000 (Step 1). After observing a lesson being taught in a local school district classroom, students (in pairs) plan and teach two inquiry-based lessons to sixth, seventh, or eighth graders. Middle school science classrooms are selected both for the diversity of the student body and the quality of the classroom teachers, who serve as mentors for the Step 2 students assigned to them. For their final product, Step 2 students analyze and modify one of the lessons they taught, taking into account the results of the assessments, their reflection on how successful the lesson was, and feedback from observers (Mentor Teacher, Instructor, or Teaching Assistant). By the end of Step 2, students are usually able to make a decision about whether to pursue teacher certification through the AUTeach program. In addition to the unique Core Components and Course Objectives listed below, all AUTeach courses are designed in accordance with the AUTeach Course Design Principles. The course emphasizes using the 5E Learning Cycle instructional model.

CTSE 2500 INQUIRY APPROACHES TO SCIENCE TEACHING: COMBINED STEP 1 AND 2 (2) LEC. 2. LAB. 4. This course allows students to explore teaching as a career, learn the theory and practice behind excellent inquiry-based science instruction, and teach lessons in elementary and middle school classrooms in order to plan and implement lessons. This course replaces CTSE 1000 and CTSE 2000. It's a combined course. After observing lessons being taught in local school districts, students work in pairs to plan and teach two lessons in elementary classrooms, and two inquiry-based lessons to sixth, seventh, or eighth graders. Elementary and middle school science classrooms are selected both for the diversity of the student body and the quality of the classroom teachers, who serve as mentors for the students assigned to them. For their final product, Step 1/2 students analyze and modify one of the lessons they taught, taking into account the results of the assessments, their reflection on how successful the lesson was, and feedback from observers (Mentor Teacher, Instructor, or Teaching Assistant). By the end of this class, students are usually able to make a decision about whether to pursue teacher certification through the AUTeach program.

CTSE 4050 CURRICULUM AND TEACHING I: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4210. Admission to Teacher Education. Application of current educational research and instructional strategies to the design of meaningful social studies instruction and assessment.

CTSE 4060 CURRICULUM AND TEACHING II: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4050 and CTSE 4210. Admission to Teacher Education. Curriculum decision making and planning for instruction, evaluation, and classroom management.

CTSE 4070 CURRICULUM AND TEACHING I: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Admission to Teacher Education. Strategies for teaching foreign language students with a special emphasis on developing good instruction for comprehensible input and emerging speech tasks. May count either CTSE 4070 or CTSE 4073.

CTSE 4080 CURRICULUM AND TEACHING II: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Pr. CTSE 4070 or CTSE 4073. Admission to Teacher Education. Teaching strategies based on language acquisition theories that are appropriate for teaching foreign language students. May count either CTSE 4080 or CTSE 4083.

CTSE 4150 CURRICULUM AND TEACHING I: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTSE 5010 and CTSE 5020. Admission to Teacher Education. Teaching the expressive English language arts, writing and speaking, in middle and high school classrooms.

CTSE 4160 CURRICULUM AND TEACHING II: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTSE 4150. Admission to Teacher Education. Teaching the receptive English language arts; reading, listening, and viewing; in middle and high school classrooms. Admission to Teacher Education required.

CTSE 4210 SOCIAL SCIENCE CONCEPTS AND METHODS (3) LEC. 3. For pre-service teachers. Organizing social science disciplinary knowledge into an integrated framework that is meaningful, useful, and relevant to high school students. 15 hours in social sciences (2000 level or above).

CTSE 4900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTSE 4910 PRACTICUM (1-6) DSL/PRA. SU. Departmental approval. Admission to Teacher Education. Cooperatively selected field experience. Course may be repeated for a maximum of 6 credit hours.

CTSE 4920 CLINICAL RESIDENCY (11) AAB/DSL. 40. SU. Pr. P/C CTSE 5210 or P/C CTSE 5213 or P/C CTSE 5220 or P/C CTSE 5223 or P/C CTSE 5230 or P/C CTSE 5233 or P/C CTSE 5240 or P/C CTSE 5243 or P/C CTSE 5250 or P/C CTSE 5253 or P/C CTSE 5410. Admission to Clinical Residency. Supervised teaching in a public secondary school abroad accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTSE 4920 or CTSE 4923.

CTSE 4930 AUTEACH CLINICAL RESIDENCY (8) DSL/FLD. 30. SU. Pr. P/C CTSE 5240 or P/C CTSE 5243. Departmental approval. Supervised science teaching in a public secondary school accompanied by scheduled discussions to analyze and evaluate the clinical resident's experience.

CTSE 4970 SPECIAL TOPICS (1-4) DSL. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 4 credit hours.

CTSE 5000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000, CTSE 5003, CTSE 6000 or CTSE 6006.

CTSE 5010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. Junior standing. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 5020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020 or CTSE 6020.

CTSE 5030 TEACHING MATHEMATICS: HIGH SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Strategies for teaching and evaluating high school mathematics to promote the learning of all students.

CTSE 5031 PRACTICUM IN HIGH SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 5030. Admission to Teacher Education. This course is designed to provide 36 clock hours of teaching and experience in High School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTSE 5040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (3) LEC. 3. LAB. 0, LEC/LLB. 0. Pr. MATH 2660. Admission to Teacher Education. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 5041 PRACTICUM IN SECONDARY MATHEMATICS TECHNOLOGY (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 5040. Admission to Teacher Education. This course is designed to provide 18 clock hours of teaching and experience in Secondary Mathematics Technology. It is an intensive, interactive experience at a strategically selected school site.

CTSE 5050 ANALYZING PERSISTENT ISSUES IN HISTORY AND GEOGRAPHY (3) LEC. 3. This course will engage students in inquiry-based and Persistent Issues in History units of content instruction with selected topics that integrate history and geography content and then deconstruct those units to examine the research-based learning and assessment principles that underlie their design.

CTSE 5060 ANALYZING PERSISTENT ISSUES IN POLITICAL ECONOMY (3) LEC. 3. This course integrates moral philosophy, political science, and economics into an exploration of persistent issues in political economy. Students will metacognitively analyze their own learning as they investigate and propose a policy solution to a political economy problem.

CTSE 5090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2. LAB. 4. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 5100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4090. Admission to Teacher Education. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approaches. May count either CTSE 5100 or CTSE 6100.

CTSE 5110 PERSPECTIVES IN SCIENCE (3) LEC. 3. Perspectives on Science is an overview and introduction to the scholarly field of science history with applications for embedding historical stories and discoveries into today's secondary science classrooms.

CTSE 5210 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) LEC. 1. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 5220 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1-2) AAB. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220 or CTSE 6220. Course may be repeated for a maximum of 2 credit hours.

CTSE 5230 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB/DSL. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 5240 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB/DSL. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 5250 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 5830 STATISTICS AND PROBABILITY FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. STAT 2010 or STAT 3010. Admission to Teacher Education. Connections of college-level mathematics with the secondary mathematics curriculum, focusing on statistics and probability, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving.

CTSE 5840 NUMBER SYSTEMS AND ALGEBRA FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MATH 1620. Admission to Teacher Education. Connections of college-level mathematics with the secondary mathematics curriculum, focusing on number systems, algebra, and functions, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving.

CTSE 5850 FUNCTIONS AND MATHEMATICAL MODELING FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MATH 2630. Admission to Teacher Education. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on functions and mathematical modeling, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving.

CTSE 5860 GEOMETRY FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MATH 1610. Admission to Teacher Education. Connections of college-level mathematics with the secondary mathematics curriculum, focusing on geometry, to develop mathematical knowledge relevant to teaching. The contents include axiomatic development of geometry, transformational geometry, and similarity. Appropriate technology and mathematics problem solving skills will be introduced.

CTSE 6000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000, CTSE 5003, CTSE 6000 or CTSE 6006.

CTSE 6010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 6020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020, CTSE 6020 or CTSE 6026.

CTSE 6030 TEACHING MATHEMATICS: HIGH SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Strategies for teaching and evaluating high school mathematics to promote the learning of all students.

CTSE 6031 PRACTICUM IN HIGH SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 6030. This course is designed to provide 36 clock hours of teaching and experience in High School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTSE 6040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (3) LEC. 3. LAB. 0, LEC. 0. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 6041 PRACTICUM IN SECONDARY MATHEMATICS TECHNOLOGY (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 6040. This course is designed to provide 18 clock hours of teaching and experience in Secondary Mathematics Technology. It is an intensive, interactive experience at a strategically selected school site.

CTSE 6050 ANALYZING PERSISTENT ISSUES IN HISTORY AND GEOGRAPHY (3) LEC. 3. This course will engage students in inquiry-based and Persistent Issues of History units of content instruction with selected topics that integrate history and geography content and then deconstruct those units to examine the research-based learning and assessment principles that underlie their design.

CTSE 6060 ANALYZING PERSISTENT ISSUES IN POLITICAL ECONOMY (3) LEC. 3. This course integrates moral philosophy, political science, and economics into an exploration of persistent issues in political economy. Students will metacognitively analyze their own learning as they investigate and propose a policy solution to a political economy problem.

CTSE 6090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2. LAB. 4. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 6100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC/LLB. 6. Pr. CTSE 4090. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approches. May count either CTSE 5100 or CTSE 6100.

CTSE 6210 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) AAB. 1. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 6220 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1) AAB. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220, CTSE 5223, CTSE 6220 or CTSE 6226.

CTSE 6230 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB. 15. Pr. (P/C CTSE 7920 or P/C CTSE 7926). Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 6240 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 6250 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 6710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. May count either CTSE 5710, CTSE 6710, or CTSE 6716.

CTSE 7000 ORIENTATION TO TEACHING AND LEARNING (1) LEC. 1. Skills, dispositions, community, and research planning for graduate students including preparation of a research proposal. May count either CTSE 7000 or CTSE 7006.

CTSE 7490 THE SECONDARY SCHOOL PROGRAM (3) LEC. 3. Departmental approval. Implications of research and theory for the total secondary school program.

CTSE 7510 RESEARCH STUDIES IN AREA OF SPECIALIZATION (3) LEC. 3. Research methodology, landmark studies, critique and application of research in the area of specialization.

CTSE 7520 CURRICULUM AND TEACHING IN AREA OF SPECIALIZATION (3) LEC. 3. Nature of learners and of knowledge and implications for for building curricula and planning instruction in the area of specialization. May count either CTSE 7520 or CTSE 7526.

CTSE 7530 ORGANIZATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Program models, components, and standards in the area of specialization. May count either CTSE 7530 or CTSE 7536.

CTSE 7540 EVALUATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Theoretical perspectives of evaluation and methods of evaluating learners, teachers, and curricula. May count either CTSE 7540 or CTSE 7546.

CTSE 7560 EQUITY ISSUES IN MATHEMATICS EDUCATION (3) LEC. 3. Theories, issues, and pedagogy related to achieving equity in mathematics education.

CTSE 7800 CAPSTONE IN TEACHING AND LEARNING (2) LEC. 2. Development of a unique portfolio based on professional interest and demonstration the ability to foster student achievement through the design, implementation, and assessment of learning activities. May count either CTSE 7800 or CTSE 7806.

CTSE 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study directed toward desired objectives related to their respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTSE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTSE 7920 CLINICAL RESIDENCY (8-11) AAB. 40. SU. Pr. P/C CTSE 6210 or P/C CTSE 6216 or P/C CTSE 6220 or P/C CTSE 6226 or P/C CTSE 6230 or P/C CTSE 6236 or P/C CTSE 6240 or P/C CTSE 6246 or P/C CTSE 6250 or P/C CTSE 6256. Admission to Clinical Residency. Supervised clinical residency experiences in a school, college or other appropriate setting. Evaluation and analysis of the clinical residency experinece. Departmental approval. May count either CTSE 7920 or CTSE 7926. Course may be repeated for a maximum of 11 credit hours.

CTSE 7970 SPECIAL TOPICS (1-6) DFL. Departmental approval. Provides an opportunity for the graduate student and professor to pursue selected topics in depth. Course may be repeated for a maximum of 6 credit hours.

CTSE 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTSE 8950 SEMINAR (1-3) DSL/SEM. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTSE 8980 FIELD PROJECT (1-3) DSL/FLD. SU. Departmental approval. Students review literature pertaining to a problem they have identified in their own practice, form hypotheses, plan intervention, collect data, analyze and interpret results, write summary of the project following approved guidelines, and orally defend the results of their project. Course may be repeated for a maximum of 3 credit hours.

CTSE 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with change in topics.

Teacher Education Information

Clinical Experiences

Auburn University's College of Education is committed to co-constructed and mutually beneficial clinical-based experiences for all candidates in educator preparation programs. A commitment from P-12 school partners and university faculty is central to ensuring all candidates develop the knowledge, skills, and professional dispositions necessary to demonstrate a positive impact on all P-12 students' learning and development. It is within varied and diverse clinical experiences that candidates have multiple opportunities to observe, reflect upon, and adjust their methods of practice. Effective clinical experiences provide a bridge between the knowledge candidates acquire in their educator preparation programs to real-world classroom practices.

The pre-teaching experience is a prerequisite for admission to educator preparation. This five-day experience is intended to provide the opportunity for students to observe the school as a total organization and increase their awareness of the teaching profession. The primary focus is observation and reflection. Students should consult with their advisor as to the specific requirements for their program.

Additional clinical experiences are conducted concurrently with enrollment in professional education courses. These experiences occur prior to clinical residency/internship and provide students with multiple opportunities to work with diverse learners in schools and communities.

Clinical residency/internship is the culminating field-based experience and spans a full semester. This experience immerses clinical residents in the learning community and provides them with intensive and extensive opportunities to develop and demonstrate competence in the professional roles for which they are preparing.

Admission to Educator Preparation Programs

The first transition point in education educator preparation programs is admission. Criteria are noted below:

- Completion and submission of the Admission to Educator Preparation Program Application
- Completion of 45 semester hours in the program
- Satisfactory completion or current enrollment in the orientation course
- Successfully meet current grade point average requirements:
  - Students admitted prior to July 1, 2017 — a minimum 2.50 grade-point average on all college coursework attempted at Auburn, in professional studies, and in the teaching field
  - Students admitted on July 1, 2017–Feb. 24, 2022 — a minimum 2.75 grade-point average on all college coursework attempted at Auburn, in professional studies, and in the teaching field
  - Students admitted on Feb. 25, 2022, and thereafter — a minimum 2.50 grade-point average on all college coursework attempted at Auburn, in professional studies, and in the teaching field
- Satisfactory performance in the pre-teaching experience
- Documentation of clear background check
- Satisfactory completion of a professional interview

Students who fail to meet these criteria upon initial application may submit new evidence in an effort to satisfy admission to educator preparation requirements. Meeting the above criteria at a minimum level does not guarantee admission into educator preparation. Specific programs may have additional requirements for admissions. Therefore, students should meet with their academic advisor to discuss any additional program specific requirements.

Admission to Clinical Residency (Internship)

The second transition point in educator preparation programs is admission to clinical residency (internship). Criteria are noted below:

- Completion and submission of the Clinical Residency (Internship) Application one year in advance
- Admission to Educator Preparation
- Satisfactory completion of all courses on the program checklist designated as prerequisites for clinical residency
- Successfully meet current grade point average requirements:
  - Students admitted prior to July 1, 2017 — a minimum 2.50 grade-point average on all college coursework attempted at Auburn, in professional studies, and in the teaching field
  - Students admitted on July 1, 2017–Feb. 24, 2022 — a minimum 2.75 grade-point average on all college coursework attempted at Auburn, in professional studies, and in the teaching field
  - Students admitted on Feb. 25, 2022, and thereafter — a minimum 2.50 grade-point average on all college coursework attempted at Auburn, in professional studies, and in the teaching field
- No grade below a C in professional studies courses
- Passing score(s) on the appropriate content assessment(s) required for the area of specialization
- Demonstrated potential for teaching with program approval

Students who fail to meet these criteria may submit new evidence in an effort to satisfy admission to clinical residency/internship requirements. Specific programs may have additional requirements for this transition point. Therefore, students should meet with their academic advisor to discuss any additional program specific requirements.

Exit from Clinical Residency (Internship)

The third transition point in educator preparation programs is successful completion of clinical residency (internship). Criteria are noted below:

- Satisfactory completion of all key assessments including submission of edTPA portfolio for official scoring
- Satisfactory completion of teaching requirements (20 full days of teaching, including 10 consecutive days)
- Satisfactory completion of attendance requirements (full-time, full semester)
- Satisfactory compliance with all rules and regulations outlined in the Clinical Residency Handbook

Specific programs may have additional requirements for this transition point. Therefore, students should meet with their academic advisor to discuss any additional program specific requirements.

Graduation

The final transition point in educator preparation programs is graduation. Criteria are noted below:

- Registration for UNIV 4AA0 (graduation check)
- Completion of all courses on the program checklist (Note: Approvals of Course Substitution Requests must be on file in the Office of Student Services, 3464 Haley.)
- Successfully meet current grade point average requirements:
  - Students admitted prior to July 1, 2017 — a minimum 2.50 grade-point average on all college coursework attempted at Auburn, in professional studies, and in the teaching field
  - Students admitted on July 1, 2017–Feb. 24, 2022 — a minimum 2.75 grade-point average on all college coursework attempted at Auburn, in professional studies, and in the teaching field
  - Students admitted on Feb. 25, 2022, and thereafter — a minimum 2.50 grade-point average on all college coursework attempted at Auburn, in professional studies, and in the teaching field
- No grade below a C in professional studies courses
- Satisfactory grade in clinical residency/internship including completion of all requirements

Specific programs may have additional requirements for this transition point. Therefore, students should meet with their academic advisor to discuss any additional program specific requirements.

Certification

The Assistant Dean for Assessment has been designated as the educator certification officer for Auburn University. Applying for certification with the Alabama State Department of Education (ALSDE) is a separate process from applying for graduation. It is critical that educator preparation students meet with their academic advisor in the Office of Student Services (Haley 3464) routinely to ensure they meet the most current ALSDE requirements for certification. To obtain certification in the state of Alabama, program graduates must submit a completed certification application with required processing fee to the Office of Student Services in order to begin the process of certification with the ALSDE. Instructions for completing the certification packet are provided to the student during their clinical residency or final semester via AU email. Program graduates who delay obtaining Alabama certification may be subject to changes made in teacher educator certification requirements between the time of graduation and the time of the certification request. Students seeking certification in other states should contact those state certification offices to obtain their application forms and requirements.

The following list shows undergraduate educator preparation programs by department and by grade levels of certification. Music Education (P-12) and secondary education programs in English language arts, agriscience, business and marketing, foreign language, mathematics, science, and social science meet the university requirements for a second major in the teaching field.

A candidate cannot be recommended for certification based on completion of a program for which state approval expired more than seven years prior to the date prior to the dates of program completion.

Programs (Grade Levels)

- Agriscience Education (6-12)
- Business and Marketing Education (6-12)
- Chemistry Education (6-12)
- Early Childhood Education (P-3)
- Elementary Education (K-6)
- English Language Arts Education (6-12)
- French Education (6-12)
- General Science Education (6-12)
- German Education (6-12)
- Mathematics Education (6-12)
- Music Education, Instrumental and Vocal (P-12)
- Physical Education (P-12)
- Physics Education (6-12)
- Spanish Education (6-12)
- Special Education

- Collaborative Teacher Special Education (K-6 & 6-12)
- Early Childhood Special Education/Collaborative Teacher (P-3 & K-6)

Assurance of Competence

The College of Education guarantees the success of graduates who receive initial professional certification through the college and who are employed within their area(s) of specialization. The college will provide remediation at no cost to an individual who was recommended for certification by the College of Education and whose job performance within two years after program completion is deemed unsatisfactory by a local education agency based on performance evaluations established by the Alabama State Board of Education.

Department of Curriculum and Teaching

The Department of Curriculum and Teaching prepares teachers in content-specific, research-based pedagogy. Departmental faculty and school professionals partner to provide rich clinical experiences in diverse settings. All educator preparation programs are approved by the Alabama State Board of Education. Auburn University's College of Education is accredited through the Council for Accreditation of Educator Preparation (CAEP). Music education programs are also accredited by the National Association of Schools of Music (NASM).

Elementary education is a high demand major. Due to limited enrollment, all students who meet minimum criteria may not be admitted. See program major page in AU Bulletin (p. 494) for additional information.

In addition to undergraduate teacher education majors, the department offers undergraduate minors in community music and office systems management.

A list of course offerings is available on the Auburn University website.

Information about graduate programs is available at Curriculum and Teaching - MEd, MS, EdS, PhD, Graduate Certificate (p. 1586).

The Department of Curriculum and Teaching offers the following undergraduate majors.

Majors

- Agriscience Education (p. 489)
- Business and Marketing Education (p. 490)
- Chemistry Education (p. 492)
- Early Childhood Education (p. 493)
- Elementary Education (p. 494)
- English Language Arts Education/English (p. 496)
- French Education (p. 498)
- General Science Education (p. 499)
- General Social Science Education/History (p. 501)
- German Education (p. 502)
- Mathematics Education (p. 503)
- Music Education: Instrumental and Vocal (p. 505)
- Physics Education (p. 507)
- Science Teaching (p. 508)
- Spanish Education (p. 509)

Minors

- Community Music (p. 493)
- Office Systems Management (p. 507)

Middle School Education Courses

CTMD 4190 CURRICULUM AND TEACHING IN THE MIDDLE SCHOOL (3) LEC. 2. LAB. 2. Admission to Teacher Education. To introduce and prepare undergraduate education students for the middle school student, middle school teaching, and middle level philosophy while incorporating reflective decision making.

CTMD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 4910 PRACTICUM IN MIDDLE SCHOOL EDUCATION (1-6) PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTMD 4920 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTSE 4200 or P/C CTSE 4203. Admission to Clinical Residency. Supervised teaching in a public middle or secondary school, abroad, accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTMD 4920 or CTMD 4923.

CTMD 4970 SPECIAL TOPICS (1-4) LEC. Course may be repeated for a maximum of 4 credit hours.

CTMD 5010 TEACHING MATHEMATICS: MIDDLE SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. The prospective middle school or junior high school mathematics teacher must examine the characteristics of students this age. Teaching strategies must be developed which lead not only to the learning of correct mathematics but also address the needs of a wide variety of learners. May count either CTMD 5010 or CTMD 6010.

CTMD 5011 PRACTICUM IN MIDDLE SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTMD 5010. Admission to Teacher Education. This course is designed to provide 21 clock hours of teaching and experience in Middle School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTMD 6010 TEACHING MATHEMATICS: MIDDLE SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. The prospective middle school or junior high school mathematics teacher must examine the characteristics of students this age. Teaching strategies must be developed which lead not only to the learning of correct mathematics but also address the needs of a wide variety of learners. May count either CTMD 5010 or CTMD 6010.

CTMD 6011 PRACTICUM IN MIDDLE SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTMD 6010. This course is designed to provide 21 clock hours of teaching and experience in Middle School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTMD 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to the respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 7970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

Career and Technical Courses

CTCT 2100 POWER EQUIPMENT TECHNOLOGY (3) LEC. 2. LAB. 3. Repair and maintenance of small air-cooled engines and power equipment in Agriculture. May count either CTCT 2100 or CTCT 3100.

CTCT 2200 COMPUTER LITERACY IN BUSINESS EDUCATION (3) LEC. 1. LAB. 4. Advanced formatting, processing, and evaluation of business correspondence, as well as administrative and employment documents. Includes basic computer literacy skills. May count either CTCT 2200 or CTCT 2203.

CTCT 3000 LEADERSHIP SKILLS FOR PERSONAL AND ORGANIZATIONAL DEVELOPMENT (3) LEC. 3. Organizational and leadership skills needed to become successful professionals in work or community activities; skills and strategies for conducting efficient meetings.

CTCT 3250 INFORMATION ANALYSIS (3) LEC. 3. Decision-making and business problem solving using microcomputer software applications including spreadsheets, database management programs, and operating systems. May count either CTCT 3250 or CTCT 3253.

CTCT 4000 CLASSROOM/LABORATORY MANAGEMENT, ORGANIZATION AND EVALUATION IN CAREER AND TECHNICAL EDUCATION (2) LEC. 2. Admission to Teacher Education. Organization, objectives, principles, management, and evaluation of career and technical education classrooms, laboratories, and programs. May count either CTCT 4000 or CTCT 4003.

CTCT 4030 CAREER AND TECHNICAL STUDENT ORGANIZATIONS (3) LEC. 3. Survey of career and technical student organizations; procedures involved in developing and implementing informal and co-curricular educational programs for students and preparing students for state and national competitions.

CTCT 4140 AGRICULTURAL STRUCTURE AND METAL FABRICATION TECHNOLOGY (3) LEC. 2. LAB. 3. Materials selection and construction procedures for carpentry, concrete, masonry, electricity, plumbing, and metal fabrication.

CTCT 4160 SUPERVISED AGRICULTURAL EXPERIENCE PROGRAMS (2) LEC. 2. Responsibility for SAEP planning, supervision, and evaluation of entrepreneurship, placement, exploratory, analytical, and experimental SAEPs and record books; completing award applications.

CTCT 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. The student's learning efforts are guided toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTCT 4920 CLINICAL RESIDENCY (12) AAB/DSL. 40. SU. Admission to Clinical Residency. Supervised clinical residency experiences abroad in a school or other appropriate setting. Evaluation and analysis of the clinical residency experience. May count either CTCT 4920 or CTCT 4923.

CTCT 4940 DIRECTED FIELD EXPERIENCE IN AREA OF SPECIALIZATION (1-3) DAG/FLD. SU. Supervised occupational work experience in an approved specialization-related occupation. Departmental approval. May count either CTCT 4940 or CTCT 4943. Course may be repeated for a maximum of 3 credit hours.

CTCT 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) DSL. Departmental approval. Current or special topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 5050 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Admission to Teacher Education. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within career and technical education. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 5060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Admission to Teacher Education. Introduction to principles and practices involved in designing education programs in the area of specialization. May count CTCT 5060, CTCT 5063, CTCT 6060, or CTCT 6066.

CTCT 5080 PRINCIPLES OF COORDINATION (3) LEC. 3. Admission to Teacher Education. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080 or 6080.

CTCT 5200 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, systems, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 6200 or CTCT 6200/CTCT 6206.

CTCT 5240 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 5240/CTCT 5243 or CTCT 6240/CTCT 6246.

CTCT 5250 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May Count Either CTCT 3250/CTCT 3253 or CTCT 5250/CTCT 5253 CTCT 6250/CTCT 6256.

CTCT 5260 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/CTCT 6266.

CTCT 5940 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience in a Commerce and Information Technology environment. May count either CTCT 4940/CTCT 4943 or CTCT 5940/CTCT 5943 or CTCT 6940/CTCT 6946.

CTCT 6050 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within the area of specialization. Admission to alternative master's program. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 6060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Introduction to principles and practices involved in designing educational programs in the area of specialization. Admission to alternative master's program. May count CTCT 5060, CTCT 6060, or CTCT 6066.

CTCT 6080 PRINCIPLES OF COORDINATION (3) LEC. 3. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080, CTCT 5083, CTCT 6080, or CTCT 6086.

CTCT 6200 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 5203 or CTCT 6200/CTCT 6206.

CTCT 6240 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 6240/CTCT 62406 or CTCT 5240/5243.

CTCT 6250 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May count either CTCT 6250/CTCT 6256 or CTCT 5250/5253.

CTCT 6260 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/6266.

CTCT 6940 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience and software application in a Commerce and Information Technology environment. May count either CTCT 6940/CTCT 6946 or CTCT 5940/5943.

CTCT 7000 FOUNDATIONS OF CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Philosophical, historical, economic, and sociological perspectives of vocational education in relation to the organization of vocational education programs. May count either CTCT 7000 or CTCT 7006.

CTCT 7010 YOUTH PROGRAM DEVELOPMENT (3) LEC. 3. Developing, managing, and evaluating formal and informal youth education programs; training volunteers for youth development programs; securing and developing supporting resources. Departmental approval. May count either CTCT 7010 or CTCT 7016.

CTCT 7100 TEACHING MECHANICAL TECHNOLOGY (3) LEC. 2. LAB. 2. Theory and practice of managing agricultural mechanics laboratories, theories of machine operation, and maintaining laboratory equipment. May count either CTCT 7100 or CTCT 7106.

CTCT 7120 COURSES OF STUDY IN AGRISCIENCE EDUCATION (3) LEC. 3. Departmental approval. Emerging technologies in agriscience education; principles and procedures of curriculum construction applied to courses of study in agriscience education.

CTCT 7200 CAREER AND OCCUPATIONAL INFORMATION (3) LEC. 3. Trends and issues in occupational structure, job qualifications and requirements, and sources of occupational information for new and emerging occupations; analysis of career education models for students.

CTCT 7240 ADMINISTRATIVE MANAGEMENT (3) LEC. 3. Management of office systems, information and personnel. Managing and controlling administrative services.

CTCT 7300 INTEGRATING TECHNOLOGY IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

CTCT 7400 AGRICULTURAL LITERACY EDUCATION (3) LEC. 3. Theories and application of agricultural literacy related scientific and technologically based concepts and processes required for personal decision making, participating in civic and cultural affairs, and economic productivity.

CTCT 7710 ADVANCED TEACHING METHODS (3) LEC. 3. Analysis of research in theories of teaching and learning, effective teacher characteristics, learning styles, teaching methodologies, and diversity in teaching.

CTCT 7720 ADVANCED PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Issues affecting the development and management of educational programs; strategies for improving educational programs.

CTCT 7730 PROGRAM EVALUATION (3) LEC. 3. Principles and procedures used in evaluating academic- related programs. Alternative approaches to evaluation and practical guidelines for conducting evaluations.

CTCT 7750 ADMINISTRATION OF CAREER AND TECHNICAL EDUCATION (3) DAG. Introduction to concepts, theories and practices related to administration, organizational behavior, and leadership in secondary and post-secondary vocational education programs.

CTCT 7760 COMPREHENSIVE PLANNING IN CAREER AND TECHNICAL EDUCATION (3) LLB. Processes of comprehensive planning for vocational education programs at high school and secondary school levels using local, state, and regional data.

CTCT 7770 CLINICAL SUPERVISION (3) LEC. 3. Theories, concepts, models, and techniques of student teacher and beginning teacher supervision by administrators, school district personnel, and university supervisors. Recommended for individuals who supervise or plan to supervise student teachers.

CTCT 7780 RESEARCH IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Review, analysis and interpretation of research procedures and data with emphasis on designing new research in vocational and adult education.

CTCT 7810 SUPERVISED COLLEGE TEACHING (1) LEC. 1. SU. Departmental approval. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 2 credit hours.

CTCT 7900 DIRECTED STUDIES (1-3) DAG. SU. Departmental approval. Independent learning effort directed toward desired objectives. Includes evaluation at regular intervals by student and professor. Course may be repeated for a maximum of 3 credit hours.

CTCT 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-3) DAG. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 3 credit hours.

CTCT 7920 CLINICAL RESIDENCY (9-12) AAB. 40. SU. Admission to Clinical Residency. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Departmental approval. May count either CTCT 7920 or CTCT 7926. Course may be repeated for a maximum of 12 credit hours.

CTCT 7950 SEMINAR IN AREA OF SPECIALIZATION (1-3) DBU/SEM. SU. Presentation by graduate students of research projects and/or findings. Analysis of procedures and findings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) DAG. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTCT 8730 CURRICULUM DEVELOPMENT IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Principles of career and technical education curriculum planning, identification of educational needs of students, selecting technical content, and evaluating materials.

CTCT 8770 SUPERVISION OF INSTRUCTION (3) LEC. 3. Theories and models to become effective supervisors of vocational and adult education programs; philosophies and styles of supervision used to improve schools, instruction, curriculum and personnel.

CTCT 8800 TEACHER EDUCATION (3) LEC. 3. Emphasis on beliefs, philosophy, issues, research, roles, student selection, curriculum, methodology, internships, organization, and administration of teacher education programs.

CTCT 8810 SUPERVISED COLLEGE TEACHING (1-10) LEC. 3. SU. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 10 credit hours.

CTCT 8900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent learning efforts at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 8910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 6 credit hours.

CTCT 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

CTCT 8950 SEMINAR IN AREA OF SPECIALIZATION (1-6) DSL/SEM. Departmental approval. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 6 credit hours.

CTCT 8960 SPECIAL PROBLEMS (1-6) DSL/IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

CTCT 8970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) DSL. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 8980 FIELD PROJECT (1-10) DAG. 1. SU. Departmental approval. Field project. Course may be repeated for a maximum of 10 credit hours.

CTCT 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated for a maximum of 20 credit hours.

Early Childhood Education Courses

CTEC 3020 PRIMARY MATH AND SCIENCE (3) LEC. 3. Exploration of learning and pedagogy for the development of math and science concepts appropriate for children in Kindergarten through Grade 3.

CTEC 3030 INTEGRATED CURRICULUM IN PRESCHOOL: EARLY LITERACY (3) LEC. 3. Coreq. CTEC 4911. This course focuses on the foundations of literacy learning including play, developmentally appropriate practices, and integration within and across disciplines through multisensory, multimodal means, connecting to the Alabama Developmental Standards. Admission to Teacher Education.

CTEC 3200 A WORKING THEORY FOR THE CONSTRUCTIVIST EDUCATOR (3) LEC. 3. Constructivist theory for pre-service teachers preparing to teach at the early childhood level.

CTEC 4200 THE CONSTRUCTIVIST TEACHER: STRATEGIES AND TECHNIQUES (3) LEC. 3. Construction of an operational knowledge of established constructive curriculum strategies and techniques.

CTEC 4210 THE CONSTRUCTIVIST TEACHER: GROWING PROFESSIONALLY (1) AAB/DSL. 1. Pr. P/C CTEC 4920 or P/C CTEC 4923. Admission to Clinical Residency. The roles and responsibilities of being an early childhood professional. May count either CTEC 4210 or CTEC 4213.

CTEC 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research or other work undertaken independently by a student focused on a content area of special interest. Course may be repeated for a maximum of 6 credit hours.

CTEC 4910 PRACTICUM (1-6) PRA. SU. Departmental approval. Students and faculty cooperatively select and execute an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEC 4911 PRACTICUM IN THE PRESCHOOL (1-2) LEC. 1-2. SU. Laboratory experiences with children from birth to five years of age designed to help students relate theory to practice. Course may be repeated for a maximum of 2 credit hours.

CTEC 4912 PRACTICUM IN PRIMARY GRADES (3) LEC. 0. LAB. 3, AAB/PRA. 0. SU. Laboratory experiences with children 5 through 9 years of age help students relate theory to practice.

CTEC 4920 CLINICAL RESIDENCY (1-12) AAB/DSL. 1-12. SU. Pr. P/C CTEC 4210 or P/C CTEC 4213. Admission to Clinical Residency. Experience in a setting serving pre-primary or primary-school children with varying abilities. Admission to internship. May count either CTEC 4920 or CTEC 4923. Course may be repeated for a maximum of 12 credit hours.

CTEC 7200 EARLY CHILDHOOD EDUCATION PERSPECTIVE (3) LEC. 3. Historical overview of current issues, trends, and programs in early childhood education. May count either CTEC 7200 or CTEC 7206.

CTEC 7210 ORIGINS OF THOUGHT (3) LEC. 3. Piaget's theories of how thought develops in young children. Comparison of the social and biological roots of thought. May not count either CTEC 7210 or CTEC 7216.

CTEC 7260 PLAY AND EARLY CHILDHOOD EDUCATION (3) LEC. 3. Examination of children's play from a constructivist theoretical perspective and translation of theory into early childhood educational practice. May count either CTEC 7260 or CTEC 7266.

CTEC 7270 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of a problem related to the thought, writing and research that form the theoretical foundations of constructivist approaches in early childhood education. May count either CTEC 7270 or CTEC 7276. Course may be repeated for a maximum of 9 credit hours.

CTEC 7510 RESEARCH STUDIES IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. How to read, review, analyze and interpret significant research studies in early childhood education. May count either CTEC 7510 or CTEC 7516.

CTEC 7520 CURRICULUM AND TEACHING IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Reappraisal of experiences and content for children by focusing on the nature of the learner and the nature of the knowledge to be learned. May count either CTEC 7520 or CTEC 7526.

CTEC 7530 ORGANIZATION OF PROGRAM IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Organization, administration, and supervision of early childhood programs. May count either CTEC 7530 or CTEC 7536.

CTEC 7540 EVALUATION OF PROGRAMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Assessment and evaluation of all program components from a constructivist perspective. May count either CTEC 7540 or CTEC 7546.

CTEC 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent learning objectives related to the student's area of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEC 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Experience relating theory and practice, usually in a school setting. Departmental approval. May count either CTEC 7910 or CTEC 7916. Course may be repeated for a maximum of 6 credit hours.

CTEC 7970 SPECIAL TOPICS (3-9) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 7990 RESEARCH AND THESIS (1-10) DSL/MST. Course may be repeated with change in topics.

CTEC 8240 RESEARCH IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the needs of young children. May count either CTEC 8240 or CTEC 8246.

CTEC 8270 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of problems related to the thought, writings, and research that form the theoretical foundations of constructivist approaches to early childhood education. Master's Degree. May count either CTEC 8270 or CTEC 8276. Course may be repeated for a maximum of 6 credit hours.

CTEC 8720 DESIGNING EARLY CHILDHOOD CURRICULUM (3) LEC. 3. Application of early childhood history, philosophy, program analysis and constructivist theory to the design of early childhood curriculum. Master's Degree. May count either CTEC 8720 or CTEC 8726.

CTEC 8850 CONSTRUCTIVIST INVESTIGATIONS IN EARLY CHILDHOOD SETTINGS (3) LEC. 3. Analysis and interpretation of the design of constructivist investigation. Master's Degree.

CTEC 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEC 8970 SPECIAL TOPICS (3-9) DSL. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 8980 FIELD PROJECT (1-3) DSL/FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May not count either CTEC 8980 or CTEC 8986. Course may be repeated for a maximum of 3 credit hours.

CTEC 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with a change in topic. Course may be repeated with change in topics.

Elementary Education Courses

CTEE 3040 PRIMARY CURRICULUM IN MATHEMATICS (3) LEC. 3, LEC. 0. Admission to Teacher Education. This course introduces primary mathematics content, pedagogy, and pedagogical content knowledge for prospective elementary school teachers. Students are provided the opportunity to explore the content and pedagogical content knowledge in the areas of: a) Foundations of Counting, b) Operations with Numbers: Base 10, and c) Operations and Algebraic Thinking. Participants will have the opportunity to delve into state and national standards, Mathematics Teaching Practices, learning trajectories, assessment and student thinking from a teaching perspective.

CTEE 3041 PRACTICUM IN ELEMENTARY EDUCATION: PRIMARY MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTEE 3040. Admission to Teacher Education. Practicum in Elementary Education: Primary Mathematics 1 credit course. This course is designed to provide 15 clock hours of teaching and experience in Primary Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTEE 3100 INTRODUCTION TO ELEMENTARY EDUCATION (3) LEC. 3. Knowledge, skills, and dispositions necessary for elementary education, with emphasis on professional expectations and school structure.

CTEE 4000 FORMATIVE ASSESSMENT AND INSTRUCTION IN INTERMEDIATE MATHEMATICS (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. This course examines mathematics content, pedagogy, and pedagogical content knowledge for prospective elementary school teachers within the intermediate grades. Students explore the areas of: a) Operations with Numbers: Base 10, c) Operations with Numbers: Fractions and c) Operations and Algebraic Thinking. Participants will have the opportunity to delve into state and national standards, Mathematics Teaching Practices, learning trajectories, assessment and student thinking from a teaching perspective.

CTEE 4010 CURRICULUM: SOCIAL SCIENCE (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. Pedagogical content knowledge in the major concepts and modes of inquiry for integrated study of social sciences for elementary learners.

CTEE 4011 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE SOCIAL SCIENCE (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4010. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Social Science Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4020 CURRICULUM: LANGUAGE ARTS (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. CTEE 4020, the final course in reading and writing instruction, deepens students' understanding of English language arts through current research in the science of reading and writing. Emphasizing expressive and receptive language in K–6 classrooms, the course highlights high-leverage teaching practices, assessment strategies, and effective feedback. Students apply learning through practicum experiences, supporting diverse learners including those with dyslexia, dysgraphia, and multilingual backgrounds, while refining their instructional approaches through lectures, readings, and guided practice.

CTEE 4021 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE LANGUAGE ARTS (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4020. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Language Arts Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4030 CURRICULUM: NATURAL SCIENCE (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of science for elementary learners.

CTEE 4031 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE NATURAL SCIENCE (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4030. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Natural Science Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4040 CURRICULUM: MATHEMATICS (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. This course examines the principles, current research, and approaches to the teaching and learning of elementary school mathematics with specific focus on geometry, measurement and data analysis. It also investigates the relationship between pedagogy and mathematical understanding appropriate for the instruction of children in kindergarten through sixth grade. Through this course, candidates explore and use major concepts and procedures in relation to geometry, measurement, probability, and data analysis.

CTEE 4041 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE MATHEMATICS (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4040. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Mathematics Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4190 EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. Through exploration, discussion, reflection, and analysis students will study issues pertaining to inclusive/multicultural K-6 classrooms. Issues related to classroom management (e.g. behavior and time management), students with special needs, parent/community relations, legal mandates, technology, planning, and professionalism.

CTEE 4191 PRACTICUM IN EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4190. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Effective Classroom Management in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research, or other work undertaken by a student focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTEE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Students and faculty cooperatively select an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEE 4920 CLINICAL RESIDENCY (11) AAB. 11. SU. Pr. P/C CTEE 4950 or P/C CTEE 4953. Admission to Teacher Education. Supervised teaching in a public elementary school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Admission to internship. May count either CTEE 4920 or CTEE 4923.

CTEE 4950 PROFESSIONAL DEVELOPMENT SEMINAR (1-4) AAB. 1. SU. Pr. P/C CTEE 4920 or P/C CTEE 4923. Admission to Teacher Education. Reflection, exploration, and study of elementary education practices in kindergarten through grade six. May count either CTEE 4950 or CTEE 4953. Course may be repeated for a maximum of 4 credit hours.

CTEE 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTEE 4970 SPECIAL TOPICS (1-6) AAB/LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTEE 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEE 7010 APPROACHES TO TEACHING (3) LEC. 3. Organizational patterns, planning and approaches to instruction in the elementary school.

CTEE 7410 CURRICULUM AND TEACHING IN SOCIAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) social science education. May count either CTEE 7410 or CTEE 7416.

CTEE 7420 CURRICULUM AND TEACHING IN LANGUAGE ARTS (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) language arts education. May count either CTEE 7420 or CTEE 7426.

CTEE 7430 CURRICULUM AND TEACHING IN NATURAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) natural science education. May count either CTEE 7430 or CTEE 7436.

CTEE 7440 CURRICULUM AND TEACHING IN MATHEMATICS (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) mathematics education. May count either CTEE 7440 or CTEE 7446.

CTEE 7490 THE ELEMENTARY SCHOOL PROGRAM (3) LEC. 3. Major curriculum areas and teaching practices in the modern elementary school. Implications of research and theory for the total elementary school program.

CTEE 7510 RESEARCH STUDIES IN EDUCATION IN AREAS OF SPECIALIZATION (3) LEC. 3. Pr. CTEE 7420 or CTEE 7426. A review, analysis and interpretation of data with emphasis on designing research to meet the changing needs of the school. May count either CTEE 7510 or CTEE 7516.

CTEE 7530 ORGANIZATION OF PROGRAMS IN ELEMENTARY EDUCATION (3) LEC. 3. Organization and development of basic and supplementary materials for guiding teachers and school systems in improvement of curriculum and teaching practices. May count either CTEE 7530 or CTEE 7536.

CTEE 7540 EVALUATION OF PROGRAMS IN AREAS OF SPECIALIZATION (3) LEC. 3. Evaluation methods and exploration of evaluation literature in areas of specialization. May count either CTEE 7540 or CTEE 7546.

CTEE 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB. SU. Departmental approval. Provides individual students with experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTEE 7970 SPECIAL TOPICS (1-6) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. May count either CTEE 7970 or CTEE 7979. Course may be repeated for a maximum of 6 credit hours.

CTEE 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTEE 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEE 8970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

CTEE 8980 FIELD PROJECT (1-10) DSL/FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May count either CTEE 8980 or CTEE 8986. Course may be repeated for a maximum of 10 credit hours.

CTEE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

English for Spkrs Other Lang Courses

CTES 5410 FOUNDATIONS OF MULTILINGUAL LEARNER INSTRUCTION (3) LEC. 3. Non-major course to introduce students to the essential components of effective instruction of multilingual students in a variety of contexts. Topics include instructional models for teaching multilingual students, linguistically and culturally responsive pedagogy, second language acquisition, formative and summative assessment.

CTES 7400 TECHNOLOGY AND MEDIA IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Application of instructional technology in second language instruction, authentic materials in the ESL classroom. May count either CTES 7400 or CTES 7406.

CTES 7410 CURRICULUM DEVELOPMENT IN ESOL EDUCATION (3) LEC. 3. LAB. 0, DSL/LEC. 0. This class will explore how to teach English for specific purposes by explaining how to create a curriculum in English for a particular context. The course will describe how to conduct a needs analysis and then create a curriculum based on the needs of the students.

CTES 7420 APPLIED LINGUISTICS IN SECOND LANGUAGE ACQUISITION (3) LEC. 3. Provides basic knowledge of phonetics, morphology, syntax, semantics, pragmatics, psycholinguistics, sociolinguistics and language variation to teach English language learners. May count either CTES 7420 or CTES 7426.

CTES 7430 TEACHING ESL LISTENING AND SPEAKING (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course will prepare ESL/EFL teachers to develop engaging and effective listening and speaking lessons in a variety of contexts. Students will design and implement effective listening and speaking lessons for a variety of proficiency levels.

CTES 7440 TEACHING ESL READING AND WRITING (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course will increase understanding of the theory and practices of reading and writing skills that actively engage English learners.

CTES 7460 TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES IN P-12 (3) LEC. 3. Teaching practices and curriculum selection in P-12 ESOL. May count either CTES 7460 or CTES 7466.

CTES 7470 ISSUES IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Examination of central issues in the teaching and learning of ESOL including language policy, language diversity and multiculturalism. May count either CTES 7470 or CTES 7476.

CTES 7480 ASSESSMENT IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL) (3) LEC. 3. Theoretical perspectives on assessment of English Language Learners. Developing, administering and analyzing assessment instruments. May count either CTES 7480 or CTES 7486.

CTES 7490 METHODS IN ESL GRAMMAR (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course will explore the English language beyond the prescriptive rules commonly taught and to develop an in-depth understanding of the challenges English language learners have with grammar. It will explore ways grammar impacts writing and speaking, best practices for grammar instruction, and considerations in error correction. Key grammar lessons will be developed and practiced.

CTES 7920 CLINICAL RESIDENCY (1-9) AAB. SU. Supervised teaching in a K-12 public school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Course may be repeated for a maximum of 9 credit hours.

Music Education Courses

CTMU 1010 INTRODUCTION TO MUSIC EDUCATION (0) LAB. 1. Introduction to teaching music.

CTMU 1020 MUSIC EDUCATION LAB I (1) LAB. 3. Development and documentation of general music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 2010 MUSIC EDUCATION LAB II (1) LAB. 3. Development and documentation of vocal or instrumental music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 3040 MUSIC AND RELATED ARTS (3) LEC. 2. LAB. 1, LLB. 0. Interdisciplinary instruction appropriate for students' developmental characteristics which synthesize the content, professional resources, curriculum goals and instructional strategies of music.

CTMU 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTMU 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. Admission to Teacher Education. Cooperatively selected field experience. May count either CTMU 4910 or CTMU 4913. Course may be repeated for a maximum of 6 credit hours.

CTMU 4920 CLINICAL RESIDENCY (12) AAB/DSL. 40. SU. Admission to Clinical Residency. Supervised on-the-job experience in a school or other appropriate setting abroad with regularly scheduled discussions with supervising faculty provide evaluation and analysis of the intern. May count either CTMU 4920 or CTMU 4923.

CTMU 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTMU 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTMU 4997 HONORS THESIS (1-3) IND. Pr. Honors College. The student's thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTMU 5110 CHILDREN'S MUSIC LEARNING (4) LEC. 3. LAB. 3. Musical development and learning, birth-childhood. Curriculum, methods, and assessment for community and school children's music. Clear background check required. May count either CTMU 5110 or CTMU 6110.

CTMU 5120 SCHOOL AND COMMUNITY GENERAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, adolescence-adulthood. Curriculum, methods, and assessment for community and school general music. Clear background check required. May count either CTMU 5120 or CTMU 6120.

CTMU 5130 SCHOOL AND COMMUNITY INSTRUMENTAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, instrumentalists. Curriculum, methods, and assessment for community and school instrumental music. Clear background check required. May count either CTMU 5130 or CTMU 6130.

CTMU 5140 SCHOOL AND COMMUNITY VOCAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Admission to Teacher Education. Musical development and learning of vocalists. Curriculum, methods, and assessment for community and school vocal music. Clear background check required. May count either CTMU 5140 or CTMU 6140.

CTMU 6110 CHILDREN'S MUSIC LEARNING (4) LEC. 3. LAB. 3. Musical development and learning, birth-childhood. Curriculum, methods, and assessment for community and school children's music. Clear background check required. May count either CTMU 5110, CTMU 6110 or CTMU 6116.

CTMU 6120 SCHOOL AND COMMUNITY GENERAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, adolescence-adulthood. Curriculum, methods, and assessment for community and school general music. Clear background check required. May count either CTMU 5120 or CTMU 6120/CTMU 6126.

CTMU 6130 SCHOOL AND COMMUNITY INSTRUMENTAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, instrumentalists. Curriculum, methods, and assessment for community and school instrumental music. Clear background check required. May count either CTMU 5130, CTMU 6130 or CTMU 6136.

CTMU 6140 SCHOOL AND COMMUNITY VOCAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning of vocalists. Curriculum, methods, and assessment for community and school vocal music. Clear background check required. May count either CTMU 5140, CTMU 6140 or CTMU 6146.

CTMU 6940 ELEMENTARY/MIDDLE SCHOOL MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for elementary and middle school music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master's Certification Program.

CTMU 6960 SECONDARY MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for secondary music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master's Certification Program

CTMU 7000 SCHOOL AND COMMUNITY MUSIC (1) LEC. 1. Developing skills, disposition, community, and research planning for graduate students in school and community music. May count either CTMU 7000 or CTMU 7006. Course may be repeated for a maximum of 2 credit hours.

CTMU 7510 RESEARCH STUDIES IN MUSIC EDUCATION (3) RES. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the changing needs of school musicians. May count either CTMU 7510 or CTMU 7516.

CTMU 7520 CURRICULUM AND TEACHING IN MUSIC EDUCATION (3) LEC. 3. Teaching practices and evaluation of experiences and content for curriculum improvements. Students develop recommendations for music curriculum. May count either CTMU 7520 or CTMU 7526.

CTMU 7530 ORGANIZATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Program, organization and development of basic and supplementary materials for guiding teachers, facilities and school systems in continuous improvement of curriculum and teaching practices in music education. May count either CTMU 7530 or CTMU 7536.

CTMU 7540 EVALUATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness including the utilization of human and material resources and the coordination of areas of specialization and issues in evaluation which are unique to music education settings. May count either CTMU 7540 or CTMU 7546.

CTMU 7550 APPLICATIONS OF TECHNOLOGY IN MUSIC EDUCATION (3) LEC. 3. An overview of applications of current technology in music classroom, studios, and offices. May count either CTMU 7550 or CTMU 7556.

CTMU 7560 DIGITAL MEDIA PRODUCTION FOR MUSIC EDUCATION (3) LEC. 3. Current tools, skills, and concepts for creating aural and visual interactive applications. May count either CTMU 7560 or CTMU 7566.

CTMU 7570 MUSIC INSTRUCTION MULTIMEDIA RESEARCH AND DEVELOPMENT (3) LEC. 3. Pr. CTMU 7550 or CTMU 7556. Departmental approval. Current research music instructional technology, design of interactive applications.

CTMU 7580 PSYCHOLOGY OF MUSIC (3) LEC. 3. This course will focus on exploring the musical experience psychological, psycho-acoustic, emotional, anthropological, sociological, and assistance perspectives to better understand how philosophical and practical approaches work in music teaching, learning, and in community settings. May count either CTMU 7580 or CTMU 7586.

CTMU 7590 WEB DESIGN AND MEDIA FOR MUSIC EDUCATORS (3) LEC. 3. Exploration and creation of media for music-focused curriculum and curriulcum support focused on competent implementation and delivery via web sites and web-based platforms.

CTMU 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMU 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DMU/PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMU 7970 SPECIAL TOPICS (1-9) DMU. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 9 credit hours.

CTMU 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTMU 8950 SEMINAR (1-3) DMU. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTMU 8980 FIELD PROJECT (1-6) DMU. SU. Course may be repeated for a maximum of 6 credit hours.

CTMU 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with change in topics.

Reading Education Courses

CTRD 3000 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION I (3) LEC. 3. LAB. 0, LEC. 0. Research-based theory and teaching strategies to meet the language and literacy needs of all children, especially those at risk of reading difficulties. Includes a practicum teaching experience.

CTRD 3001 PRACTICUM IN FOUND OF LANG LITERACY INSTRUCTION I (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTRD 3000. Admission to Teacher Education. This course is designed to provide 15 clock hours of teaching and experiences in Literacy Instruction in K-3 It is an intensive, interactive experience at a strategically selected school site.

CTRD 3010 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION II (3) LEC. 3. LAB. 0, LEC. 0. Provides a scientifically based reading research foundation essential for understanding student reading development and informing explicit, systematic instruction in the core aspects of reading. Topics include understanding reading research, cognitive processes involved in reading, language development, and effective reading instruction and assessment for students in PK-6. Additionally, the course emphasizes the theoretical foundations of literacy development in children and its implications for teaching. Includes a practicum teaching experience.

CTRD 3011 PRACTICUM IN FOUND OF LANG LITERACY INSTRUCTION II (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTRD 3010. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Language and Literacy Instruction II in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTRD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTRD 5000 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. LAB. 0. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000, or CTRD 6006.

CTRD 5030 THE READING OF ADOLESCENTS (3) LEC. 3. Admission to Teacher Education. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 5700 DEVELOPMENTAL READING K-12 (3) LEC. 3. Admission to Teacher Education. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 6000 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000, or CTRD 6006.

CTRD 6030 THE READING OF ADOLESCENTS (3) LEC. 3. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 6700 DEVELOPMENTAL READING K-12 (3) LEC. 3. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 6710 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3. Strategies to enhance literacy and inquiry for students' content-area learning in the middle and secondary school. May count CTRD 5710, CTRD 6710, or CTRD 6716.

CTRD 7400 ASSESSMENT AND INSTRUCTION FOR READING INTERVENTION (3) LEC. 3. Research-based analysis of causal factors in reading difficulties, assessment strategies, and effective teaching with delayed readers. Includes practicum.

CTRD 7510 RESEARCH STUDIES IN READING EDUCATION (3) DSL/RES. 3. Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.

CTRD 7520 CURRICULUM AND TEACHING IN READING EDUCATION (3) LEC. 3. Teaching practices and reappraisal of selected experiences and content for curriculum improvement.

CTRD 7530 ORGANIZATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Program, organization, and development of basic and supplementary materials for guiding teachers, faculties, and school systems in the continuous improvement of curriculum and teaching practices.

CTRD 7540 EVALUATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness with attention to the utilization of human and material resources and the coordination of areas of specialization.

CTRD 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study directed toward desired objectives related to respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTRD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTRD 7920 CLINICAL RESIDENCY (1-9) DRD. SU. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Departmental approval. May count either CTRD 7920 or CTRD 7926. Course may be repeated for a maximum of 9 credit hours.

CTRD 7970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 6 credit hours.

CTRD 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

CTRD 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTRD 8980 FIELD PROJECT (1-10) FLD. SU. Course may be repeated for a maximum of 10 credit hours.

CTRD 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with change in topics.

Secondary Education Courses

CTSE 1000 INQUIRY APPROACHES TO SCIENCE TEACHING: STEP 1 (1) LEC. 1. LAB. 2. This course allows students to explore teaching as a career. Following an introduction to the theory and practice behind excellent inquiry-based science instruction, candidates teach lessons in elementary classrooms to obtain firsthand experience in planning and implementation. An elementary school placement is chosen to help the AUTeach student connect with youth who are moving into the targeted grade band. Master teachers in AUTeach are instructors and are chosen for their experience and success in secondary classrooms. They provide candidates direct exposure to people who love teaching and view it as a rewarding career choice. Mentor teachers at the schools where candidates teach their prepared lessons demonstrate effective teaching techniques and classroom management skills, giving the future teachers a true taste of working in a supportive, diverse educational setting. The course emphasizes using the 5E Learning Cycle instructional model.

CTSE 2000 INQUIRY APPROACHES TO SCIENCE TEACHING: STEP 2 (1) LEC. 1. LAB. 2. This course allows students to continue developing the lesson planning and teaching skills explored in CTSE 1000 (Step 1). After observing a lesson being taught in a local school district classroom, students (in pairs) plan and teach two inquiry-based lessons to sixth, seventh, or eighth graders. Middle school science classrooms are selected both for the diversity of the student body and the quality of the classroom teachers, who serve as mentors for the Step 2 students assigned to them. For their final product, Step 2 students analyze and modify one of the lessons they taught, taking into account the results of the assessments, their reflection on how successful the lesson was, and feedback from observers (Mentor Teacher, Instructor, or Teaching Assistant). By the end of Step 2, students are usually able to make a decision about whether to pursue teacher certification through the AUTeach program. In addition to the unique Core Components and Course Objectives listed below, all AUTeach courses are designed in accordance with the AUTeach Course Design Principles. The course emphasizes using the 5E Learning Cycle instructional model.

CTSE 2500 INQUIRY APPROACHES TO SCIENCE TEACHING: COMBINED STEP 1 AND 2 (2) LEC. 2. LAB. 4. This course allows students to explore teaching as a career, learn the theory and practice behind excellent inquiry-based science instruction, and teach lessons in elementary and middle school classrooms in order to plan and implement lessons. This course replaces CTSE 1000 and CTSE 2000. It's a combined course. After observing lessons being taught in local school districts, students work in pairs to plan and teach two lessons in elementary classrooms, and two inquiry-based lessons to sixth, seventh, or eighth graders. Elementary and middle school science classrooms are selected both for the diversity of the student body and the quality of the classroom teachers, who serve as mentors for the students assigned to them. For their final product, Step 1/2 students analyze and modify one of the lessons they taught, taking into account the results of the assessments, their reflection on how successful the lesson was, and feedback from observers (Mentor Teacher, Instructor, or Teaching Assistant). By the end of this class, students are usually able to make a decision about whether to pursue teacher certification through the AUTeach program.

CTSE 4050 CURRICULUM AND TEACHING I: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4210. Admission to Teacher Education. Application of current educational research and instructional strategies to the design of meaningful social studies instruction and assessment.

CTSE 4060 CURRICULUM AND TEACHING II: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4050 and CTSE 4210. Admission to Teacher Education. Curriculum decision making and planning for instruction, evaluation, and classroom management.

CTSE 4070 CURRICULUM AND TEACHING I: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Admission to Teacher Education. Strategies for teaching foreign language students with a special emphasis on developing good instruction for comprehensible input and emerging speech tasks. May count either CTSE 4070 or CTSE 4073.

CTSE 4080 CURRICULUM AND TEACHING II: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Pr. CTSE 4070 or CTSE 4073. Admission to Teacher Education. Teaching strategies based on language acquisition theories that are appropriate for teaching foreign language students. May count either CTSE 4080 or CTSE 4083.

CTSE 4150 CURRICULUM AND TEACHING I: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTSE 5010 and CTSE 5020. Admission to Teacher Education. Teaching the expressive English language arts, writing and speaking, in middle and high school classrooms.

CTSE 4160 CURRICULUM AND TEACHING II: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTSE 4150. Admission to Teacher Education. Teaching the receptive English language arts; reading, listening, and viewing; in middle and high school classrooms. Admission to Teacher Education required.

CTSE 4210 SOCIAL SCIENCE CONCEPTS AND METHODS (3) LEC. 3. For pre-service teachers. Organizing social science disciplinary knowledge into an integrated framework that is meaningful, useful, and relevant to high school students. 15 hours in social sciences (2000 level or above).

CTSE 4900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTSE 4910 PRACTICUM (1-6) DSL/PRA. SU. Departmental approval. Admission to Teacher Education. Cooperatively selected field experience. Course may be repeated for a maximum of 6 credit hours.

CTSE 4920 CLINICAL RESIDENCY (11) AAB/DSL. 40. SU. Pr. P/C CTSE 5210 or P/C CTSE 5213 or P/C CTSE 5220 or P/C CTSE 5223 or P/C CTSE 5230 or P/C CTSE 5233 or P/C CTSE 5240 or P/C CTSE 5243 or P/C CTSE 5250 or P/C CTSE 5253 or P/C CTSE 5410. Admission to Clinical Residency. Supervised teaching in a public secondary school abroad accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTSE 4920 or CTSE 4923.

CTSE 4930 AUTEACH CLINICAL RESIDENCY (8) DSL/FLD. 30. SU. Pr. P/C CTSE 5240 or P/C CTSE 5243. Departmental approval. Supervised science teaching in a public secondary school accompanied by scheduled discussions to analyze and evaluate the clinical resident's experience.

CTSE 4970 SPECIAL TOPICS (1-4) DSL. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 4 credit hours.

CTSE 5000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000, CTSE 5003, CTSE 6000 or CTSE 6006.

CTSE 5010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. Junior standing. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 5020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020 or CTSE 6020.

CTSE 5030 TEACHING MATHEMATICS: HIGH SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Strategies for teaching and evaluating high school mathematics to promote the learning of all students.

CTSE 5031 PRACTICUM IN HIGH SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 5030. Admission to Teacher Education. This course is designed to provide 36 clock hours of teaching and experience in High School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTSE 5040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (3) LEC. 3. LAB. 0, LEC/LLB. 0. Pr. MATH 2660. Admission to Teacher Education. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 5041 PRACTICUM IN SECONDARY MATHEMATICS TECHNOLOGY (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 5040. Admission to Teacher Education. This course is designed to provide 18 clock hours of teaching and experience in Secondary Mathematics Technology. It is an intensive, interactive experience at a strategically selected school site.

CTSE 5050 ANALYZING PERSISTENT ISSUES IN HISTORY AND GEOGRAPHY (3) LEC. 3. This course will engage students in inquiry-based and Persistent Issues in History units of content instruction with selected topics that integrate history and geography content and then deconstruct those units to examine the research-based learning and assessment principles that underlie their design.

CTSE 5060 ANALYZING PERSISTENT ISSUES IN POLITICAL ECONOMY (3) LEC. 3. This course integrates moral philosophy, political science, and economics into an exploration of persistent issues in political economy. Students will metacognitively analyze their own learning as they investigate and propose a policy solution to a political economy problem.

CTSE 5090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2. LAB. 4. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 5100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4090. Admission to Teacher Education. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approaches. May count either CTSE 5100 or CTSE 6100.

CTSE 5110 PERSPECTIVES IN SCIENCE (3) LEC. 3. Perspectives on Science is an overview and introduction to the scholarly field of science history with applications for embedding historical stories and discoveries into today’s secondary science classrooms.

CTSE 5210 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) LEC. 1. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 5220 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1-2) AAB. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220 or CTSE 6220. Course may be repeated for a maximum of 2 credit hours.

CTSE 5230 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB/DSL. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 5240 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB/DSL. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 5250 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 5830 STATISTICS AND PROBABILITY FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. STAT 2010 or STAT 3010. Admission to Teacher Education. Connections of college-level mathematics with the secondary mathematics curriculum, focusing on statistics and probability, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving.

CTSE 5840 NUMBER SYSTEMS AND ALGEBRA FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MATH 1620. Admission to Teacher Education. Connections of college-level mathematics with the secondary mathematics curriculum, focusing on number systems, algebra, and functions, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving.

CTSE 5850 FUNCTIONS AND MATHEMATICAL MODELING FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MATH 2630. Admission to Teacher Education. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on functions and mathematical modeling, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving.

CTSE 5860 GEOMETRY FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MATH 1610. Admission to Teacher Education. Connections of college-level mathematics with the secondary mathematics curriculum, focusing on geometry, to develop mathematical knowledge relevant to teaching. The contents include axiomatic development of geometry, transformational geometry, and similarity. Appropriate technology and mathematics problem solving skills will be introduced.

CTSE 6000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000, CTSE 5003, CTSE 6000 or CTSE 6006.

CTSE 6010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 6020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020, CTSE 6020 or CTSE 6026.

CTSE 6030 TEACHING MATHEMATICS: HIGH SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Strategies for teaching and evaluating high school mathematics to promote the learning of all students.

CTSE 6031 PRACTICUM IN HIGH SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 6030. This course is designed to provide 36 clock hours of teaching and experience in High School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTSE 6040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (3) LEC. 3. LAB. 0, LEC. 0. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 6041 PRACTICUM IN SECONDARY MATHEMATICS TECHNOLOGY (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 6040. This course is designed to provide 18 clock hours of teaching and experience in Secondary Mathematics Technology. It is an intensive, interactive experience at a strategically selected school site.

CTSE 6050 ANALYZING PERSISTENT ISSUES IN HISTORY AND GEOGRAPHY (3) LEC. 3. This course will engage students in inquiry-based and Persistent Issues of History units of content instruction with selected topics that integrate history and geography content and then deconstruct those units to examine the research-based learning and assessment principles that underlie their design.

CTSE 6060 ANALYZING PERSISTENT ISSUES IN POLITICAL ECONOMY (3) LEC. 3. This course integrates moral philosophy, political science, and economics into an exploration of persistent issues in political economy. Students will metacognitively analyze their own learning as they investigate and propose a policy solution to a political economy problem.

CTSE 6090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2. LAB. 4. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 6100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC/LLB. 6. Pr. CTSE 4090. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approches. May count either CTSE 5100 or CTSE 6100.

CTSE 6210 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) AAB. 1. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 6220 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1) AAB. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220, CTSE 5223, CTSE 6220 or CTSE 6226.

CTSE 6230 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB. 15. Pr. (P/C CTSE 7920 or P/C CTSE 7926). Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 6240 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 6250 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 6710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. May count either CTSE 5710, CTSE 6710, or CTSE 6716.

CTSE 7000 ORIENTATION TO TEACHING AND LEARNING (1) LEC. 1. Skills, dispositions, community, and research planning for graduate students including preparation of a research proposal. May count either CTSE 7000 or CTSE 7006.

CTSE 7490 THE SECONDARY SCHOOL PROGRAM (3) LEC. 3. Departmental approval. Implications of research and theory for the total secondary school program.

CTSE 7510 RESEARCH STUDIES IN AREA OF SPECIALIZATION (3) LEC. 3. Research methodology, landmark studies, critique and application of research in the area of specialization.

CTSE 7520 CURRICULUM AND TEACHING IN AREA OF SPECIALIZATION (3) LEC. 3. Nature of learners and of knowledge and implications for for building curricula and planning instruction in the area of specialization. May count either CTSE 7520 or CTSE 7526.

CTSE 7530 ORGANIZATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Program models, components, and standards in the area of specialization. May count either CTSE 7530 or CTSE 7536.

CTSE 7540 EVALUATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Theoretical perspectives of evaluation and methods of evaluating learners, teachers, and curricula. May count either CTSE 7540 or CTSE 7546.

CTSE 7560 EQUITY ISSUES IN MATHEMATICS EDUCATION (3) LEC. 3. Theories, issues, and pedagogy related to achieving equity in mathematics education.

CTSE 7800 CAPSTONE IN TEACHING AND LEARNING (2) LEC. 2. Development of a unique portfolio based on professional interest and demonstration the ability to foster student achievement through the design, implementation, and assessment of learning activities. May count either CTSE 7800 or CTSE 7806.

CTSE 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study directed toward desired objectives related to their respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTSE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTSE 7920 CLINICAL RESIDENCY (8-11) AAB. 40. SU. Pr. P/C CTSE 6210 or P/C CTSE 6216 or P/C CTSE 6220 or P/C CTSE 6226 or P/C CTSE 6230 or P/C CTSE 6236 or P/C CTSE 6240 or P/C CTSE 6246 or P/C CTSE 6250 or P/C CTSE 6256. Admission to Clinical Residency. Supervised clinical residency experiences in a school, college or other appropriate setting. Evaluation and analysis of the clinical residency experinece. Departmental approval. May count either CTSE 7920 or CTSE 7926. Course may be repeated for a maximum of 11 credit hours.

CTSE 7970 SPECIAL TOPICS (1-6) DFL. Departmental approval. Provides an opportunity for the graduate student and professor to pursue selected topics in depth. Course may be repeated for a maximum of 6 credit hours.

CTSE 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTSE 8950 SEMINAR (1-3) DSL/SEM. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTSE 8980 FIELD PROJECT (1-3) DSL/FLD. SU. Departmental approval. Students review literature pertaining to a problem they have identified in their own practice, form hypotheses, plan intervention, collect data, analyze and interpret results, write summary of the project following approved guidelines, and orally defend the results of their project. Course may be repeated for a maximum of 3 credit hours.

CTSE 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with change in topics.

Agriscience Education (CAGB)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	Core History or Core Social Science	3
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
EDUC 1010 Orientation to Teacher Education[2]	**0**	ENGL 1120 English Composition II	3
ECON 2020/2027 Principles of Microeconomics	3	Elective or ROTC	3
Core History [1]	3	Humanities Core	3
Core Math	3		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	**FOUN 3000 Diversity of Learners and Settings**[2]	**3**
Core Social Science	3	**CTCT 4940 Directed Field Experience in Area of Specialization**	**3**
Survey of Chemistry Elective (CHEM)	4	**Electives in Animal Sciences (ANSC 1000, 1050, 2000, 2010, or 2720)**	**3**
2000-level Elective in Horticulture (HORT)	**3**	**Electives in Soil Science (CSES)**	**3**
RSED 3000 Diversity and Exceptionality of Learners[2]	**3**	Core Fine Arts	3
		Core Literature or Core Humanities	3
	16		**18**

Junior

Fall	Hours	Spring	Hours
FOUN 3110 Adolescent Development, Learning, Motivation and Assessment I[2]	**3**	**CTCT 2100 Power Equipment Technology**	**3**
2000-level or above Advisor-approved Agriscience Electives[4]	**7**	**CTRD 5000 Language and Literacy in the Content Areas**	**3**
3000-5000 level Advisor-approved Agriscience Electives[4]	**6**	**AGEC 3010 Agribusiness Marketing *or* 4000 Principles of Agribusiness Management**	**3**

		3000-5000 level Advisor-approved Agriscience Elective[4]	**3**
	16		**12**

Senior

Fall	Hours	Spring	Hours
CTCT 4000 Classroom/Laboratory Management, Organization and Evaluation in Career and Technical Education[2,5]	**2**	UNIV 4AA0 Achieve the Creed	0
CTCT 4140 Agricultural Structure and Metal Fabrication Technology	**3**	**CTCT 4920 CLINICAL RESIDENCY[5]**	**12**
CTCT 4030 Career and Technical Student Organizations	**3**		
CTCT 5050 Methods of Teaching in Area of Specialization[2,5]	**3**		
CTCT 5060 Program Planning in Area of Specialization[2,5]	**3**		
	14		**12**

Total Hours: 120

1 Students must complete a history sequence or a literature sequence.
2 Prerequisite for Admission to Clinical Residency.
3 PHIL 1010/PHIL 1017/PHIL 1020/PHIL 1027/PHIL 1030/PHIL 1037/PHIL 1040/PHIL 1050/ PHIL 1060/PHIL 1070/PHIL 1080/PHIL 1090/PHIL 1100/HONR 1007/HONR 1017 (SLO3)
4 Agriculture Elective: See advisor for approved course listing (AGEC, AGRI, ANSC, CSES, CTCT, ENTM, FISH, FORY, FOWS, HORT, PLPA, POUL, RSOC).
5 Prerequisite: Admission to Teacher Education.

Business and Marketing Education (CBMB)

In addition to meeting all Auburn University GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
EDUC 1010 Orientation to Teacher Education[2]	**0**	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core History or Core Social Science	3
Core History [1]	3	Core Math	3
Core Social Science	3	Core Social Science	3
Core Fine Arts	3		
	12		**12**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2110 Principles of Financial Accounting *or* 2810 Fundamentals Of Accounting	**3**	ACCT 2700 Business Law	3

Core Literature[1]	3	**CTCT 3000 Leadership Skills for Personal and Organizational Development**	**3**
Core Science I	4	**FINC 2400 Personal Finance**	**3**
Humanities Core[4]	3	Core Literature or Core Humanities	3
		Core Science II	4
	13		**16**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
CTCT 2200 Computer Literacy in Business Education	**3**	**CTCT 4910 Practicum in Area of Specialization**	**1**	**CTCT 4970 Special Topics in Area of Specialization**	**3**
CTCT 5200 Records Management Systems	**3**	**CTCT 5240 Multimedia Design**	**3**	**CTCT 5060 Program Planning in Area of Specialization**	**3**
FOUN 3000 Diversity of Learners and Settings[2]	**3**	**CTCT 5250 Information Design & Analysis**	**3**	**CTCT 5080 Principles of Coordination (Name change: Principles of Coordination)**	**3**
MNGT 3100 Principles of Management *or* 3810 Management Foundations	**3**	**CTCT 5260 Applied Computer Technology**	**3**	**CTCT 5940 Work Experience in Information Technology**	**3**
RSED 3000 Diversity and Exceptionality of Learners	**3**	**FOUN 3500 Development, Learning and Motivation [2]**	**3**		
		MKTG 3310 Principles of Marketing	**3**		
	15		**16**		**12**

Senior

Fall	Hours	Spring	Hours
CTCT 4000 Classroom/ Laboratory Management, Organization and Evaluation in Career and Technical Education[2,3]	**2**	**CTCT 4920 CLINICAL RESIDENCY[4]**	**12**
CTCT 5050 Methods of Teaching in Area of Specialization[2,3]	**3**	UNIV 4AA0 Achieve the Creed	0
CTRD 5000 Language and Literacy in the Content Areas	3		
Free Elective	2		
Advisor-approved elective	3		
	13		**12**

Total Hours: 121

1 Students must complete a history sequence or a literature sequence.
2 Prerequisite for Admission to Clinical Residency.
3 Prerequisite: Admission to Teacher Education.
4 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).

Chemistry Education (CCHB)

In addition to meeting all Auburn University GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I ***or*** 1617 Honors Calculus I	4	MATH 1620 Calculus II ***or*** 1627 Honors Calculus II	4
Core History I	3	Core History II	3
Core Fine Arts	3	Humanities Core	3
CHEM 1110 General Chemistry I	**3**	**CHEM 1120 General Chemistry for Scientists and Engineers II**	**3**
CHEM 1111 General Chemistry I Laboratory	**1**	**CHEM 1121 General Chemistry II Laboratory**	**1**
		EDUC 1010 Orientation to Teacher Education[3]	**0**
	17		**17**

Sophomore

Fall	Hours	Spring	Hours
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
Core Literature	3	Core Social Science	3
Core Social Science	3	COMM 1000 Public Speaking	3
CHEM 2070 Organic Chemistry I	**3**	Free Elective	3
CHEM 2071 Organic Chemistry I Laboratory	**1**	**CHEM 2080 Organic Chemistry II**	**3**
		CHEM 2081 Organic Chemistry II Laboratory	**1**
	14		**17**

Junior

Fall	Hours	Spring	Hours
FOUN 3000 Diversity of Learners and Settings[3]	**3**	**CHEM 3000 Chemical Literature**	**1**
RSED 3000 Diversity and Exceptionality of Learners[3]	**3**	**Chemistry Elective (3000-5000 level)**	**4**
CHEM 3050 Analytical Chemistry	**3**	**CTSE 5090 Curriculum and Teaching I: Science**[1,3]	**4**
CHEM 3051 Analytical Chemistry Laboratory	**1**	**CTRD 5000 Language and Literacy in the Content Areas**[3]	**3**
CTSE 5000 Technology in Science Education[3]	**2**	Chemistry Elective (3000-5000 level)	3
CHEM 3160 Survey of Physical Chemistry	**3**		
	15		**15**

Senior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**CTSE 4920 Clinical Residency**[2]	**11**
FOUN 3500 Development, Learning and Motivation	3	**CTSE 5240 Clinical Residency Seminar in Science Teaching**[1,4]	**1**
BCHE 5181 Biochemistry I Laboratory	**1**	UNIV 4AA0 Achieve the Creed	0
BIOL 1020 Principles of Biology	3		
BIOL 1021 Principles of Biology Laboratory	1		

CTSE 5100 Curriculum and Teaching II: Science[1,3]	4	
	15	**12**

Total Hours: 122

1 Prerequisite: Admission to Teacher Education.
2 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
3 Prerequisite for Admission to Clinical Residency.
4 Co-requisite with Clinical Residency.

Chemistry Elective: See advisor for approved course listing.

Community Music Minor

Code	Title	Hours
Required coursework (9 hours):		
CTMU 1010	Introduction to Music Education	0
CTMU 1020	Music Education Lab I	1
CTMU 2010	Music Education Lab II	1
CTMU 4910	Practicum in Area of Specialization	6
Select two of the following 4 hour courses:		8
CTMU 5110	Children's Music Learning	
CTMU 5120	School and Community General Music Education	
CTMU 5130	School and Community Instrumental Music Education	
CTMU 5140	School and Community Vocal Music Education	
Total Hours		**16**

Early Childhood Education (CECB)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	GEOG 1010 Global Geography	3
HIST 2010 Survey of United States History to 1877 ***or*** 2020 Survey of United States History Since 1877 (HIST 2010 or 2020 may be used in lieu of CORE HISTORY)	3	ECON 2020 Principles of Microeconomics ***or*** 2030 Principles of Macroeconomics	3
Core Math	3	MATH 2850 Mathematics for Elementary Education I	3
POLI 1050 Global Politics and Issues ***or*** 1090 American Government in Multicultural World	3	ENGL 1120 English Composition II	3
EDUC 1010 Orientation to Teacher Education[2]	**0**	GEOL 1100 Dynamic Earth (or PHYS 1150)	4
SCMH 1010 Concepts of Science	4		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Literature[1]	3
COMM 1000 Public Speaking	3	Core Fine Arts	3
MATH 2860 Mathematics for Elementary Education II	3	MATH 2870 Mathematics for Elementary Education III (or MATH elective)	3

HDFS 2010 Lifespan Human Development in Family Context (or PSYC 3120)	3	KINE 2250 Motor Development Across the Lifespan	2
CTEE 2000 Digital Literacy and Computer Science in Education	4	HDFS 3010 Child Development in the Family	3
		EDMD 3300 Utilization of Instructional Technology for Educators	**2**
	16		**16**

Junior

Fall	**Hours**	**Spring**	**Hours**
FOUN 3000 Diversity of Learners and Settings[2]	**3**	**CTRD 3010 Foundations of Language and Literacy Instruction II[2,3]**	**4**
CTRD 3000 Foundations of Language and Literacy Instruction I[2, 3]	**3**	**CTEC 3030 Integrated Curriculum in Preschool: Early Literacy[3]**	**3**
RSED 3000 Diversity and Exceptionality of Learners[2]	**3**	**RSED 5110 Curriculum in Early Childhood Special Education[3]**	**3**
CTEC 3200 A Working Theory for the Constructivist Educator[2, 3]	**3**	**EDMD 5100 (or approved elective)**	**3**
CTEC 4200 The Constructivist Teacher: Strategies and Techniques[2,3]	**3**	**CTEC 4920/ Clinical Residency[3, 5]**	**2**
CTEC 4911 Practicum in the Preschool[2,3]	**1**		
	16		**15**

Senior

Fall	**Hours**	**Spring**	**Hours**
FOUN 3100 Child Development, Learning, Motivation and Assessment[2,3]	**6**	**CTEC 4210 The Constructivist Teacher: Growing Professionally[3, 4]**	**1**
CTEC 4912 Practicum in Primary Grades[2,3]	**2**	UNIV 4AA0 Achieve the Creed	0
CTEC 3020 Primary Math and Science[3]	**3**	**CTEC 4920 Clinical Residency[3, 5]**	**11**
CTMU 3040 Music and Related Arts[3]	**4**		
	15		**12**

Total Hours: 122

Curriculum guides for the junior and senior year vary according to semester of admission to Teacher Education. Some curriculum guides include a summer term. See advisor.

1 Students must complete a literature sequence.
2 Prerequisite for Admission to Clinical Residency.
3 Prerequisite: Admission to Teacher Education.
4 Co-requisite with Clinical Residency.
5 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).

Elementary Education (CEEB)

Due to high demand, the elementary education major has a restricted enrollment. A total of 90 elementary education applicants are admitted each year with admission decisions occurring in fall and spring. Applications are considered only if students have met all criteria noted in the Admission to Teacher Education. Fall semester 30 applicants are accepted and begin a cohort sequence the following spring semester; spring semester 60 applicants are accepted and begin a cohort sequence the following fall semester. Rankings for elementary education applicants are determined by the AU Core GPA and a professional interview which includes a review of a resume, a writing sample, and an interview. In addition to meeting all Auburn University GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
HIST 2010 Survey of United States History to 1877 ***or*** 2020 Survey of United States History Since 1877 (or Core History)	3	ECON 2020 Principles of Microeconomics ***or*** 2030 Principles of Macroeconomics	3
SCMH 1010 Concepts of Science	4	GEOL 1100 Dynamic Earth (or PHYS 1150)	4
Core Math	3	MATH 2850 Mathematics for Elementary Education I	3
Elective	3	**EDUC 1010 Orientation to Teacher Education**[2]	**0**
		POLI 1050 Global Politics and Issues ***or*** 1090 American Government in Multicultural World (or Core History II)	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	**CTEE 3100 Introduction to Elementary Education**[2]	**3**
EDMD 3300 Utilization of Instructional Technology for Educators[2]	**2**	**FOUN 3000 Diversity of Learners and Settings**[2]	**3**
COMM 1000 Public Speaking (or equivalent)	3	GEOG 1010 Global Geography	3
Core Fine Arts	3	**KINE 4360 Health Education and Physical Education in Elementary Schools**	**2**
EDMD 2000 Digital Literacy and Computer Science in Education	**4**	Core Literature or Humanities[1]	3
		RSED 3000 Diversity and Exceptionality of Learners[2]	**3**
	15		**17**

Junior

Fall	Hours	Spring	Hours
CTRD 3000 Foundations of Language and Literacy Instruction I[2,3]	**3**	**CTRD 3010 Foundations of Language and Literacy Instruction II**[2,3]	**3**
CTRD 3001 Practicum in Found of Lang Literacy Instruction I[2,3]	**1**	**CTRD 3011 Practicum in Found of Lang Literacy Instruction II**[2,3]	**1**
CTMU 3040 Music and Related Arts[2,3]	**3**	**CTEE 4000 Formative Assessment and Instruction in Intermediate Mathematics**[2,3]	**3**
CTEE 3040 Primary Curriculum in Mathematics[2,3]	**3**	**CTEE 4040 Curriculum: Mathematics**[2,3]	**3**
CTEE 3041 Practicum in Elementary Education: Primary Mathematics[2,3]	**1**	**CTEE 4041 Practicum in Elementary Education: Intermediate Mathematics**[2,3]	**1**
FOUN 3500 Development, Learning and Motivation [2]	**3**	**CTEE 4190 Effective Classroom Management in the Elementary School**[2,3]	**3**
		CTEE 4191 Practicum in Effective Classroom Management in the Elementary School [2,3]	**1**
	14		**15**

Senior

Fall	Hours	Spring	Hours
CTEE 4010 Curriculum: Social Science[2,3]	**3**	**CTEE 4920 Clinical Residency[3,5]**	**11**
CTEE 4011 Practicum in Elementary Education: Intermediate Social Science[2,3]	**1**	**CTEE 4950 Professional Development Seminar[3,4]**	**1**
CTEE 4020 Curriculum: Language Arts[2,3]	**3**	UNIV 4AA0 Achieve the Creed	0
CTEE 4021 Practicum in Elementary Education: Intermediate Language Arts[2,3]	**1**		
CTEE 4030 Curriculum: Natural Science[2,3]	**3**		
CTEE 4031 Practicum in Elementary Education: Intermediate Natural Science[2,3]	**1**		
CTES 5410 Foundations of Multilingual Learner Instruction	**3**		
	15		**12**

Total Hours: 120

Curriculum guides for the junior and senior year vary according to semester of admission to Teacher Education. Some curriculum guides include a summer term. See advisor.

1 Students must complete a history sequence or a literature sequence.
2 Prerequisite for Admission to Clinical Residency.
3 Prerequisite: Admission to Teacher Education.
4 Co-requisite with Clinical Residency.
5 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).

English Language Arts Education (CEGB)

In addition to meeting all Auburn University GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	Core History or Core Social Science	3
Core History	3	**EDUC 1010 Orientation to Teacher Education[1]**	**0**
Core Math	3	**COMM 1000 Public Speaking**	**3**
THEA 2010 Introduction to Theatre	3	ENGL 1120 English Composition II	3
Core Science I	4	Core Science II	4
	16		**13**

Sophomore

Fall	Hours	Spring	Hours
Select one of the following to complete a sequence:	3	Select one of the following to complete a sequence:	3
ENGL 2230 British Literature before 1789		ENGL 2230 British Literature before 1789	
ENGL 2240 British Literature after 1789		ENGL 2240 British Literature after 1789	
ENGL 2250 American Literature before 1865		ENGL 2250 American Literature before 1865	
ENGL 2260 American Literature after 1865		ENGL 2260 American Literature after 1865	
Core Social Science	3	Core Social Science	3
American or British Lit 2000 level [2]	**3**	**English Writing Elective Group 3[4]**	**3**

JRNL 1000 Foundations of Journalism	3	**CTRD 3010 Foundations of Language and Literacy Instruction II**	**3**
Period of British Literature[7]	**3**	**CTRD 3011 Practicum in Found of Lang Literacy Instruction II**	**1**
Period of American Literature[7]	**3**	ENGL 4600 Chaucer ***or*** 4610 Shakespeare	3
	18		**16**

Junior

Fall	Hours	Spring	Hours
FOUN 3000 Diversity of Learners and Settings[1]	**3**	**FOUN 3500 Development, Learning and Motivation** [9]	**3**
CTSE 5010 Language Study for Teachers	**3**	**CTSE 4150 Curriculum and Teaching I: English Language Arts**[1,3]	**4**
CTSE 5020 Rhetoric and Composition for Teachers	**3**	**CTRD 5030 The Reading of Adolescents**	**3**
CTRD 5000 Language and Literacy in the Content Areas[1,3]	**3**	**ENGL 3130 Survey of Critical Theory**	**3**
English Writing Elective Group 3[4]	**3**	**Group 1 Technical Writing**[5]	**3**
RSED 3000 Diversity and Exceptionality of Learners[1]	**3**		
	18		**16**

Senior

Fall	Hours	Spring	Hours
CTSE 4160 Curriculum and Teaching II: English Language Arts[1,3]	**4**	UNIV 4AA0 Achieve the Creed	0
Eng. Globalism, Sustainability, of Div. Gp 2[6]	**3**	**CTSE 4920 Clinical Residency**[7]	**11**
ENGL 4800 Seminar in Literature	**3**	**CTSE 5210 Teacher Inquiry Workshop: Problems and Possibilities**[3,8]	**1**
Genre Literature[7]	**3**		
Advisor-approved Elective	3		
	16		**12**

Total Hours: 125

1 Prerequisite for Admission to Clinical Residency.
2 Select one of the following: ENGL 2020/ENGL 2230/ENGL 2240/ENGL 2250/ENGL 2260/ENGL 2270/ENGL 2280
3 Prerequisite: Admission to Teacher Education
4 Select one of the following: ENGL 2000/ENGL 2010/ENGL 3040/ENGL 3080/ENGL 4000/ ENGL 4010
5 Select one of the following: ENGL 3040 or ENGL 4020
6 Select one of the following: ENGL 3710/ENGL 3730/ENGL 3740/ENGL 3750/ENGL 3850/ENGL 3870/ENGL 4160/ENGL 4450/ ENGL 4710/ENGL 4740
7 Must be 4000-level or higher.
8 Corequisite with CTSE 4920 Clinical Residency
9 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
10 Co-requisite with Clinical Residency.

Group 1 - Technical Writing

Code	Title	Hours
ENGL 3040	Technical Writing	3
ENGL 4020	Technical and Professional Editing	3

Group 2 - Course in Globalism, Sustainability, or Diversity

Code	Title	Hours
ENGL 3710	Survey of African American Literature Before 1900	3
ENGL 3730	Representations	3
ENGL 3740	Identities	3
ENGL 3750	Cultural Studies	3
ENGL 3850	Study in London	3
ENGL 3870	World English Literatures	3
ENGL 4160	Digital Writing and Rhetoric	3
ENGL 4450	Topics in African American Literature	3
ENGL 4710	Topics in Gender and Literature	3
ENGL 4720	Topics in Ethnic Studies	3
ENGL 4740	Environment, Literature, and Culture	3

Group 3 - Writing Elective

Code	Title	Hours
ENGL 2000	Introduction to Creative Writing	3
ENGL 2010	Introduction to Professional Writing	3
ENGL 3040	Technical Writing	3
ENGL 3080	Business Writing	3
ENGL 4000	Advanced Composition	3
ENGL 4010	Topics in Writing	3

French Education (CFRB)

In addition to meeting all Auburn University GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	Core History II	3
Core History I	3	**FLFR 2020 Intermediate French II**[1]	**4**
Core Math	3	Humanities Core	3
FLFR 2010 Intermediate French I[1]	**4**	ENGL 1120 English Composition II	3
Core Science I	4	**EDUC 1010 Orientation to Teacher Education**[4]	**0**
		Core Science II	4
	17		**17**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	COMM 1000 Public Speaking	3
Core Fine Arts	3	Core Social Science	3
Core Social Science	3	Free Elective[#]	2

Free Elective		3	**FLFR 3110 Contemporary Culture & Politics**	**3**
FLFR 3010 The Sounds of French, 3030 French Conversation and Culture I, *or* 4030 French Conversation and Culture II		**3**	Select one of the following: **FLFR 3040 Reading & Writing in French I** **FLFR 4020 Applied French Skills** **FLFR 4040 Reading & Writing in French II**	3
		15		**14**

Junior

Fall	Hours		Spring	Hours	
FOUN 3000 Diversity of Learners and Settings[4]		**3**	**CTSE 4080 Curriculum and Teaching II: Foreign Language**[2,4]		**4**
CTSE 4070 Curriculum and Teaching I: Foreign Language[2,4]		**4**	**FLFR Electives (3000 or above)** [6]		**6**
FLFR Elective (3000 or above) [6]		**3**	**CTRD 5000 Language and Literacy in the Content Areas**		**3**
Select one of the following: **FLFR 3100 Intro To Literature, Arts, & Media** **FLFR 3140 Literature, Arts, & Media I** **FLFR 3150 Literature, Arts, & Media II**		3			
RSED 3000 Diversity and Exceptionality of Learners[4]		**3**			
		16			**13**

Senior

Fall	Hours		Spring	Hours	
EDMD 3300 Utilization of Instructional Technology for Educators[4]		**2**	UNIV 4AA0 Achieve the Creed		0
FOUN 3500 Development, Learning and Motivation [2,4]		**3**	**CTSE 4920 Clinical Residency**[3]		**11**
FLFR Electives (3000 or above) [6]		**9**	**CTSE 5220 Class Management and Discipline in Foreign Language Classroom**[2,5]		**1**
Free Elective[#]		2			
		16			**12**

Total Hours: 120

1 FLFR 1010 and FLFR 1020 may also be required based on placement test score.
2 Prerequisite: Admission to Teacher Education.
3 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
4 Prerequisite for Admission to Clinical Residency.
5 Co-requisite with Clinical Residency.
6 FLFR Elective: See advisor for approved course listing.
FLFR 2000 level courses are 3 hours at junior colleges. If these courses are transferred, 6 hours of free elective are required to meet 120 hour minimum.

General Science Education (CSIB)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	**GEOL 1100 Dynamic Earth**	**4**
MATH 1610 Calculus I ***or*** 1617 Honors Calculus I	4	**BIOL 1030 Organismal Biology**	**3**
BIOL 1020 Principles of Biology	**3**	**BIOL 1031 Organismal Biology Laboratory**	**1**
BIOL 1021 Principles of Biology Laboratory	**1**	Humanities Core	3
Core Fine Arts	3	ENGL 1120 English Composition II	3
Core History [1]	3	**EDUC 1010 Orientation to Teacher Education[4]**	**0**
		Core History or Core Social Science	3
	17		**17**

Sophomore

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
Core Literature[1]	3	Core Literature or Core Humanities	3
Core Social Science	3	Core Social Science	3
BIOL 2500 Human Anatomy and Physiology I	3	**BIOL 3060 Ecology**	**4**
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	**GEOL 1110 Earth and Life Through Time**	**4**
BIOL 3030 Evolution and Systematics	**3**		
	17		**18**

Junior

Fall	Hours	Spring	Hours
Select one of the following:	4	Select one of the following:	4
PHYS 1500 General Physics I		**PHYS 1510 General Physics II**	
PHYS 1600/1607 Engineering Physics I		**PHYS 1610/1617 Engineering Physics II**	
FOUN 3000 Diversity of Learners and Settings[4]	**3**	**CTSE 4090 [2,4]**	**4**
CTSE 5000 Technology in Science Education[4]	**2**	**GEOL 5220 Geomorphology**	**3**
GEOL 2010 Mineralogy and Optical Crystallography	**5**	**RSED 3000 Diversity and Exceptionality of Learners**	**3**
GEOL 3060 Lunar and Planetary Geology	**3**	Course 3000-5000 level Earth Systems Science Elective	3
	17		**17**

Senior

Fall	Hours	Spring	Hours
FOUN 3120 Adolescent Development, Learning, Motivation and Assessment II[2,4]	**3**	UNIV 4AA0 Achieve the Creed	0
CTSE 5100 Curriculum and Teaching II: Science	**4**	**CTSE 4920 Clinical Residency[3]**	**11**
CTRD 5000 Language and Literacy in the Content Areas[2,4]	**3**	**CTSE 5240 Clinical Residency Seminar in Science Teaching[2,5]**	**1**

GEOL 3200 Introduction to Paleobiology	**3**	
	13	**12**

Total Hours: 128

1 Students must complete a history sequence or a literature sequence.
2 Prerequisite: Admission to Teacher Education.
3 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
4 Prerequisite for Admission to Clinical Residency.
5 Corequisite for Clinical Residency.

General Social Science Education/History (CSTB)

In addition to all AU Required GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
HIST 1010 World History I	3	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Mathematics	3
Core Science I	4	Core Science II	4
Core Fine Arts	3	HIST 1020 World History II	3
SOCY 1000 Sociology: Global Perspective	3	**EDUC 1010 Orientation to Teacher Education[1]**	**0**
		ECON 2020 Principles of Microeconomics	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
EDMD 3300 Utilization of Instructional Technology for Educators[1]	**2**	Core Literature or Core Humanities	3
Core Literature	3	Humanities Core	3
POLI 1090 American Government in Multicultural World	3	GEOG 2010 Human Geography	3
POLI 3090 Introduction to International Relations ***or*** 3120 Introduction to Comparative Politics	3	**2000-level or above European History**	**3**
ECON 2030 Principles of Macroeconomics	3	**2000-level or above Asian or Middle Eastern History**	**3**
2000-level or above Latin American or African History	**3**		
	17		**15**

Junior

Fall	Hours	Spring	Hours
FOUN 3000 Diversity of Learners and Settings[1]	**3**	**CTSE 4210 Social Science Concepts and Methods[1]**	**3**
3000-level or above History Electives[2]	**12**	**CTRD 5000 Language and Literacy in the Content Areas[5]**	**3**
RSED 3000 Diversity and Exceptionality of Learners (3000-level or above History Electives)[1]	**3**	**FOUN 3500 Development, Learning and Motivation [1]**	**3**

			3000-level or above US History Electives[2]	**9**
		18		**18**

Senior

Fall	**Hours**		**Spring**	**Hours**
CTSE 4050 Curriculum and Teaching I: Social Science[1,3]		**4**	**CTSE 4920 Clinical Residency[5]**	**11**
HIST 5060 Making Modern America: 1877-1929, 5070 Modern United States History: 1929 to the Present, 5050 The South Since 1877, *or* 5090 American Legal History		**3**	**CTSE 5250 Seminar in Social Science Education[3,4]**	**1**
CTSE 4060 Curriculum and Teaching II: Social Science[1,3]		**4**	UNIV 4AA0 Achieve the Creed	0
CTSE 4910 Practicum[3]		**2**		
Advisor-approved elective		3		
		16		**12**

Total Hours: 128

1 Prerequisite for Admission to Clinical Residency.
2 24 hours of History classes (HIST) at the 3000 level or above are required for degree completion. Of those, 12 hours must be U.S. History and 9 hours must be at the 5000- level.
3 Prerequisite: Admission to Teacher Education.
4 Co-requisite with Clinical Residency.
5 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).

Social Science Electives, Sociology Elective: See advisor for approved course listing.

German Education (CGRB)

In addition to meeting all Auburn University GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	**Hours**		**Spring**	**Hours**
ENGL 1100 English Composition I		3	Core History II	3
Core History I		3	**FLGR 2020 Intermediate German II[1]**	**4**
Core Science I		4	Core Science II	4
FLGR 2010 Intermediate German I[1]		**4**	ENGL 1120 English Composition II	3
Core Math		3	**EDUC 1010 Orientation to Teacher Education[4]**	**0**
			Humanities Core	3
		17		**17**

Sophomore

Fall	**Hours**		**Spring**	**Hours**
Core Social Science		3	Core Social Science	3
FLGR 3010 German Fluency I: Mastering Conversational and Written German		**3**	COMM 1000 Public Speaking	3

FLGR 3110 German Culture through the Ages *or* 3120 Contemporary Issues in German Culture and Society	**3**	**FLGR 3020 German Fluency II: Mastering Conversational and Written German**	**3**
Free Elective[#]	2	Core Fine Arts	3
Core Literature	3	Free Elective	3
	14		**15**

Junior

Fall	Hours	Spring	Hours
FOUN 3000 Diversity of Learners and Settings[4]	**3**	**CTSE 4080 Curriculum and Teaching II: Foreign Language[2,4]**	**4**
CTSE 4070 Curriculum and Teaching I: Foreign Language[2,4]	**4**	**FLGR Electives (3000 or above) [6]**	**6**
FLGR Elective (3000 or above) [6]	**3**	**CTRD 5000 Language and Literacy in the Content Areas[4]**	**3**
Select one of the following:	3		
FLGR 3100 Text and Context: Introduction to German Literature			
FLGR 4110 German Literature in Context I			
FLGR 4120 German Literature in Context II			
RSED 3000 Diversity and Exceptionality of Learners[4]	**3**		
	16		**13**

Senior

Fall	Hours	Spring	Hours
EDMD 3300 Utilization of Instructional Technology for Educators[4]	**2**	UNIV 4AA0 Achieve the Creed	0
FOUN 3500 Development, Learning and Motivation [2,4]	**3**	**CTSE 5220 Class Management and Discipline in Foreign Language Classroom[2,5]**	**1**
FLGR Electives (3000 or above) [6]	**9**	**CTSE 4920 Clinical Residency[3]**	**11**
Free Elective [#]	2		
	16		**12**

Total Hours: 120

1 FLGR 1010 and FLGR 1020 may also be required based on placement test score.
2 Prerequisite: Admission to Teacher Education.
3 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
4 Prerequisite for Admission to Clinical Residency.
5 Co-requisite with Clinical Residency.
6 FLGR Elective: See advisor for approved course listing.
FLGR 2000 level courses are 3 hours at junior colleges. If these courses are transferred, 6 hours of free elective are required to meet 120 hour minimum.

Mathematics Education (CMAB)

In addition to meeting all Auburn University GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History I	3	Core History II	3
Core Fine Arts	3	Core Social Science	3
Core Social Science	3	EDUC 1010 Orientation to Teacher Education[1,2]	0
MATH 1610 Calculus I ***or*** 1617 Honors Calculus I	4	**MATH 1620 Calculus II**	**4**
		COMP 1220 Introduction to Computing with Python (or advisor-approved elective)	2
	16		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	COMM 1000 Public Speaking	3
MATH 2630 Calculus III	**4**	**MATH 2650 Linear Differential Equations**	**3**
Core Science I	4	**MATH 2660 Topics in Linear Algebra**	**3**
Humanities Core	3	**CTSE 5850 Functions and Mathematical Modeling for Secondary Mathematics Teachers**	**3**
STAT 3010 Statistics for Engineers and Scientists	3	Core Science II	4
	17		**16**

Junior

Fall	Hours	Spring	Hours
CTSE 5040 Technology and Applications in Secondary Mathematics Education[1]	**3**	**CTMD 5010 Teaching Mathematics: Middle School[1,2]**	**3**
CTSE 5041 Practicum in Secondary Mathematics Technology[1]	**1**	**CTMD 5011 Practicum in Middle School Mathematics[1,2]**	**1**
CTSE 5830 Statistics and Probability for Secondary Mathematics Teachers	**3**	**FOUN 3000 Diversity of Learners and Settings**	**3**
MATH 3100 Introduction to Advanced Mathematics	**3**	**MATH 3010 History of Mathematics[2]**	**3**
RSED 3000 Diversity and Exceptionality of Learners[1]	**3**	**CTSE 5840 Number Systems and Algebra for Secondary Mathematics Teachers**	**3**
Elective	3		
	16		**13**

Senior

Fall	Hours	Spring	Hours
CTSE 5030 Teaching Mathematics: High School[1]	**3**	UNIV 4AA0 Achieve the Creed	0
CTSE 5031 Practicum in High School Mathematics	**1**	**CTSE 4920 Clinical Residency[3]**	**11**
CTSE 5860 Geometry for Secondary Mathematics Teachers	**3**	**CTSE 5230 Managing Middle and High School Classroom (Math Education)[2,4]**	**1**
CTRD 5000 Language and Literacy in the Content Areas[1,2]	**3**		
FOUN 3500 Development, Learning and Motivation [2]	**3**		

Elective	2	
	15	**12**

Total Hours: 120

1 Prerequisite for Admission to Teacher Education.
2 Prerequisite for admission to Clinical Residency.
3 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
4 Co-requisite with Clinical Residency.
5 Select one of the following: MATH 5120/MATH 5140/MATH 5150/MATH 5180/ MATH 5300/MATH 5730/MATH 5750/MATH 5770

Music Education: Instrumental and Vocal (CMCB)

In addition to all AU Required GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
Core History	3	Core History or Core Social Science	3
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Mathematics	3	Core Fine Arts	3
MUAP 1110 Performance I *or* 1520 Performance I[8]	**1**	**MUSI 1000 Performance Attendance[8]**	**0**
MUSE Ensemble[4, 8,9]	**1**	**MUAP 1210 Performance II *or* 1620 Performance II[8]**	**1**
MUSI 1020 Piano Skills I - Rudiments[8]	**1**	**MUSE Ensemble[5, 8,9]**	**1**
MUSI 1330 Music Theory and Skills I[8]	**3**	**MUSI 1030 Piano Skills II[8]**	**1**
EDUC 1010 Orientation to Teacher Education[3]	**0**	**MUSI 1430 Music Theory and Skills II[8]**	**3**
CTMU 1010 Introduction to Music Education[3]	**0**	**MUSI 3090 String Instrument Skills[8]**	**1**
		CTMU 1020 Music Education Lab I[3]	**1**
	15		**17**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core Social Science	3
Core Science	4	**MUSI 1000 Performance Attendance[8]**	**0**
MUSI 1000 Performance Attendance[8]	**0**	**MUAP 2210 Performance IV *or* 2620 Performance IV[8]**	**1**
MUAP 2110 Performance III *or* 2520 Performance III[8]	**1**	**MUSE Ensemble[5, 8,9]**	**1**
MUSE Ensemble[5,9]	**1**	**MUSI 2050 Functional Piano II[8]**	**1**
MUSI 2040 Functional Piano I[8]	**1**	**MUSI 2430 Music Theory and Skills IV[8]**	**3**
MUSI 2330 Music Theory and Skills III[8]	**3**	**MUSI 3080 Percussion Instrument Skills[8]**	**1**
MUSI 3040 Brass Instrument Skills[8]	**1**	**CTMU 5110 Children's Music Learning *or* 5120 School and Community General Music Education[3,7]**	**4**
CTMU 2010 Music Education Lab II[3]	**1**	**FOUN 3000 Diversity of Learners and Settings**	**3**

RSED 3000 Diversity and Exceptionality of Learners	**3**
	18

Junior

Fall	Hours	Spring	Hours
Core Humanities	3	Core Social Science	3
MUSI 1000 Performance Attendance[8]	**0**	Core Literature or Core Humanities	3
MUSE Ensemble (3000-4000 level)[5, 8,9]	**1**	**MUSI 1000 Performance Attendance**[8]	**0**
MUAP 3120 Performance V *or* 3520 Performance V (applied)[8]	**1**	**MUAP 3220 Performance VI *or* 3620 Performance VI (applied)**[8]	**1**
MUSI 3060 Woodwind Instrument Skills[8]	**1**	MUSE Ensemble (3000-4000 level)[5,8,9]	1
MUSI 3510 Music History I[8]	**3**	**MUSI 3520 Music History II**[8]	**3**
CTMU 5130 School and Community Instrumental Music Education *or* 5140 School and Community Vocal Music Education[1,3,6,7]	**4**	**CTMU 5120 School and Community General Music Education *or* 5110 Children's Music Learning**[3,7]	**4**
MUSI 36__ Conducting Class I in Area of Specialization[8]	2	MUSI 36__ Conducting Class II in Area of Specialization[8]	2
	15		**17**

Senior

Fall	Hours	Spring	Hours
Core Science	4	**CTMU 4920 Clinical Residency**[2,6]	**12**
MUSI 1000 Performance Attendance[8]	**0**	UNIV 4AA0 Achieve the Creed	0
MUAP 4120 Performance VII or MUAP 4520 Performance VII[8]	**1**		
MUSI 4000 Music Education Senior Recital Project[8]	**1**		
MUSI/MUAP/MUSE Elective (3000-4000 level)	**1**		
CTMU 5140 School and Community Vocal Music Education *or* 5130 School and Community Instrumental Music Education[1,3,6,7]	**4**		
FOUN 3500 Development, Learning and Motivation	**3**		
CTRD 5000 Language and Literacy in the Content Areas[3]	**3**		
	17		**12**

Total Hours: 128

1 Prerequisite: Admission to Teacher Education.
2 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
3 Prerequisite for Admission to Clinical Residency.
4 Small ensembles include MUSE x130/ X160/X170/X200-X600.
5 Instrumental principals must take one vocal ensemble.
6 Piano proficiency required.
7 Students must complete all of the following: CTMU 5110, CTMU 5120, CTMU 5130, and CTMU 5140. Course rotation varies according to semester of admission to Teacher Education.
8 Music education majors must earn a grade of C or higher in music courses to have them count toward the degree.

[9] Campus band cannot be used to fulfill ensemble requirements.

Office Systems Management Minor

Code	Title	Hours
Select 15 hours from the following:		
CTCT 2200	Computer Literacy in Business Education	3
CTCT 3000	Leadership Skills for Personal and Organizational Development	3
CTCT 4970	Special Topics in Area of Specialization	1-3
CTCT 5200	Records Management Systems	3
CTCT 5240	Multimedia Design	3
CTCT 5250	Information Design & Analysis	3
CTCT 5260	Applied Computer Technology	3
CTCT 5940	Work Experience in Information Technology	3

Physics Education (CPHB)

In addition to all AU Required GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	Core History II	3
Core History I	3	Humanities Core	3
Core Fine Arts	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I ***or*** 1617 Honors Calculus I	4	**EDUC 1010 Orientation to Teacher Education**[3]	**0**
Core Social Science	3	MATH 1620 Calculus II ***or*** 1627 Honors Calculus II	4
		PHYS 1607 Honors Physics I *or* 1600 Engineering Physics I	**4**
	16		**17**

Sophomore

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
Core Literature	3	MATH 2650 Linear Differential Equations	3
MATH 2630 Calculus III ***or*** 2637 Honors Calculus III	4	BIOL 1020 Principles of Biology	3
PHYS 1617 Honors Physics II *or* 1610 Engineering Physics II	**4**	BIOL 1021 Principles of Biology Laboratory	1
		PHYS 2300 Physics Laboratory Skills	**3**
		PHYS 2200 Introductory Quantum Physics and Relativity	**3**
	15		**17**

Junior

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking	3	Core Social Science	3
RSED 3000 Diversity and Exceptionality of Learners[3]	**3**	**Physics Elective (3000-5000 level)**	**3**

PHYS 3100 Intermediate Electricity and Magnetism	**3**	**CTSE 5090 Curriculum and Teaching I: Science[1,3]**	**4**
FOUN 3000 Diversity of Learners and Settings[3]	**3**	**CTRD 5000 Language and Literacy in the Content Areas[3]**	**3**
PHYS 2100 Intermediate Mechanics	**3**	**PHYS 3200 Statistical Thermodynamics**	**3**
		PHYS 4100 Fundamentals of Quantum Mechanics	**3**
	15		**19**

Senior

Fall	Hours	Spring	Hours
PHYS 4200 Fundamental Experiments in Physics	**3**	**CTSE 5240 Clinical Residency Seminar in Science Teaching[1,4]**	**1**
FOUN 3500 Development, Learning and Motivation	**3**	**CTSE 4920 Clinical Residency[2]**	**11**
CTSE 5000 Technology in Science Education[3]	**2**	UNIV 4AA0 Achieve the Creed	0
CTSE 5100 Curriculum and Teaching II: Science[1,3]	**4**		
Physics Elective (3000-5000 level)	**6**		
	18		**12**

Total Hours: 129

1 Prerequisite: Admission to Teacher Education.
2 Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
3 Prerequisite for Admission to Clinical Residency.
4 Co-requisite with Clinical Residency.

Physics Elective: See advisor for approved course listing.

Science Teaching Double Major

AUTeach is a teacher preparation program designed for undergraduate science students in the College of Sciences and Mathematics (COSAM). The program consists of a 30-hour science teaching major that is available only as a second major added to a COSAM degree. Students who complete the science teaching requirements along with the requirements of their COSAM degree will earn a double-major in science teaching and will be certified to teach secondary science in Alabama public schools. Currently, students majoring in chemistry, physics, or the interdisciplinary health sciences concentration of biomedical sciences can complete the double-major in 4–4.5 years. Other programs might require additional time. Please visit https://auburn.edu/auteach (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fauburn.edu%2Fauteach&data=05%7C02%7Cgodwinh%40auburn.edu%7C061eb187447340a2bde008dc790d904b%7Cccb6deedbd294b388979d72780f62d3b%7C0%7C0%7C638518346387064904%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=HMK%2F2WYCso1N2Mb6OXHk257IiEM5oiW%2BrYB9fchUFDI%3D&reserved=0) for details on the program and to request additional information.

Science Teaching Major

Code	Title	Hours
CTSE 1000	Inquiry Approaches to Science Teaching: Step 1	1
CTSE 2000	Inquiry Approaches to Science Teaching: Step 2	1
RSED 3000	Diversity and Exceptionality of Learners	3
SCMH 3010	Inquiry Experiences for Science Teachers	3
CTSE 5000	Technology in Science Education	2

CTSE 5090	Curriculum and Teaching I: Science	4
CTSE 5100	Curriculum and Teaching II: Science	4
CTSE 5110	Perspectives in Science	3
CTSE 4930	AUTeach Clinical Residency	8
CTSE 5240	Clinical Residency Seminar in Science Teaching	1
Total Hours		**30**

Spanish Education (CSNB)

In addition to all AU Required GPA graduation requirements, candidates must also meet all ALSDE GPA requirements.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History I	3	Core History II	3
Core Math	3	Humanities Core	3
Core Science I	4	Core Science II	4
FLSP 2010 Intermediate Spanish I[1]	**4**	**FLSP 2020 Intermediate Spanish II**[1]	**4**
		EDUC 1010 Orientation to Teacher Education[4]	**0**
	17		**17**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core Social Science	3
Core Fine Arts	3	COMM 1000 Public Speaking	3
Core Social Science	3	Free Elective[#]	2
FLSP 3010 Spanish Phonetics	**3**	**FLSP 3070 Communicative Skills in Spanish II**	**3**
FLSP 3060 Communicative Skills in Spanish I	**3**	**FLSP Elective (3000 or above)** [6]	**3**
	15		**14**

Junior

Fall	Hours	Spring	Hours
FOUN 3000 Diversity of Learners and Settings[4]	**3**	**CTSE 4080 Curriculum and Teaching II: Foreign Language**[2,4]	**4**
RSED 3000 Diversity and Exceptionality of Learners[4]	**3**	**CTRD 5000 Language and Literacy in the Content Areas**[4]	**3**
FLSP 3100 Introduction to Hispanic Literature	**3**	**FLSP 3110 Cultures of Spain**	**3**
CTSE 4070 Curriculum and Teaching I: Foreign Language[2,4]	**4**	**FLSP 4010 Oral Proficiency in Spanish**	**3**
FLSP 3080 Intro to Cultural Analysis	**3**	**FLSP Elective (3000 or above)** [6]	**3**
	16		**16**

Senior

Fall	Hours	Spring	Hours
EDMD 3300 Utilization of Instructional Technology for Educators[4]	**2**	UNIV 4AA0 Achieve the Creed	0
FOUN 3500 Development, Learning and Motivation [2,4]	**3**	**CTSE 4920 Clinical Residency**[3]	**11**

FLSP 3210 Cultures of Spanish America	**3**	**CTSE 5220 Class Management and Discipline in Foreign Language Classroom[2,5]**	**1**
FLSP Electives (3000 or above) [6]	**3**		
Free Elective[#]	2		
	13		**12**

Total Hours: 120

1 FLSP 1010 and FLSP 1020 may also be required based on placement test score.
2 Prerequisite: Admission to Teacher Education.
3 Prerequisite: Admission to Cllinical Residency (application for Clinical Residency is one year in advance).
4 Prerequisite for Admission to Clinical Residency.
5 Co-requisite with Clinical Residency.
6 FLSP Elective: See advisor for approved course listing.
FLSP 2000 level courses are 3 hours at junior colleges. If these courses are transferred, 6 hours of free electives are required to meet 120 hour minimum.

Special Education for Health and Related Service Professionals Minor

The special education for health and related service professionals minor will provide students interested in careers associated with children in schools or childcare settings with a foundational understanding of educational supports for learning and social development (e.g., doctors, nurses, dentists, speech/language pathologists, audiologists, physical & occupational therapists, counselors, service providers, child development professionals, general education teachers, early intervention professionals, etc.). Completion of this minor in no way leads to teacher certification or fulfills other requirements. The minor is not an option for students enrolled in collaborative special education, early childhood special education or any other special education certification requirements.

15 semester hours in minor

Code	Title	Hours
COUN 2000	Living and Communicating in a Diverse Society (any semester)	3
RSED 2000	Disability Awareness and Mentorship (any semester)	3
RSED 3010	Introduction to Special Education (Spring)	3
RSED 4010	Behavior Management in Special Education (Fall)	3
RSED 3110	Assessment: Eligibility for Special Education (Fall)	3

Department of Educational Foundations, Leadership and Technology

The Department of Educational Foundations, Leadership and Technology prepares exemplary educational practitioners and develops cooperative partnerships with university departments, schools, community agencies, business and industry to provide outstanding educators, trainers and leaders. This department ensures that students will participate in theoretical, applied and practitioner-based research enhancing the fields of adult education, higher education, educational leadership, educational media and educational psychology.

The department offers one undergraduate minor in training and workforce development as well as a graduate minor in critical studies in education and a graduate minor in the psychology of learning. All other programs are at the graduate level; however, the department provides service courses for undergraduate teacher education majors in the areas of educational foundations and educational media.

Information about graduate programs is available at: Educational Foundations, Leadership and Technology — MEd, MS, EdS, PhD, Graduate Certificate, Minor.

Minors

- Training and Workforce Development (p. 521)

Adult Education Courses

ADED 4010 LEARNING RESOURCES IN AREA OF SPECIALIZATION (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

ADED 4050 METHODS OF TEACHING IN ORGANIZATIONS (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education.

ADED 4600 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing, and life-long learning.

ADED 4610 DIRECTED WORK EXPERIENCE (3) LEC. 3. SU. In-service, supervised work experience individually designated for part-time or summer work experience.

ADED 4620 COMMUNITY CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources.

ADED 4650 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3. Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities.

ADED 4660 TEACHING IN THE NON-SCHOOL SETTING (3) LEC. 3. Planning, conducting, and supervising instruction for adults in varied non-school settings.

ADED 4900 INDEPENDENT STUDY (1-6) IND. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 4910 PRACTICUM (1-6) PRA. SU. Departmental Approval. Experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 4920 PROFESSIONAL INTERNSHIP IN ADULT EDUCATION (9) INT. 9. SU. Supervised internship experiences in a school or other appropriate setting. Evaluation and analysis of the internship experience. Or Minor.

ADED 4970 SPECIAL TOPICS (1-6) LEC. Current or special topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 7010 LEARNING RESOURCES (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. May count either ADED 7010 or ADED 7016.

ADED 7050 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 3. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education. May count either ADED 7050 or ADED 7056.

ADED 7060 CURRICULUM AND PROGRAM PLANNING IN ADULT EDUCATION (3) LEC. 3. Introduction to principles and practices involved in designing education programs in the area of specialization. May count either ADED 7060 or ADED 7066.

ADED 7600 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing and life-long learning. May count either ADED 7600 or ADED 7606.

ADED 7620 CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources. May count either ADED 7620 or ADED 7626.

ADED 7640 WORKFORCE EDUCATION (3) LEC. 3. Identification and evaluation of basic skills problems in the workplace. Strategies for addressing workplace education issues. May count either ADED 7640 or ADED 7646.

ADED 7650 TEACHING DIVERSE POPULATIONS IN ADULT EDUCATION (3) LEC. 3. This course is designed to define, analyze, and understand diverse populations of adult learners with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in workforce education, community agencies, higher education, or other educational roles.

ADED 7670 ADULT EDUCATION IN COOPERATIVE EXTENSION (3) LEC. 3. Exploration of the unique relationship between adult education and the Cooperative Extension System. May count either ADED 7670 or ADED 7676.

ADED 7680 EXPERIENTIAL LEARNING IN ADULT EDUCATION (3) LEC. 3. This course is designed to introduce the key theories of teaching and learning related to experiential learning in adult education and training.

ADED 7690 MEETING DIVERSE NEEDS IN ADULT EDUCATION SETTINGS (3) LEC. 3. This course provides an innovative look at disability services in post-secondary institutions. Learners will study the history of disability services, legislation, campus accessibility, assessment of the accessibility of adult education settings and other topics of interest.

ADED 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 3 credit hours.

ADED 7910 PRACTICUM (1-3) DSL/PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 3 credit hours.

ADED 7920 INTERNSHIP (1-10) DSL/INT. SU. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. May count either ADED 7920 or ADED 7926. Course may be repeated for a maximum of 10 credit hours.

ADED 7950 SEMINAR (1-3) DSL/SEM. SU. Presentation of research projects, analysis of procedures, and findings. Course may be repeated for a maximum of 3 credit hours.

ADED 7960 READINGS (1-3) DSL/IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

ADED 7970 SPECIAL TOPICS (1-6) LEC. 1-6. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

ADED 7990 RESEARCH AND THESIS (1-10) DSL/MST. Departmental approval. Individualized support and direction for students writing their thesis. Course may be repeated with change in topics.

ADED 8900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 8910 PRACTICUM (1-6) DSL/PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college, or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

ADED 8950 SEMINAR (1-6) DSL/SEM. SU. Presentation by graduate students of research projects and/or analysis of procedures and findings. Course may be repeated for a maximum of 6 credit hours.

ADED 8960 SPECIAL PROBLEMS (1-6) IND. Departmental approval. Critical analysis of current and classical research writings. Course may be repeated for a maximum of 6 credit hours.

ADED 8970 SPECIAL TOPICS (1-6) DSL. Departmental approval. Current or advanced topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 8980 FIELD PROJECT (1-10) DSL/FLD. SU. Field project formulated, planned, conducted, evaluated, and reported in appropriate written form and oral formats under the direction of the student's major professor. Course may be repeated for a maximum of 10 credit hours.

ADED 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Departmental approval. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours

Ed Resrch, Methods, Analysis Courses

ERMA 2400 APPLIED QUANTITATIVE DATA ANALYSIS IN EDUCATION AND HEALTH PROFESSIONS (3) LEC. 3. This course provides undergraduate students who are interested in education, counseling, school psychology, or health professions with data management, data analysis reasoning, and data-based decision-making skills.

ERMA 4330 INTRODUCTION TO SPORTS ANALYTICS (3) LEC. 3. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683. This course provides an introduction to the field of sports analytics, which is the use of scientific techniques to model sports performance. This course will introduce students to individual and team performance measures, their interpretation and basic analyses using those measures.

ERMA 7100 ADVANCED STUDY OF EDUCATIONAL MEASUREMENT AND EVALUATION (3) LEC. 3. Educational measurement and evaluation with special emphasis on uses of measurement data such as standardized testing and emerging evaluation models such as alternative and authentic assessment.

ERMA 7110 EDUCATIONAL PSYCHOLOGY AND ASSESSMENT (3) LEC. 3. Study of educational psychology as it applies to understanding the teaching-learning process. Measurement and evaluation skills will also be covered.

ERMA 7200 BASIC METHODS IN EDUCATION RESEARCH (3) LEC. 3. Major modes of inquiry in contemporary educational research including experimental, casual comparative, descriptive, qualitative inquiry, and action research models.

ERMA 7210 THEORY AND METHODOLOGY OF QUALITATIVE RESEARCH (3) LEC. 3. Major modes of qualitative research, their underlying philosophical assumptions about knowledge, and the major strategies for collecting and analyzing relevant data.

ERMA 7220 APPLIED QUALITATIVE RESEARCH (3) LEC. 3. Pr. ERMA 7210 or ERMA 7216 or FOUN 7210. Study of detailed strategies of data collection, principles of observation, interviewing, focus groups, recording and coding data, triangulation, strategies for analyzing coded data, and writing up of one's findings.

ERMA 7230 WRITING AS INQUIRY IN QUALITATIVE RESEARCH (3) LEC. 3. Pr. ERMA 7210 or ERMA 7216. This course is based on the assumption that qualitative researchers learn their trade through both scholarship (i.e., deskwork) and firsthand experience (i.e., fieldwork). We take away lessons from doing our own research and from the research experiences of others. For this reason, the course has three aims: to hone your skills reading methodological and empirical literature; to experiment with analysis via writing, including crafting reports of findings and other pieces of writing; and to reflect meaningfully on these processes, including their theoretical, methodological, and ethical dimensions.

ERMA 7240 THINKING WITH THEORY IN QUALITATIVE RESEARCH (3) LEC. 3. Pr. ERMA 7210 or ERMA 7216. This course is designed to give an overview and introduction to a variety of theorists and theoretical approaches that are often used in qualitative inquiry. We will compare and contrast the assumptions, design, and methods of different philosophies and theories in qualitative research.

ERMA 7300 DESIGN AND ANALYSIS IN EDUCATION I (3) LEC. 3. Departmental approval. Basic methods of inferential analysis including t-tests, between and within subjects ANOVA, mixed ANOVAs and hierarchical designs as they are utilized in educational research.

ERMA 7310 DESIGN AND ANALYSIS IN EDUCATION II (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300) or (FOUN 7306 or ERMA 7306). Bivariate and multiple correlation and regression analysis, trend analysis, analysis of covariance, and logistic regression, as they are utilized in educational research. Departmental approval. May count either ERMA 7310 or ERMA 7316.

ERMA 7320 APPLIED QUANTITATIVE RESEARCH (3) LEC. 3. Pr. (ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206) and (ERMA 7300 or ERMA 7306 or FOUN 7300 or FOUN 7306). The study and application of detailed strategies of research study designs, data collection, analysis, and reporting of quantitative data. Course may be repeated for a maximum of 6 credit hours.

ERMA 7400 MIXED METHODS RESEARCH (3) LEC. 3. Pr. ERMA 7200 or ERMA 7206 or ERMA 7210 or ERMA 7216 or ERMA 7300 or ERMA 7306. Overview and introduction to the use of mixed methods research in the social and behavioral sciences.

ERMA 7410 RESEARCH METHODS FOR SOCIAL JUSTICE AND EQUITY (3) LEC. 3. Pr. ERMA 7300 or ERMA 7306 or ERMA 7210 or ERMA 7216 or ERMA 7400. This course focuses on critical educational research in the scholar-activist model. Through engaging with critical theoretical frameworks, critical empirical research, and research methods, this course prepares students to produce research and scholarship for social justice and equity in education.

ERMA 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

ERMA 7910 PRACTICUM IN EDUCATIONAL RESEARCH, MEASUREMENT, AND EVALUATION (1-3) LEC. 1-3. SU. Pr. (ERMA 7210 or ERMA 7216) and (ERMA 7300 or ERMA 7306). Supervised experience related to area of specialization within educational research, measurement, and evaluation. Course may be repeated for a maximum of 6 credit hours.

ERMA 7970 SPECIAL TOPICS IN EDUCATION RESEARCH METHODS & ASSESSMENT (1-6) DSL/LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be with a change in topic. Course may be repeated with change in topics.

ERMA 8100 PROGRAM EVALUATION (3) LEC. 3. Study of various theories and models of curriculum evaluation, methodological issues regarding planning and conducting evaluation studies, reporting and using information from evaluation.

ERMA 8120 TEACHER EVALUATION (3) LEC. 3. Analysis of research on teaching, classroom observation methods, teaching portfolios, supervision of teachers, license and certification assessment, ethical and legal consideration, and using information to improve teaching.

ERMA 8200 SURVEY RESEARCH METHODS (3) LEC. 3. Overview of survey research, sampling issues, selection and construction of survey instruments, response effects, issues influencing response rate, reliability and validity of survey data, and analysis of survey data.

ERMA 8210 PREP RESEARCH FOR PUBLICATION (3) LEC. 3. SU. Pr. (ERMA 7300 or ERMA 7306) and (ERMA 7310 or ERMA 7316) and (ERMA 7210 or FOUN 7210 or FOUN 7300 or FOUN 7306 or FOUN 7310 or FOUN 7316). Preparation of graduate student research for publication or presentation at professional conference through practice, group discussions, peer review and feedback from experienced editorial board members. May count either ERMA 8210 or ERMA 8216.

ERMA 8320 DESIGN AND ANALYSIS IN EDUCATION III (3) LEC. 3. Pr. (FOUN 7310 or ERMA 7310) or (ERMA 7316 or FOUN 7316). Departmental approval. Discriminate analysis, MANOVA, canonical correlation, path analysis, exploratory and confirmatory factor analysis, and hierarchical linear modeling as they are utilized in educational research.

ERMA 8330 NON-PARAMETRIC DATA ANALYSIS IN EDUCATION RESEARCH (3) LEC. 3. Pr. FOUN 7300 or FOUN 7306 or ERMA 7300 or ERMA 7306. Departmental approval. Common non-parametric statistical tests appropriate for use with nominal and ordinal data in educational applications. These include rank-order correlation, sign tests, median tests, analysis of variance of ranks and log-linear analysis.

ERMA 8340 A PRACTICAL INTRODUCTION TO STRUCTURAL EQUATION MODELING (3) LEC. 3. Pr. (FOUN 8320 or ERMA 8320 or ERMA 8326). Departmental approval. Theory and practice of structural equation modeling techniques as they are utilized in educational research will be developed by expanding concepts of multiple linear regression and exploratory factor analysis to allow for correlation and causally related latent constructs.

ERMA 8350 ADVANCED MEASUREMENT THEORY (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300 or ERMA 7306 or FOUN 7306) and (FOUN 7310 or ERMA 7310 or FOUN 7316 or ERMA 7316). Introduction to classical and modern (IRT) test theory, measurement properties, differential item functioning, standard and adaptive testing.

ERMA 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with change in topics.

Educational Leadership Courses

EDLD 7200 SUPERVISION AND PERSONNEL MANAGEMENT (3) LEC. 3. Supervision theory and practice with responsibility for leadership in the recruitment, evaluation and staff development of employees. May count either EDLD 7200 or EDLD 7206.

EDLD 7210 MULTIPROFESSIONAL LEADERSHIP FOR EQUITY (3) LEC. 3. National, state, and local evidence will inform students' understanding of diversity issues in schools. Theories, concepts and principles of leadership from a multidisciplinary, multiprofessional perspective, will be applied to addressing issues of equity in schools. May count either EDLD 7210 or EDLD 7216.

EDLD 7220 ORGANIZATIONAL AND SCHOOL MANAGEMENT (3) LEC. 3. This course will prepare students in understanding legal and ethical responsibilities of school leaders, fiscal revenues and expenditures of Alabama public schools, using action research and components of a comprehensive, ongoing, planning and budgeting program. May count either EDLD 7220 or EDLD 7226.

EDLD 7330 INTRODUCTION TO CURRICULUM AND INSTRUCTIONAL LEADERSHIP (3) LEC. 3. Principles of curriculum development and the leadership skills required to enact it with emphasis on school settings.

EDLD 7340 OVERVIEW OF CURRICULUM PROCESSES (3) LEC. 3. Curriculum as a field of study; the first course required for the ASC concentration in curriculum; an overview of curriculum history, processes, models, and designs.

EDLD 7500 PRINCIPAL LEADERSHIP (3) LEC. 3. Designed to serve instructional leaders in K-12 settings concerning leadership dispositions and leadership theory important to promoting student success and achievement. May count either EDLD 7500 or EDLD 7506.

EDLD 7510 ACTION RESEARCH AND DATA ANALYSIS (3) LEC. 3. Research methodologies to improve instructional and school-based decision-making action, qualitative, and case study techniques applied to school, classroom, or school-community observation. May count either EDLD 7510 or EDLD 7516.

EDLD 7520 LEADERSHIP AND THE LEARNING ORGANIZATION (3) LEC. 3. Management of schools as learning organizations; issues related to student learning and achievement through attention to organizational components. May count either EDLD 7520 or EDLD 7526.

EDLD 7530 PLANNING AND CONTINUOUS IMPROVEMENT (3) LEC. 3. Development of frameworks for collection, analysis, and use of school data for the improvement of instruction, the learning environment, and student achievement. May count either EDLD 7530 or EDLD 7536.

EDLD 7540 INSTRUCTIONAL AND CURRICULAR LEADERSHIP (3) LEC. 3. Curriculum design and development; areas of study include student needs, organizational mission and goals, data driven improvement, change process, diverse faculty, curriculum alignment tools. May count either EDLD 7540 or EDLD 7546.

EDLD 7550 EDUCATIONAL FINANCE AND RESOURCE MANAGEMENT (3) LEC. 3. Preparation of pro-active leaders in school business affairs; use of action research and components of a comprehensive, ongoing, planning and budgeting program; facilities management. May count either EDLD 7550 or EDLD 7556.

EDLD 7560 EDUCATIONAL SYSTEMS AND COMMUNITIES (3) LEC. 3. Change theory, forecasting, trend analysis and application of these concepts to student achievement and school improvement efforts.

EDLD 7570 LEGAL AND ETHICAL ISSUES (3) LEC. 3. Ethical and legal provisions for education communities: emphasis on the support of and belief in the cultural value of a diverse and educated democratic society. May count either EDLD 7570 or EDLD 7576.

EDLD 7580 SUPERVISION AND PERSONNEL ISSUES IN EDUCATION (3) LEC. 3. Policies and practices related to teacher recruitment, selection, evaluation, and professional development; faculty/staff developmental processes that impact student achievement and school improvement efforts. May count either EDLD 7580 or EDLD 7586.

EDLD 7900 DIRECTED STUDIES (1-9) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

EDLD 7910 PRACTICUM (1-6) PRA. Experience closely relating theory and practice, usually conducted in realistic settings. May count either EDLD 7910 or EDLD 7916. Course may be repeated for a maximum of 6 credit hours.

EDLD 7920 ADMINISTRATIVE INTERNSHIP (1-6) AAB/INT. Departmental approval. Opportunities for interns to internalize and employ administrative skills learned during graduate coursework. Course may be repeated for a maximum of 6 credit hours.

EDLD 7930 ADMINISTRATIVE INTERNSHIP/RESIDENCY (1-3) INT. Ongoing field-based experiences in educational administration; observation, participation, and leading with practicing administrators in school systems. Course may be repeated for a maximum of 3 credit hours.

EDLD 7970 SPECIAL TOPICS (1-9) LEC. Variable content for advanced studies in the area of educational leadership. Course may be repeated for a maximum of 9 credit hours.

EDLD 8200 ASSESSMENT AND EVALUATION IN LEARNING ORGANIZATIONS (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making purposes. May count either EDLD 8200 or EDLD 8206.

EDLD 8210 EDUCATIONAL LEADERSHIP: THEORY AND PRACTICE (3) LEC. 3. Educational leadership theory and applications for K-12 settings. May count either EDLD 8210 or EDLD 8216.

EDLD 8220 PERSONAL AND PROFESSIONAL DEVELOPMENT (3) LEC. 3. Includes theoretical frameworks and applications for successful and systematic mentoring of professionals in organizations. May count either EDLD 8220 or EDLD 8226.

EDLD 8230 SYSTEMIC PLANNING AND BUDGETING (3) LEC. 3. Covers the components and implementation of a comprehensive ongoing planning and budgeting program for learning organizations.

EDLD 8240 TRENDS AND ISSUES IN EDUCATIONAL ADMINISTRATION (3) LEC. 3. Trends and issues affecting educational institutions with particular attention to development of administrative procedures to cope with educational changes. May count either EDLD 8240 or EDLD 8246.

EDLD 8250 ORGANIZATIONAL POWER, POLITICS AND POLICY FORMATION (3) LEC. 3. Analysis of social forces, antecedent movements, and political actions affecting organizations. The study of policy development and practice. May count either EDLD 8250 or EDLD 8256.

EDLD 8260 THEORY AND DEVELOPMENT OF ORGANIZATIONS (3) LEC. 3. Theoretical frameworks of educational organizations. May count either EDLD 8260 or EDLD 8266.

EDLD 8270 LEADERSHIP IN FINANCE AND MANAGEMENT (3) LEC. 3. Theory and practice of instructional leadership related to personnel and fiscal management of a school or school district. May count either EDLD 8270 or EDLD 8276.

EDLD 8280 THE SUPERINTENDENCY IN EDUCATION (3) LEC. 3. Theoretical frameworks of educational organizations.

EDLD 8300 CURRICULUM THEORY AND PRACTICE (3) LEC. 3. Advanced course dealing with application of curriculum theories with an emphasis on the impact of philosophical and theoretical beliefs on practice.

EDLD 8310 LEADERSHIP IN THE DEVELOPMENT AND APPLICATION OF CURRICULUM AND THEORY DESIGN (3) LEC. 3. Application of transformative leadership in the design, delivery, and evaluation of curriculum in a wide variety of organizational settings. May count either EDLD 8310 or EDLD 8316.

EDLD 8320 CURRICULUM LEADERSHIP FOR ORGANIZATIONS (3) LEC. 3. Pr. EDLD 7340 and EDLD 8300 and EDLD 8310 or EDLD 8316. Departmental approval. For those considering a career in upper level management. Focuses on context, societal, and political influences related to curriculum processes and organizational change. May count either EDLD 8320 or EDLD 8326.

EDLD 8340 TRANSFORMATIONAL PROCESSES AND ORGANIZATIONAL CHANGE (3) LEC. 3. Organizational and transformational change at personal, interpersonal, and institutional levels. May count either EDLD 8340 or EDLD 8346.

EDLD 8400 ETHICS FOR LEADERS (3) LEC. 3. Theory and practice of ethics and the role of ethical and personal integrity for leaders in the context of educational organizations and the communities they serve. May count either EDLD 8400 or EDLD 8406.

EDLD 8480 INSTITUTIONAL RESEARCH AND DECISION SUPPORT (3) LEC. 3. Components of institutional research and assessment programs that can support the comprehensive planning, decision support, and management needs of the institution.

EDLD 8600 MENTORING FOR CAREER DEVELOPMENT (3) LEC. 3. Assist graduate students in discovering how mentioning can enhance their career/professional development and benefit their organizations. May count either EDLD 8600 or EDLD 8606.

EDLD 8940 DIRECTED FIELD EXPERIENCE IN EDUCATIONAL LEADERSHIP (1-6) FLD. Field-based experience in diverse settings to develop knowledge, skills, and abilities in an area of special interest. Course may be repeated for a maximum of 6 credit hours.

EDLD 8950 SEMINAR (3) DSL/SEM. 3. Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking. May count either EDLD 8950 or EDLD 8956. Course may be repeated for a maximum of 6 credit hours.

EDLD 8980 PROJECT ANALYSIS (3) LEC. 3. Problem solving, reflective practice and action research and used for continuous school improvement. Provides opportunities to engage in diverse field based research projects. May count either EDLD 8980 or EDLD 8986.

EDLD 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours. Course may be repeated with change in topics.

Educational Media Courses

EDMD 2000 DIGITAL LITERACY AND COMPUTER SCIENCE IN EDUCATION (4) LEC. 3. LAB. 1. Introduction of foundational computer science concepts and practices relevant to K-6 teachers. Emphasis on the application of computational thinking skills to the development of a block-based programing as well as digital literacy skill development. Limited to majors requiring teaching certification.

EDMD 2100 CONTEMPORARY LITERATURE FOR CHILDREN, YOUTH, & ADOLESCENTS (3) LEC. 3. Reading, discussion, analysis, and reflection on contemporary literature in print and other formats for an audience of ages birth-18 yrs. Applying critical skills in the evaluation and selection of titles from a range of genres & formats, including picture books, chapter books, graphic novels, e-books, audio-books, audio-visual formats, fiction, and non-fiction in its various forms. Particular emphasis on American Library Association award-winning titles.

EDMD 3300 UTILIZATION OF INSTRUCTIONAL TECHNOLOGY FOR EDUCATORS (2) LEC. 1. LAB. 2. Basics of current and emerging instructional & communication technologies with primary emphasis on curricular integration. Location, selection, and application of technology resources (WWW, commercially authored software, etc.) for curricular needs with emphasis on developmental stages, learning styles and learning technologies. Limited to majors requiring teaching certification.

EDMD 5000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments.

EDMD 6000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments. May count either EDMD 6000 or EDMD 6006.

EDMD 6100 MEDIA FOR CHILDREN (3) LEC. 3. Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 7000 INSTRUCTIONAL DESIGN AND DEVELOPMENT (3) LEC. 3. Theory, problems, procedures, and standards in the utilization of technology in instructional design and development. May count either EDMD 7000 or EDMD 7006.

EDMD 7010 INSTRUCTIONAL AND INFORMATION TECHNOLOGIES (3) LEC. 3. Evaluation, selection, and use of traditional and current technologies for instruction, information, and administration in learning environments. May count either EDMD 7010 and EDMD 7016.

EDMD 7020 PRINCIPLES OF GRAPHIC DESIGN FOR INSTRUCTION (3) LEC. 3. Principles of graphic design and visual literacy to facilitate the presentation of information. Criteria for graphics utilization examined. May count either EDMD 7020 or EDMD 7026.

EDMD 7030 DIVERSE CHILDREN'S AND YOUNG ADULT LITERATURE: ISSUES, TRENDS, & CONTROVERSIES (3) LEC. 3. Examination of current issues, trends, and controversies in diverse children's and young adult literature. Particular focus is given to literature by and about people from population groups traditionally defined by race, class, ethnicity, religion, ability, gender and sexuality. Course participants will investigate theoretical perspectives, scholarly discussions, and methodological implications for these texts.

EDMD 7100 SELECTION AND USE OF MEDIA FOR YOUTH (3) LEC. 3. Pr. EDMD 7030 or EDMD 7036. Evaluation, selection, and use of print and non-print media for youth, including materials for multi-cultural, special and gifted education. May count either EDMD 7100 or EDMD 7106.

EDMD 7110 BIBLIOGRAPHIC DESCRIPTION, ORGANIZATION AND CONTROL (3) LEC. 3. Principles and procedures of describing, classifying and organizing resources with applications using new technologies. May count either EDMD 7110 or EDMD 7116.

EDMD 7120 INFORMATION SOURCES, SERVICES AND INSTRUCTION (3) LEC. 3. An overview of information needs, services, and print and electronic resources; ways to teach information literacy skills. May count either EDMD 7120 or EDMD 7126.

EDMD 7130 ADMINISTRATION OF MEDIA AND TECHNOLOGY SERVICES (3) LEC. 3. Functions of and planning for media and technology services. Budget, evaluation, facilities, guidelines, legal issues, personnel and policies. May count either EDMD 7130 or EDMD 7136.

EDMD 7200 APPLIED INSTRUCTIONAL DESIGN (3) LEC. 3. Pr. EDMD 7000 or EDMD 7006. Applying instructional design skills, students will plan, develop, implement and assess instructional products using appropriate technologies. May count either EDMD 7200 or EDMD 7206.

EDMD 7210 INTEGRATION OF TECHNOLOGY INTO CURRICULUM (3) LEC. 3. Learner competence in integration of technology into curriculum, including designing and writing software and plans for using computers in instruction. May count either EDMD 7210 or EDMD 7216.

EDMD 7230 THEORY AND PRACTICE OF DISTANCE EDUCATION (3) LEC. 3. Theories, concepts, and tools that support distance education, with emphasis on application in design, development, and implementation of distance education instruction. May count either EDMD 7230 or EDMD 7236.

EDMD 7300 RESEARCH IN INSTRUCTIONAL TECHNOLOGY (3) LEC. 3. Pr. ERMA 7200 or FOUN 7200 or ERMA 7206 or FOUN 7206. A forum for sharing research perspectives, exploring processes involved in defining research problems and analyzing research theories, problems, and methods in instructional technology. May count either EDMD 7300 or EDMD 7306.

EDMD 7310 EVALUATION OF MEDIA AND TECHNOLOGY PROGRAMS (3) LEC. 3. Factors contributing to effective media and technology programs. Understanding of research process and experience with media and technology services assumed. May count either EDMD 7310 or EDMD 7316.

EDMD 7320 ADVANCED INFORMATION SOURCES AND SERVICES (3) LEC. 3. Electronic databases, advanced searching techniques, information representation, and the role of the media specialist in networking and creating electronic information sources. May count either EDMD 7320 or EDMD 7326.

EDMD 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor of student's work accomplished at regular intervals.

EDMD 7910 PRACTICUM (1-6) PRA. SU. Experiences closely relating theory and practice, usually conducted in realistic settings. Course may be repeated for a maximum of 6 credit hours.

EDMD 7920 CLINICAL RESIDENCY (1-6) DSL/INT. SU. Pr. (P/C EDMD 7120 or P/C EDMD 7126) and (P/C EDMD 7130 or P/C EDMD 7136). Supervised experience in a school media center or other appropriate setting. These experiences, accompanied by regularly scheduled meetings with the university supervisor, provide evaluation and analysis of the intern experience. May count either EDMD 7920 or EDMD 7926. Course may be repeated for a maximum of 6 credit hours.

EDMD 7930 TEACHING APPRENTICESHIP (3) SEM. 3. Departmental approval. A structured opportunity for students to apply educational media concepts and theories in the college classroom. Course may be repeated for a maximum of 6 credit hours.

EDMD 7940 DIRECTED FIELD EXPERIENCE (3-6) FLD. SU. Pr. FOUN 7200 or ERMA 7200 or ERMA 7206 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques. Course may be repeated for a maximum of 6 credit hours.

EDMD 7970 SPECIAL TOPICS IN INSTRUCTIONAL TECHNOLOGY (3-9) LEC. 3. Opportunity for study of current topics related to the field of instructional technology. Course may be repeated for a maximum of 9 credit hours.

EDMD 7980 FIELD PROJECT (3-6) INT. SU. Pr. ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques.

Educational Psychology Courses

EPSY 4100 LEARNING & WELLNESS IN LATER LIFE (3) LEC. 3. Relevant settings, processes, and purposes of learning for older adults. Learner characteristics will also be examined including motivations and needs. Examples of curricula and programs will be explored in-depth such as learning for family harmony, life transitions and adjustment, community involvement, recreation, reciprocity, wellness, and health.

EPSY 7100 LEARNING & WELLNESS IN LATER LIFE (3) LEC. 3. Relevant settings, processes, and purposes of learning for older adults. Learner characteristics will also be examined including motivations and needs. Examples of curricula and programs will be explored in-depth such as learning for family harmony, life transitions and adjustment, community involvement, recreation, reciprocity, wellness, and health.

EPSY 7400 ED PSYCH & EDUCATIONAL IMPLICA (3) LEC. 3. Educational psychology theory and research addressing critical problems, challenges, and opportunities in education or other growth-oriented settings. Content ranges from the study of learning to educational evaluation and authentic assessment.

EPSY 7410 THE INDIVIDUAL IN THE TEACHING-LEARNING PROCESS (3) LEC. 3. The study of human growth, development, and motivation theory and research, including culture, socio-economic status, language, gender and race as a base for understanding individual differences and their sources.

EPSY 7420 LEARNING THEORY AND EDUCATIONAL PRACTICE (3) LEC. 3. Advanced study of learning theory and research with an emphasis on application to effective design, implementation, and evaluation of instruction.

EPSY 7430 MOTIVATION AND ACHIEVEMENT (3) LEC. 3. Social, cultural, and psychological antecedents of achievement motivation are examined. This process requires reviewing theories and research, and emphasis is placed on discerning implications for practice and policy.

EPSY 7440 CLASSROOM MANAGEMENT: SKILLS AND REFLECTION (3) LEC. 3. Advanced study and analysis of existing classroom management discipline models including observation research activity.

EPSY 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

EPSY 7970 SPECIAL TOPICS IN FOUNDATION OF EDUCATION (3-6) LEC. 3-6. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

EPSY 8410 LEARNING IN THE SOCIAL CONTEXT (3) LEC. 3. Examination of the complex nature of learning as a socially-shared and individualized process. Topics may include the social construction of knowledge, scaffolded instruction, cognitive apprenticeships, and problem based learning.

EPSY 8430 TOPICAL SEMINAR IN LEARNING, COGNITION, AND INSTRUCTION (3) LEC. 3. An intensive and advanced study of research and theory on selected topics. Examples include folk theories of mind and alternative methods of studying thinking.

EPSY 8440 ED PSYCH APPRENT SEMINAR (3) LEC. 3. Focuses on the historical foundations of educational psychology as well as possibilities for future disciplinary development.

EPSY 8540 EDUCATIONAL PSYCHOLOGY RESEARCH APPRENTICESHIP SEMINAR (3) LEC. 3. A structured context for students to begin applying what they have learned from their research methods and statistic courses. Students will design and conduct research that contributes to the educational psychological knowledge base.

EPSY 8640 EDUCATIONAL PSYCHOLOGY LEARNING AND INSTRUCTION APPRENTICESHIP SEMINAR (3) LEC. 3. A structured opportunity for students to begin applying educational psychological concepts and theories in the classroom. Students will study theories of learning and instruction and begin to translate and implement these theories into practice.

EPSY 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with changes in topic.

Foundations of Education Courses

FOUN 3000 DIVERSITY OF LEARNERS AND SETTINGS (3) LEC. 2. LAB. 3. Pr. EDUC 1010 or EDUC 1013. Exploration of how sociopolitical factors and students’ diverse identities shape their experiences and opportunities in educational settings and society, with a focus on the interaction between schooling and inequity. Includes a service-learning requirement.

FOUN 3100 CHILD DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT (6) LEC. 5. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000) or (FOUN 3000 and RSED 3003). With grades of "C" or better. Cognitive, psychosocial, and moral aspects of child development; integration of development, learning, motivation, assessment, and evaluation in context of instructional planning. May count either FOUN 3100 or FOUN 3103.

FOUN 3110 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT I (3) LEC. 2. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000) or (FOUN 3000 and RSED 3003). An integrated approach to the effective instruction of the adolescent learner in context.

FOUN 3120 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT II (3) LEC. 3. Pr. (FOUN 3110-3113 or CTSE 4070-4073 or CTSE 4090) and (EDUC 3000 or (FOUN 3000 and RSED 3000-3003)). Study of the adolescent development, learning, motivation, evaluation, and assessment concepts central to effective instruction. May count either FOUN 3120 or FOUN 3123.

FOUN 3500 DEVELOPMENT, LEARNING AND MOTIVATION (3) LEC. 3. LAB. 0, LEC. 0. The course will cover physical, cognitive, psychosocial and moral aspects of development. Next, the course will cover behavioral, cognitive, learner-centered constructivist and more contemporary theories of learning with emphasis on applications to classroom instruction. Finally, the course will cover various theories of motivation with educational applications.

FOUN 7000 CULTURAL FOUNDATIONS OF EDUCATION (3) LEC. 3. Advanced study of culture and its impact on the development and structure of education and schooling. Utilizing historical, philosophical, anthropological, and sociological perspectives, contemporary issues regarding the nature and practice of schooling will be examined. May count either FOUN 7000 or FOUN 7006.

FOUN 7010 HISTORY OF AMERICAN EDUCATION (3) LEC. 3. Examination of ideas, actors, and events which influenced the emergence of the formal school system, beginning with early American forms of education. May count either FOUN 7010 or FOUN 7016.

FOUN 7020 SOCIAL AND CULTURAL DIVERSITY IN AMERICAN EDUCATION (3) LEC. 3. Advanced study of education's response to cultural pluralism. The impact of religious, ethnic, social, and racial diversity on the structure of the American public school will be examined. May count either FOUN 7020 or FOUN 7026.

FOUN 7030 PHILOSOPHY AND EDUCATION (3) LEC. 3. Advanced study of philosophical questions and concepts as well as their application in education. May count either FOUN 7030 or FOUN 7036.

FOUN 7040 PHILOSOPHY AND EDUCATIONAL RESEARCH (3) LEC. 3. Advanced philosophical study of educational research within the context of education's professional culture.

FOUN 7050 GLOBAL PERSPECTIVES ON EDUCATION (3) LEC. 3. Exploration of global transformations in education and their implications for equity, diversity, and justice through the lens of comparative and international research.

FOUN 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

FOUN 7930 TEACHING APPRENTICESHIP (3) IND. 3. Departmental approval. A structured opportunity for students to explore social foundations of education concepts and pedagogies in the college classroom. Course may be repeated for a maximum of 6 credit hours.

FOUN 7970 SPECIAL TOPICS IN FOUNDATIONS OF EDUCATION (3-6) LEC. 3-6. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

FOUN 8010 MODERN EDUCATION AND COMPARATIVE PERSPECTIVES (3) LEC. 3. Advanced comparative study of selected contemporary educational issues within the American and international urban context.

FOUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Courses may be repeated for a maximum for 10 hours. Course may be repeated with change in topics.

Higher Ed Administration Courses

HIED 7200 ORGANIZATIONAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Theory and practice of higher education organizations with emphasis on supervision and management of personnel.

HIED 7210 LEADERSHIP IN HIGHER EDUCATION (3) LEC. 3. Exploration, discussion and application of theories, concepts and principles of leadership applied to higher education organizations. May count either EDLD 7210 or HIED 7210.

HIED 7220 HIGHER EDUCATION MANAGEMENT (3) LEC. 3. Procedures and practices in school educational management.

HIED 7230 STUDENT SERVICES ADMINISTRATION POSTSECONDARY EDUCATION (3) LEC. 3. Organization, administration and evaluation of student personnel services in postsecondary education.

HIED 7240 LEGAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Constitutional and statutory provisions for education and an analysis of judicial decisions affecting higher education.

HIED 7250 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3. Overview of major developmental theories affecting college students.

HIED 7260 COUNSELING AND ADVISING IN HIGHER EDUCATION (3) LEC. 3. Introduces counseling and advising theory and application for student services professionals in higher education.

HIED 7270 OVERVIEW OF POSTSECONDARY EDUCATION (3) LEC. 3. Overview of the history and evolution of postsecondary education in North America. May count either HIED 7270 or HIED 7276.

HIED 7400 SPORT MARKETING AND PUBLIC RELATIONS (3) LEC. 3. Marketing and public relations of sport organizations as associated with higher education institutions.

HIED 7410 SPORT ETHICS (3) LEC. 3. Covers ethical issues in sport organizations as associated with higher education institutions.

HIED 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

HIED 7910 PRACTICUM (3) PRA. 3. Departmental approval. Experience in the management of specific administrative offices. Course may be repeated for a maximum of 6 credit hours.

HIED 7920 INTERNSHIP (1-6) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 6 credit hours.

HIED 7970 SPECIAL TOPICS (1-6) LEC. 1-6. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

HIED 8200 ASSESSMENT AND EVALUATION IN HIGHER EDUCATION (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making.

HIED 8230 PLANNING AND BUDGETING IN HIGHER EDUCATION (3) LEC. 3. Components and implementation of a comprehensive, ongoing planning and budgeting program in higher education.

HIED 8270 FINANCIAL MANAGEMENT IN HIGHER EDUCATION (3) LEC. 3. Educational finance including revenues, expenditures, cost, budgeting and accounting, and the local, state and federal role in supporting education.

HIED 8480 INSTITUTIONAL RESEARCH IN HIGHER EDUCATION (3) LEC. 3. Components of institutional research and assessment that support comprehensive planning, analysis, decision support and management needs of the higher educational institution May count either EDLD 8480 or HIED 8480.

HIED 8500 THE PROFESSORIATE (3) LEC. 3. Study of differences and similarities in faculty roles, work, and career paths using various disciplinary and institutional lenses.

HIED 8510 SEMINAR IN COLLEGE TEACHING (3) LEC/SEM. 3. Overview of major issues in higher education and methods of instruction in college teaching. Involves use of experiential learning, group and collaborative activities.

HIED 8950 SEMINAR (3) LEC. 3. Presentation by graduate students of research projects and/or analysis of procedures and finding. Course may be repeated for a maximum of 6 credit hours.

HIED 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 credit hours.

Training and Workforce Development Minor

Code	Title	Hours
Select 15 hours from the following:		**15**
ADED 4010	Learning Resources in Area of Specialization	3
ADED 4050	Methods of Teaching in Organizations	3
ADED 4600	Nature of Adult Education	3
ADED 4650	Teaching the Disadvantaged Adult	3
ADED 4910	Practicum	3
ADED 4970	Special Topics	1-6
Other Advisor Approved Elective		3

School of Kinesiology

The School of Kinesiology prepares students in the following areas: exercise science and exercise, performance and health optimization/teacher education. The mission of the Kinesiology programs at Auburn University is to promote the creation and application of knowledge about physical activity and performance, create and implement an invigorating learning environment for undergraduate and graduate students, and improve the health and wellness of society through research, outreach, and teaching. Students learn how to improve the health or performance of individuals using an intervention model and how to intervene in the lives of those who wish to become healthier or want to improve their athletic performance. Experiences run the gamut from trying to

help an elderly person be well and fit to motivating the young child to be more physically active to assisting the elite athlete in optimizing sport performance.

Exercise Science

The study of Exercise Science focuses on the effects physical activity has on the human body in addition to the body's response to exercise. The undergraduate major in exercise science prepares students for graduate study in the exercise science sub-disciplines (biomechanics, exercise physiology, and motor behavior) while providing students with a foundational knowledge of research in the field. Students in Exercise Science are preparing for entry into professional programs such as physical therapy, occupational therapy, medicine or other competitive graduate programs. Advisors may make recommendations of alternative programs based on academic performance.

Exercise, Performance & Health Optimization

The undergraduate major in exercise, performance and health optimization prepares students to work in community or corporate based health and fitness programs. Students attain the knowledge, skills, and abilities to conduct exercise testing, interpret results and develop individualized exercise programs for healthy individuals and those with chronic diseases.

Information about Graduate programs is available at: Kinesiology - MS, PhD, Graduate Certificate, Minor.

Sport Coaching Minor

The sport coaching minor is a 15 semester hour commitment and is open to all students across campus. This minor is particularly attractive to students interested in the field of sport coaching.

Physical Activity and Wellness (Non-degree Program)

The physical activity and wellness non-degree program is an 8 semester hour commitment and is available to all students across campus. Particularly attractive to those students who enjoy physical activity, the program combines study of the basic principles of wellness with participation in a broad range of physical activity categories. The specific course of study is shown below.

- KINE 1100: Wellness (2 credit hours)
- 3 PHED courses from 3 different categories, e.g., fitness, team sports, aquatics (6 hours)

While completion of this program does not appear on transcripts or diplomas, students may request a certificate upon completion.

Majors

- Exercise Science (p. 536)
- Exercise, Performance & Health Optimization (p. 537)
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Minors

- Sport Coaching (p. 538)

Kinesiology Courses

KINE 1100 WELLNESS & PUBLIC HEALTH (3) LEC. 3. Review content and theory associated with basic health information, critical health issues, economic, political, and cultural influences on health and wellness; concepts related to improving and maintaining optimal health and wellness, and basic concepts and principles of wellness for the self-appraisal of health-related physical fitness. May count either KINE 1100 or KINE 1103.

KINE 2000 PILLARS OF HEALTH: A JOURNEY TO OPTIMAL HEALTH & WELLBEING (3) LAB. 4. Students will learn and apply Mindfulness-Based Stress Reduction (MBSR) techniques and practices that have been shown, scientifically, to reduce stress and act as an aid to many health conditions that arise or are exacerbated by stress. On-campus labs are required.

KINE 2250 MOTOR DEVELOPMENT ACROSS THE LIFESPAN (2) LEC. 2. Develops understanding and skills concerning the broad concept of motor development across the lifespan. May count either KINE 2250 or KINE 2253.

KINE 2251 MOTOR DEVELOPMENT ACROSS THE LIFESPAN LABORATORY (1) LAB. 1. SU. Pr. (P/C KINE 2250 or P/C KINE 2257 or P/C KINE 2253). Develops understanding and skills concerning the broad concept of motor development across the lifespan.

KINE 2257 HONORS MOTOR DEVELOPMENT ACROSS THE LIFESPAN (2) LEC. 2. Pr. Honors College. Develops understanding and skills concerning the broad concept of motor development across the lifespan. May count either KINE 2250 or KINE 2253.

KINE 2500 SPORT OPTIMIZATION I (3) LEC. 2. LAB. 2. Basic concepts associated with the assessment of sport performance for the purpose of optimization.

KINE 2510 SPORT OPTIMIZATION II (3) LEC. 2. LAB. 2. Pr. KINE 2500 or KINE 2503 or HLHP 2500 or HLHP 2503. Concepts associated with the assessment and interpretation of sport performance for the purpose of optimization.

KINE 2800 INTRODUCTION TO KINESIOLOGY (3) LEC. 3. People, history and programs that have led to the current status of physical education, exercise science and health promotion.

KINE 3000 MEDICAL TERMINOLOGY FOR ALLIED HEALTH PROFESSIONS (3) LEC. 3. Focus on medical terminology/ abbreviations used in allied health care and application to health care documentation. Web-based delivery.

KINE 3010 INSTRUCTION AND TECHNOLOGY IN KINESIOLOGY (2) LEC. 1. LAB. 2. Communication skills, instructional strategies and technological competencies related to conveying information in the Kinesiology disciplines. May count either KINE 3010 or KINE 3013.

KINE 3030 INTRODUCTION TO PERSONAL TRAINING (3) LEC. 3. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3031 INTRODUCTION TO PERSONAL TRAINING LABORATORY (3) LAB. 3. Pr. P/C KINE 3030. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3040 HISTORY OF AMERICAN PHYSICAL CULTURE (3) LEC. 3. Appreciation of the historical and cultural aspects of health, exercise, fitness and sports activities in modern American society.

KINE 3050 CARE AND PREVENTION OF INJURIES (3) LEC. 3. Students will understand how to implement proper procedures in sports medicine care, create/lead emergency action plans, prevent injury/illness occurrence, care for basic injuries/illnesses, and analyze environmental conditions for safety, and provide important information to sports medicine health professionals. May count either KINE 3050 or KINE 3053.

KINE 3100 ADAPTIVE SPORTS (3) LEC. 3. An introduction to various competitive and recreational activities for persons with disabilities. May count either KINE 3100 or KINE 3103.

KINE 3110 PARALYMPIC SPORT (3) LEC. 3. An introduction to the Paralympic Games including the Games development, rules, and current issues related to media, marketing, and social rights.

KINE 3200 SKILLS AND CONCEPTS OF RHYTHMIC ACTIVITIES (3) LEC. 2. LAB. 2. Skillful performance in gymnastics and other rhythmic activities and an understanding of the basic movement concepts in those activities.

KINE 3210 SKILLS AND CONCEPTS OF SPORT (3) LEC. 2. LAB. 2. Skillful performance in games and sports and an understanding of the tactics in those activities. Admission to Teacher Education.

KINE 3230 TEACHING MOTOR SKILLS (3) LEC. 2. LAB. 2. Introduction to motor skills that students learn during their elementary school years in physical education.

KINE 3260 PHYSICAL EDUCATION FOR INDIVIDUALS WITH DISABILITIES (3) LEC. 2. LAB. 2. Pr. (KINE 2250 and KINE 2251 or KINE 2253) or (HLHP 2250 or HLHP 2251 or HLHP 2253). Program needs of individuals with disabilities in physical education and physical activity settings.

KINE 3300 INSTRUCTIONAL STRATEGIES IN PHYSICAL EDUCATION (3) LEC. 2. LAB. 2. Instructional and class management strategies appropriate to teach quality elementary and secondary physical education Admission to Teacher Education.

KINE 3400 HEALTH PROMOTION IN THE WORKPLACE (3) LEC. 3. Planning, implementation, evaluation and marketing of health promotion programs.

KINE 3410 REGISTERED YOGA TEACHER LEVEL I (3) LEC. 2. LAB. 2. Basic principles of teaching yoga. Concepts include the poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3410 & KINE 3420 completes a Yoga Teacher Certification.

KINE 3420 REGISTERED YOGA TEACHER LEVEL II (3) LEC. 2. LAB. 2. Pr. KINE 3413 or KINE 3410 or HLHP 3410 or HLHP 3413. Advanced principles of teaching yoga. Focus on poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3410 and KINE 3420 completes a Yoga Teacher Certification.

KINE 3620 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Coreq. KINE 3621. Understanding of anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis, will enable the student to evaluate human movement in greater detail. Departmental approval is needed for non-majors to enroll.

KINE 3621 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT LABORATORY (1) LAB. 1. Pr. P/C KINE 3620 or P/C KINE 3623 or P/C KINE 3627. Laboratory experience focuses on application of knowledge of anatomical, neuromuscular, and biomechanical principles of human movement. Content emphasizes understanding the science of exercise, how to apply and interpret common mechanical measures, and writing about findings using basic scientific writing techniques.

KINE 3627 HONORS BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Pr. Honors College. Coreq. KINE 3621. Understanding of anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis, will enable the student to evaluate human movement in greater detail. Departmental approval is needed for non-majors to enroll.

KINE 3650 MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Understanding of the basic psychological and physiological involved in the learning and control of skillful human movement.

KINE 3651 MOTOR LEARNING AND PERFORMANCE LABORATORY (1) LAB. 2. Pr. P/C KINE 3650 or P/C KINE 3653 or P/C KINE 3657. Lab experience will allow students to gain first-hand experience with modern experimental methods, data collection, and basic analysis tools in motor learning research and develop an understanding of the experience of human research participants in kinesiology research.

KINE 3657 HONORS MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Pr. Honors College. Understanding of the basic psychological and physiological involved in the learning and control of skillful human movement.

KINE 3680 PHYSIOLOGY OF EXERCISE (3) LEC. 3. Energetics of exercise and physiological responses and adaptions of various organ systems (muscular, circulatory, respiratory, etc.) to acute and chronic exercise in different environments.

KINE 3681 PHYSIOLOGY OF EXERCISE LAB (1) LAB. 2. Coreq. KINE 3680. Applying knowledge of basic energy, musculoskeletal, nervous, and cardiovascular systems using various testing procedures. Focus on understanding the science of exercise, interpreting common physiological fitness tests, and how to write about findings using basic scientific writing techniques.

KINE 3687 HONORS PHYSIOLOGY OF EXERCISE (3) LEC. 3. Pr. Honors College. Energetics of exercise and physiological responses and adaptions of various organ systems (muscular, circulatory, respiratory, etc.) to acute and chronic exercise in different environments.

KINE 3820 PRINCIPLES OF SPORT COACHING (3) LEC. 3. Basic principles of sport pedagogy and the conduct of sport training programs. Departmental approval. May count either KINE 3820 or KINE 3823.

KINE 3830 THEORY AND PRACTICE OF SPORTS OFFICIATING (3) LEC. 3. Instruction and practice of officiating a variety of sport activities.

KINE 3840 COACHING THE MENTAL SIDE OF SPORTS (3) LEC. 3. Understand athletes' psychology and how to provide them wit mental skills to enhance their performance in athletics, academics, and life.

KINE 3870 LEGAL AND ILLEGAL SPORTS SUPPLEMENTS (3) LEC. 3. Introductory approach to the safety, efficacy, and legality of popular legal and illegal sports supplements.

KINE 4130 THE NEUROBIOLOGY OF PLAY (3) LEC. 3. This course is an introduction to psychological and neuroscientific research on play and games. We will focus on play behavior in human beings, but will incorporate comparative evidence from play in other animals. Using an interdisciplinary approach, we will draw.

KINE 4200 PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. HLHP 3300. Understanding of the skill theme approach based on skill themes, movement concepts and levels of skill proficiency. Credit will not be given for both KINE 4200 and KINE 4360. Admission to Teacher Education.

KINE 4300 PHYSICAL EDUCATION IN SECONDARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. (KINE 3300 or HLHP 3300). Constructing and implementing appropriate lifetime sports and fitness programs for middle and secondary school students. Admission to Teacher Education.

KINE 4360 HEALTH EDUCATION AND PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (2) LEC. 1. LAB. 2. Critical topics in health education and physical education for prospective elementary education teachers. Credit will not be given for both KINE 4360 and KINE 4200.

KINE 4400 APPLIED ANATOMY FOR THE ALLIED HEALTH PROFESSIONAL (3) LEC. 3. Study of skeletal anatomy with an applied approach. May count either KINE 4400 or KINE 4403.

KINE 4450 PHYSICAL ACTIVITY AND PUBLIC HEALTH (3) LEC. 3. Departmental approval. Basic principles of epidemiology; health benefits of physical activity; strategies to promote physical activity at the individual and community levels.

KINE 4500 INDIVIDUAL AND GROUP FITNESS INSTRUCTION (3) LEC. 3. Principles of exercise prescription and field assessment techniques to develop, implement and evaluate individual and group exercise programs.

KINE 4560 SPORT TECHNIQUE AND MOVEMENT ANALYSIS (3) LEC. 3. Skills and knowledge for observing, evaluating, and correcting movement patterns. May count either KINE 4560 or KINE 4563.

KINE 4600 STRENGTH AND CONDITIONING DEVELOPMENT (3) LEC. 3. Basic concepts and principles of strength, endurance and speed development.

KINE 4620 EXERCISE AND SPORT PSYCHOLOGY (3) LEC. 3. Role of psychological factors in sport, exercise and physical activity.

KINE 4627 HONORS EXERCISE AND SPORT PSYCHOLOGY (3) LEC. 3. Pr. Honors College. Role of psychological factors in sport, exercise and physical activity.

KINE 4630 STRENGTH AND CONDITIONING PREPARATION (3) LEC. 3. Pr. (KINE 4600 or KINE 4603) and (KINE 3680 or KINE 3683 or KINE 3687). Preparation as a Certified Strength and Conditioning Specialist.

KINE 4640 PHYSICAL CONDITIONING AND SPEED (3) LEC. 3. Basic concepts and principles of physical conditioning and speed.

KINE 4690 CORRECTIVE EXERCISE SPECIALIST PREPARATION (3) LEC. 3. Pr. KINE 3620 and P/C KINE 3621 or P/C KINE 3627. Preparation for the National Academy of Sports Medicine corrective exercise specialist examination. May count either KINE 4690 or KINE 4693.

KINE 4760 INTRODUCTION TO EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. (KINE 3620 or KINE 3627) and (KINE 3650 or KINE 3657) and (KINE 3680 or KINE 3687). Research literature, experimental design and research interpretation in exercise science.

KINE 4767 HONORS INTRO TO EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. Honors College. Research literature, experimental design and research interpretation in exercise science.

KINE 4780 EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. (KINE 4760 or KINE 4763 or KINE 4767) and (KINE 3620 or KINE 3623 or KINE 3627) and (KINE 3650 or KINE 3653 or KINE 3657) and (KINE 3680 or KINE 3683 or KINE 3687). Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4787 HONORS EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. Honors College. KINE 3620 or KINE 3623 and KINE 3650 or KINE 3653. and KINE 4760 or KINE 4763. and KINE 3680 or KINE 3683. Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4860 EXERCISE PROGRAMMING FOR SPECIAL POPULATIONS (3) LEC. 3. Principles of exercise prescription, programming and field assessment techniques to develop, implement and evaluate exercise programs for special populations. May count either KINE 4860 or KINE 4863.

KINE 4880 TRAINING AND CONDITIONING PROGRAMMING (3) LEC. 3. Pr. (KINE 4600 or HLHP 4600 or HLHP 4640) and KINE 4640. Skills and knowledge related to sport specific annual training regimens.

KINE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 6 credit hours.

KINE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Application of basic concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 4920 CLINICAL RESIDENCY (12) LEC. 12. SU. Pr. KINE 4200 and KINE 4300. Culminating supervised work experience in school settings for K-12 Physical Education. Students must be cleared and approved for Clinical Residency by College of Education criteria.

KINE 4930 PHYSICAL ACTIVITY AND HEALTH INTERNSHIP (1-12) LEC. 1-12. SU. Pr. KINE 5400 or KINE 5403. Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. May count either KINE 4930 or KINE 4933. Course may be repeated for a maximum of 12 credit hours.

KINE 4940 FITNESS, CONDITIONING AND PERFORMANCE INTERNSHIP (1-12) DSL/INT. SU. Pr. (KINE 4690 or KINE 4693) and (KINE 4880 or KINE 4883). Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. Site must be approved by internship coordinator. May count either KINE 4940 or KINE 4943. Course may be repeated for a maximum of 12 credit hours.

KINE 4970 SPECIAL TOPICS (1-3) AAB. Advanced presentation of critical issues in physical education, health promotion or exercise science. Course may be repeated with change in topic. Course may be repeated for a maximum of 12 credit hours.

KINE 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental Approval. Directed research within the area of specialty within the School. Course may be repeated for a maximum of 6 credit hours.

KINE 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

KINE 5400 EXERCISE ASSESSMENT, PRESCRIPTION, & PROGRAMMING (3) LEC. 3. Pr. (KINE 3620 or KINE 3623 or KINE 3627) and (KINE 3680 or KINE 3683 or KINE 3687). This course is designed to develop the knowledge, skills, and abilities necessary to work with clients, performing exercise testing for health and fitness and developing exercise programs following American College of Sports Medicine (ACSM) and National Strength and Conditioning Association (NSCA) guidelines. The course will focus on the principles and guidelines for exercise testing and programming.

KINE 5500 EXERCISE ASSESSMENT AND TESTING (3) LEC. 1. LAB. 4. Pr. (KINE 3620 or KINE 3627) and (KINE 3680 or KINE 3687) and KINE 3681. Familiarization with exercise testing, exercise testing instrumentation, and application of concepts in physiological testing, test selection, and interpretation of assessments in normal populations. May count KINE 6500.

KINE 5501 CLINICAL EXERCISE TESTING LABORATORY (2) LAB. 2. Pr. KINE 3680 and (KINE 3681 or KINE 3687) and (KINE 5500 or KINE 5503). Application of concepts in physiological testing, test selection and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction.

KINE 5820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 5920 INTERNSHIP (1-12) INT. SU. Pr. (KINE 4630 or KINE 4633) and (KINE 5400 or KINE 5403). Supervised work experiences in schools, fitness or rehabilitation settings. Two hours of work experience per week for each hour course credit. Course may be repeated for a maximum of 12 credit hours.

KINE 6200 RESEARCH PROJECT IN PHYSICAL EDUCATION (3) LEC. 3. Focus on action research in teaching and learning in physical education in schools. May count either KINE 5200 or KINE 6200.

KINE 6250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2. Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress. May count either KINE 5250 or KINE 6250.

KINE 6300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2. Strategies for development of advocacy programs in physical education. May count either KINE 5300 or KINE 6300.

KINE 6350 ASSESSMENT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. P/C KINE 7920 or P/C HLHP 7920 or P/C HLHP 7926.

KINE 6400 EXERCISE ASSESSMENT, PRESCRIPTION, & PROGRAMMING (3) LEC. 3. Pr. KINE 3680 or KINE 3687. This course is designed to develop the knowledge, skills, and abilities necessary to work with clients, performing exercise testing for health and fitness and developing exercise programs following American College of Sports Medicine (ACSM) and National Strength and Conditioning Association (NSCA) guidelines. The course will focus on the principles and guidelines for exercise testing and programming.

KINE 6500 EXERCISE ASSESSMENT AND TESTING (3) LEC. 1. LAB. 4. Pr. KINE 3680 or KINE 3687. Familiarization with concepts in exercise testing, testing instrumentation, test selection & application, and interpretation of assessments in normal populations for the purpose of exercise prescription. May count either KINE 5500 or KINE 6500.

KINE 6501 CLINICAL EXERCISE TESTING LABORATORY (2) LAB. 2. Pr. KINE 3680 or KINE 3687. Coreq. KINE 6500. Learn and practice the skills to perform clinical exercise testing for health and fitness in accordance with American College of Sports Medicine (ACSM).

KINE 6600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2. LAB. 2. Pr. KINE 3680 or KINE 3687. Physiological adaptations to training and conditioning for sport performance. May count either KINE 5600 or KINE 6600.

KINE 6820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 6920 INTERNSHIP (1-12) INT. SU. Pr. (KINE 7630 and KINE 6400) or KINE 6406. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 12 credit hours.

KINE 7010 RESEARCH METHODS IN PHYSICAL ACTIVITY (3) LEC. 3. Study of research methods and analysis of current research in physical education, health promotion, and exercise science.

KINE 7180 APPLIED SOCIOLOGICAL ASPECTS OF SPORT AND EXERCISE (3) LEC. 3. Critical examination and application of sociological aspects of sport and exercise in a variety of settings. May count either KINE 7180 or KINE 7186.

KINE 7200 CURRICULUM AND TEACHING IN PHYSICAL EDUCATION (3) LEC. 3. Issues in developing and critiquing curricula in physical education.

KINE 7250 EVALUATION OF PROGRAMS IN PHYSICAL EDUCATION (3) LEC. 3. Development of tools for assessment of student learning and evaluation of physical education programs.

KINE 7260 INDIVIDUALS WITH DISABILITIES IN PHYSICAL EDUCATION (3) LEC. 3. Developing inclusive physical activity programs for children and adolescents with disabilities in physical education.

KINE 7280 NATURALISTIC INQUIRY IN PHYSICAL ACTIVITY SETTINGS (3) LEC. 3. Exploration of naturalistic inquiry in physical activity and educational settings.

KINE 7300 CONTENT AND PEDAGOGY IN PHYSICAL EDUCATION (3) LEC. 3. Instructional strategies and content for elementary and secondary physical education.

KINE 7350 ORGANIZATION AND ANALYSIS OF INSTRUCTION IN PHYSICAL EDUCATION (3) LEC. 3. Focus on the teaching-learning process in physical education.

KINE 7380 INTEGRATING CLASSROOM CONCEPTS (3) LEC. 3. Relationship of developmental foundations of young children and programming of physical activities.

KINE 7400 ADVANCED ANATOMICAL PRINCIPLES (3) LEC. 3. Clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact and utilize anatomical knowledge. May count either KINE 7400 or KINE 7406.

KINE 7420 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH I (3) LEC. 3. Introductory approach to skill analysis as well as the use of the software program Dartifish. May count either KINE 7420 or KINE 7426.

KINE 7430 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH II (3) LEC. 3. Pr. KINE 7420 or HLHP 7420 or HLHP 7426 or KINE 7426. Advanced approach to skill analysis as well as the use of the software program Dartifish. May count either KINE 7430 or KINE 7436.

KINE 7550 EFFICIENT MOVEMENT STRATEGIES (3) DSL. 3. A review of the material and tools necessary to become a National Academy of Sports Medicine Corrective Exercise Specialist.

KINE 7570 EXERCISE ELECTROCARDIOGRAPHY (3) LEC. 3. Pr. KINE 3680 or KINE 3687. Electrocardiography from a exercise scientist's perspective; recognition of normal and abnormal electrocardiographic patterns at rest and during exercise.

KINE 7620 PRINCIPLES OF BIOMECHANICS IN HUMAN MOVEMENT (3) LEC. 3. Pr. KINE 3620 or KINE 3627. Biomechanical principles and laws with applications to human movement in sport, exercise and daily activities. Departmental approval. May count either KINE 7620 or KINE 7626.

KINE 7630 STRENGTH & CONDITIONING PREPARATION (3) LEC. Preparation as a Certified Strength and Conditioning Specialist.

KINE 7650 ADVANCED MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Pr. KINE 3650 or KINE 3657. Departmental approval. Theories, experimental studies, and current issues in the acquisition, performance, and retention of motor skills.

KINE 7660 BIOMECHANICS OF SPORT INJURY AND REHABILITATION (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or HLHP 7626). Biomechanical properties of the human body as related to injuries and rehabilitation in sport and daily activities.

KINE 7670 LAB TECHNIQUES IN BIOMECHANICS (3) LEC. 1. LAB. 2. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or KINE 7626). Study of equipment and standing practices utilized by a biomechanist in measuring and analyzing motion.

KINE 7680 ADVANCED PHYSIOLOGY OF EXERCISE I (3) LEC. 3. Pr. KINE 3680 or KINE 3687. Departmental approval. Physiological responses to exercise and control of metabolism, the cardiovascular system, and the respiratory system during acute exercise and training.

KINE 7700 ADVANCED PHYSIOLOGY OF EXERCISE II (3) LEC. 3. Pr. KINE 3680 or KINE 3687. Temperature regulation and endocrine response to exercise; physiological responses and adaptations to aerobic training, strength training, and environmental extremes; limiting factors and fatigue in exercise.

KINE 7710 LAB TECHNIQUES IN EXERCISE PHYSIOLOGY (3) LEC. 1. LAB. 4. Pr. (HLHP 7680 or HLHP 7686 or KINE 7680). Techniques for measuring and evaluating physical performance.

KINE 7730 NEUROMOTOR CONTROL (3) LEC. 3. Pr. KINE 3650 or KINE 3657. Departmental approval. Structure and function of the central and peripheral systems underlying human motor control.

KINE 7740 ADVANCED MOTOR DEVELOPMENT (3) LEC. 3. Departmental approval. Examination of theoretical and empirical issues in motor development across the life span.

KINE 7750 ADVANCED SPORT PSYCHOLOGY (3) LEC. 3. Pr. KINE 4620 or KINE 4627 or departmental approval. Examination of psychological factors that influence althletic performance. Or equivalent,

KINE 7780 EXERCISE MOTIVATION AND ADHERENCE (3) LEC. 3. Pr. KINE 4620 or KINE 4627. Theoretical foundations and recent research in exercise motivation and adherence. Or equivalent.

KINE 7790 MOTOR BEHAVIOR OF INDIVIDUALS WITH DISABILITIES (3) LEC. 3. Pr. (HLHP 7650 or HLHP 7656 or KINE 7650). Examination of motor behavior characteristics of individuals with disabilities.

KINE 7820 CLINICAL/NON-CLINICAL INTERNSHIP IN KINESIOLOGY (1-10) DSL/INT. SU. Supervised work experience in physical activity, health, fitness, conditioning, performance and rehabilitation settings. This course is for non-teacher education students. May count either KINE 7820 or KINE 7826. Course may be repeated for a maximum of 10 credit hours.

KINE 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 7910 PRACTICUM (1-3) PRA. Departmental approval. Application of concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 7920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 7930 NON-THESIS RESEARCH PROJECT (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Continuation/completion of a scientific research project that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

KINE 7970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course may be repeated with change in topic.

KINE 7980 RESEARCH PROJECT IN KINESIOLOGY (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Completion of a scientific research project in Kinesiology that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7990 RESEARCH AND THESIS (1-10) IND. Course may be repeated with change in topics.

KINE 8270 EXERCISE GENETICS (3) LEC. 3. This course will describe advanced concepts related to exercise genetics. Examples include how skeletal muscle responds to exercise at the epigenetic, transcriptomic, and proteomic level. Additionally, cutting-edge research topics (e.g., miRNA and retrotransposons) will be discussed in the context of exercise science.

KINE 8300 RESEARCH IN KINESIOLOGY (3) LEC. 3. Examination and evaluation of current research trends within the field of kinesiology.

KINE 8310 SUPERVISION/ADMINISTRATION OF LABS IN KINESIOLOGY (3) LEC. 3. Skills and techniques of the daily management of kinesiology labs. Topics include budgeting, outreach, entrepreneurship, grants, and personnel management.

KINE 8320 RESEARCH MENTORSHIP (3) LEC. 3. Skills and experience in the mentorship of novice researches in the field of Kinesiology.

KINE 8710 SCIENTIFIC COMMUNICATION IN EXERCISE SCIENCE (3) LEC. 3. In-depth analysis of the major formats for scientific communication and the peer-review process in exercise science. Or equivalent.

KINE 8730 NUTRIENT TIMING FOR PERFORMANCE OPTIMIZATION (3) LEC. 3. This course will discuss how Nutrient Timing is important for optimizing endurance- or resistance training adaptations in athletes.

KINE 8750 THREE-DIMENSIONAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7620) or KINE 7620 or KINE 7620. Three-dimensional nature of body segments in human movement, with emphasis on data processing and modeling techniques.

KINE 8770 NEUROMUSCULAR ASPECTS OF EXERCISE AND TRAINING (3) LEC. 3. Pr. KINE 7680 or HLHP 7680 or HLHP 7686 or departmental approval. Examination of neuromuscular mechanisms that allow humans to perform work, including energy output, neural integration, energy metabolism and adaptations to training.

KINE 8780 BIOCHEMISTRY OF EXERCISE (3) LEC. 3. Pr. (HLHP 7680 or KINE 7680) or HLHP 7686 or departmental approval. Regulation of the metabolic pathways of energy metabolism with emphasis on the energetic response to acute exercise and exercise training.

KINE 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 8910 PRACTICUM (1-3) PRA. SU. Departmental approval. Application of basic concepts to specific work environments. Course may be repeated for a maximum of 9 credit hours.

KINE 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness and rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 8930 DIRECTED FIELD EXPERIENCES (1-10) FLD. SU. Departmental approval. Field studies away from campus. Course may be repeated for a maximum of 10 credit hours.

KINE 8950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8960 SPECIAL PROBLEMS (1-3) IND. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education. health promotion, or exercise science. Course be repeated with change in topic. Course may be repeated with change in topics.

KINE 8980 FIELD PROJECT (1-6) FLD.

KINE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Field project away from campus. Course may be repeated for a maximum of 9 credit hours. Course may be repeated with change in topics.

Physical Education Courses

PHED 1000 ACTIVE AUBURN (2) LEC. 2. Basic concepts associated with physical activity and the opportunities on campus to engage in health-promoting and wellness activities. Course may be repeated for a maximum of 4 credit hours.

PHED 1200 CARDIO RESPIRATORY: FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning. Activities may include, but are not limited to running (jogging) swimming, cycling and aerobic dance. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1210 CARDIO RESPIRATORY: AEROBIC DANCE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in aerobic dance.

PHED 1220 CARDIO RESPIRATORY: CIRCUIT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in circuit training.

PHED 1230 CARDIO RESPIRATORY: JOGGING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in jogging.

PHED 1240 CARDIO RESPIRATORY: SWIM FOR FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in swim for fitness.

PHED 1250 CARDIO RESPIRATORY: WATER AEROBICS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in water aerobics.

PHED 1260 MILITARY FITNESS FOR EVERYONE (2) LEC. 2. Basics of military-type physical activity training, goal-setting, and fitness principles.

PHED 1300 FITNESS AND CONDITIONING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness. Activities may include, but are not limited to calisthenics and weight training. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1310 FITNESS: BODYBUILDING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in bodybuilding.

PHED 1320 FITNESS: LIFETIME ACTIVITY (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in lifetime activity.

PHED 1330 FITNESS: WEIGHT CONTROL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight control.

PHED 1340 FITNESS: WEIGHT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training.

PHED 1350 FITNESS WEIGHT TRAINING WOMEN (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness for weight training for women.

PHED 1360 FITNESS: WEIGHT TRAINING II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training II.

PHED 1380 KETTLEBELL TRAINING (2) LEC. 1. LAB. 1. Introductory approach to kettlebell techniques and kettlebell program development.

PHED 1390 WEIGHT MANAGEMENT (2) LAB. 2. Nutrition and exercise concepts associated with maintaining healthy weight.

PHED 1400 TEAM SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport. Team sports may include, but are not limited to, volleyball, basketball and softball. Course may be repeated with change in topic.

PHED 1410 TEAM SPORTS: BASKETBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1420 TEAM SPORTS: FLAG FOOTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1430 TEAM SPORTS: SOCCER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1440 TEAM SPORTS: SOFTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1450 TEAM SPORTS: VOLLEYBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1500 INDIVIDUAL SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport. Sports may include, but are not limited to tennis, golf and racquetball. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1510 INDIVIDUAL SPORTS: BOWLING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1520 INDIVIDUAL SPORTS: GOLF (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1530 INDIVIDUAL SPORTS: GOLF II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1550 INDIVIDUAL SPORTS: TENNIS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1600 PERFORMANCE ACTIVITIES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Activities may include, but are not limited to, dance and gymnastics. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1610 PERFORM ACTIVITY - PILATES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1620 PERFORMANCE ACTIVITY: KARATE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Course may be repeated for a maximum of 6 credit hours.

PHED 1630 PERFORMANCE ACTIVITY: TAE KWON DO (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1640 PERFORMANCE ACTIVITY: YOGA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1700 AQUATICS: OTHER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills. Activities may include, but are not limited to, swimming skills instruction, lifeguard training, and scuba diving. When appropriate, successful completion of the course will lead to Red Cross certification or certification by other agencies. Course may be repeated for a maximum of 4 credit hours.

PHED 1710 AQUATICS: WHITEWATER KAYAKING I (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1720 AQUATICS: WHITEWATER KAYAKING II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1740 AQUATICS: LIFEGUARD TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1750 AQUATICS: BEGINNING SWIMMING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1760 AQUATICS: SCUBA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1800 VARSITY SPORTS: STRENGTH AND CONDITION (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topic.

PHED 1810 VARSITY MEN'S SPORTS: FOOTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1820 VARSITY MEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1830 VARSITY MEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1840 VARSITY MEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1850 VARSITY MEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1860 VARSITY MEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1870 VARSITY MEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1880 VARSITY MEN'S SPORTS: BASEBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1900 VARSITY WOMEN'S SPORTS: SOCCER (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1910 VARSITY WOMEN'S SPORTS: GYMNASTICS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1920 VARSITY WOMEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1930 VARSITY WOMEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1940 VARSITY WOMEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1950 VARSITY WOMEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1960 VARSITY WOMEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1970 VARSITY WOMEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1980 VARSITY WOMEN'S SPORTS: SOFTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1990 VARSITY WOMEN'S SPORTS: VOLLEYBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 2100 WHEELCHAIR SPORTS FOR EVERYONE (2) LEC. 2. LAB. 1. A physical education class which introduces students to various wheelchair sports.

PHED 2200 SELF DEFENSE FOR WOMEN (1) LEC. 1. The Rape Aggression Defense (RAD) System is a comprehensive program of realistic self-defense tactics and techniques for women that promotes awareness, prevention, risk reduction and risk avoidance with a progression to hands-on training and simulation exercises.

Physical Therapy Courses

KNPT 9000 ANATOMY FOR PHYSICAL THERAPY I (4) LEC. 3. LAB. 2. The study of the structure and function of the neuromusculoskeletal system: muscles, nerves and joints of the lower extremity and spine. Develop an understanding of structure, function, and biomechanics of gait as well as clinical neurodynamics. Lecture and laboratory experiences will be utilized. Laboratory will include the use of virtual and/or cadaver dissection. Goal is to provide the student with a three-dimensional understanding of the function of the lower quarter and spine.

KNPT 9010 ANATOMY FOR PHYSICAL THERAPY II (4) LEC. 3. LAB. 2. This course studies the structure and function of the neuromusculoskeletal system: muscles, nerves and joints of the upper extremity and spine. Develop an understanding of clinical neurodynamics. Lecture and laboratory experiences will be utilized. Laboratory will include the use of cadaver dissection and/or virtual lab. Goal of the course is to provide the student with a three-dimensional understanding of the function of the upper quarter and spine.

KNPT 9020 PHYSICAL THERAPY BIOMECHANICS I (3) LEC. 2. LAB. 2. Structures of the musculoskeletal system and individual functional regions. Forces sustained in normal and pathological conditions. Application of mechanical/physiological principles to the human movement system. Mechanical properties of biological tissue, kinematics, kinetics, muscle actions, and joint structure and function are examined. Detailed analyses of normal and abnormal movement and alignment of the spine and extremities. Gait and postural analyses, with emphasis on individual joint motion and muscle activity during swing and stance phases of gait.

KNPT 9030 PHYSICAL THERAPY BIOMECHANICS II (3) LEC. 2. LAB. 2. Structures of the musculoskeletal system and individual functional regions. Forces sustained in normal and pathological conditions. Kinesiology emphasizes the application of mechanical and physiological principles to the human movement system. Mechanical properties of biological tissue, kinematics, kinetics, muscle actions, and joint structure and function are examined. Students will perform detailed analyses of normal and abnormal movement and alignment of the spine and extremities.

KNPT 9040 PHYSICAL THERAPY NEUROSCIENCE (4) LEC. 4. This course focuses on the anatomy and physiology of the central nervous system, with emphasis on the substrates and processes involved in movement. The course will provide the student physical therapist with a framework for developing knowledge of the normal structure and function of the human central nervous system; an understanding of various pathological conditions and their clinical manifestations; the skills necessary to perform and interpret a clinical neurological assessment.

KNPT 9050 PHYSICAL THERAPY FOUNDATIONS, THERAPEUTIC EXERCISE I (3) LEC. 2. LAB. 2. Introduction to general physical therapy evaluation including communication skills, and documentation. Understanding of the fundamentals and principles of movement observation and analysis. Concepts, procedures, and techniques required to provide safe and effective patient care. Psychomotor skills including assessment of bony and soft tissue structures (palpation), whole body movement, posture, gait, vital signs. Patient care skills including infection control, patient positioning and draping, transfer activities. Emphasis is placed on appropriate body mechanics for therapist and patient.

KNPT 9060 PHYSICAL THERAPY FOUNDATIONS, THERAPEUTIC EXERCISE II (3) LEC. 2. LAB. 2. Foundations and principles of Therapeutic Exercise for clinical practice of PT. Discuss theories on how variety of therapeutic exercises produce beneficial physiological outcomes. Outline the process clinicians utilize to design appropriate therapeutic exercise programs. Interpret findings of a PT examination, identify impairments, functional limitations and/or disabilities. Methods to efficiently prescribe therapeutic exercise based on the exam findings will be addressed. Apply knowledge of various systems (musculoskeletal, cardiopulmonary, neurological) and discuss their relationship to these interventions.

KNPT 9100 PHYSIOLOGY, PATHOPHYSIOLOGY, & PHARMACOLOGY (3) LEC. 3. Pathophysiology is the study of the biological and physical manifestations of disease as they correlate with the underlying abnormalities and physiological disturbances. It explains the processes within the body that result in the signs and symptoms of a disease. A review of the normal physiology of each system will occur to allow students to compare and contrast “diseased” vs. normal functioning. Lastly, pharmacological interventions commonly used to treat diseases will be discussed.

KNPT 9110 MUSCULOSKELETAL PHYSICAL THERAPY I (3) LEC. 2. LAB. 2. Common disorders of the musculoskeletal system emphasizing the five steps of patient management: examination, evaluation, diagnosis, prognosis, selection and application of interventions, and outcomes measurement for nonsurgical and surgical orthopedic conditions. Utilization of clinical reasoning during comprehensive examination, interpretation, development and implementation of plan of care, and communicating findings with interdisciplinary health care team will be practiced. Emphasis on progression of patient evaluation and management skills.

KNPT 9120 MUSCULOSKELETAL PHYSICAL THERAPY II (3) LEC. 2. LAB. 2. Clinical principles and concepts for management of more complex orthopedic, sports, and industrial injuries. Emphasis on the progression of skills of joint and soft tissue mobilization. Skills that will be added to the student's foundational knowledge will include high velocity low amplitude thrust techniques, movement assessment techniques, advanced therapeutic exercise implementation and progression, and post-operative rehabilitation following common orthopedic surgery procedures.

KNPT 9130 MUSCULOSKELETAL PHYSICAL THERAPY III (2) LEC. 1. LAB. 2. Analysis of interventions used to treat musculoskeletal system dysfunctions. Present assessment and management/intervention principles to various musculoskeletal-related areas typically seen in outpatient orthopedic/sports population. Review McKenzie method for assessment and treatment of lumbar and cervical spine disorders; running biomechanics and analysis, and treatment of common running injuries including use of pre-fabricated or custom foot orthoses; sports massage; treatment techniques for Anterior Cruciate Ligament injury and concussion; women's health issues, including a pilates pre-partum program.

KNPT 9140 NEUROLOGICAL PHYSICAL THERAPY I (3) LEC. 2. LAB. 2. This course addresses the physical therapy examination, evaluation, diagnosis, prognosis and plan of care (including introduction to interventions) for adults with movement problems stemming from dysfunction of the central nervous system (supraspinal and spinal structures), presenting with common neurologic impairments and including altered consciousness or cognitive function as well as vestibular involvement. Emphasis will be on diagnoses such as stroke, Parkinson's disease, multiple sclerosis, amyotrophic lateral sclerosis, post-polio, brain injury, and spinal cord injury.

KNPT 9150 NEUROLOGICAL PHYSICAL THERAPY II (3) LEC. 2. LAB. 2. Build upon evaluative skills to include designing and implementing comprehensive plans of care and specific interventions pertaining to impairments in adults with neuromuscular disorders. Emphasis will be placed on specific diagnoses such as stroke, spinal cord injury, traumatic brain injury; neuromuscular diseases such as multiple sclerosis, Guillain-Barr# Syndrome, chronic inflammatory demyelinating polyneuropathy, amyotrophic lateral sclerosis, polio/post-polio syndrome, and vestibular involvement. Emphasis will be placed on handling skills, concepts of PNF, NDT, and motor learning/control.

KNPT 9160 CARDIOPULMONARY PHYSICAL THERAPY (4) LEC. 3. LAB. 2. Fundamental principles of patient/client screening, evaluation/examination, exercise testing (including resting and exercise electrocardiography [EKG]), and exercise prescription for patient/client populations suffering from acute or chronic cardiovascular, pulmonary illness, and other related conditions are covered. Knowledge and skills of patient screening/evaluation/examination, assessment, and the role of exercise interventions across a wide spectrum of clinical cardiopulmonary conditions are developed. These topics are discussed in conjunction with case studies, problem solving approaches, and current research.

KNPT 9170 ACUTE CARE PHYSICAL THERAPY (3) LEC. 2. LAB. 2. Familiarize the student with several areas in physical therapy assessment and interventions, including wound care and practice in acute care setting. In wound care section, the student will be introduced to the appropriate use of topical agents and dressings as well as sharp debridement. The physical therapist's role in acute care will cover the physical therapy management of the medically complex patient, as well as general physical therapy assessment and management in acute care setting.

KNPT 9200 LIFESPAN PHYSICAL THERAPY I- GERIATRICS (3) LEC. 3. This course is designed to afford the learner an introduction to aging, unique aspects of individuals at later stages in the life span, specifically those which have an impact on physical therapy management. Explore concepts surrounding aging: personal/societal attitudes, misconceptions/myths, physical/psychosocial aspects, demographics, medically complex patients, community resources, caregiver concerns and family involvement, balance screening and fall prevention. Students build upon and apply skills already acquired in other courses while considering geriatric population.

KNPT 9210 LIFESPAN PHYSICAL THERAPY II - PEDIATRICS (3) LEC. 2. LAB. 2. This course addresses normal and delayed maturation processes from conception through adulthood; nervous, cardiovascular and musculoskeletal systems. Typical human motor development from conception through adolescence. Discuss common pathologies seen and role of the physical therapist in pediatric populations. Didactic information is reinforced with observational experiences within the community and application of general physical therapy evaluation and problem-solving skills with mock patients. Introduce and explore useful treatment strategies and equipment used in multiple pediatric settings.

KNPT 9220 PSYCHOSOCIAL ASPECTS IN PHYSICAL THERAPY (3) LEC. 3. This course examines adjustment to physical disability, terminal illness, and ethical decision making. Students will discuss multiple psychosocial aspects of patient care, including the delivery of physical therapy services for patients with chronic health conditions and psychological comorbidities; adjustment to chronic illness and disability; communication strategies to facilitate a positive therapeutic alliance and health behavior change; delivery of psychologically informed and culturally competent care for diverse populations; and abuse and neglect of vulnerable populations.

KNPT 9310 THERAPEUTIC MODALITIES (3) LEC. 2. LAB. 2. Theory and practice of treating injury and pathology of various tissues of human body. Explore tissues that make integument: skin, muscle, bone, cartilage, tendon, ligament, nerve, and joint capsule. Understand how they can be influenced by pathology and therapeutic modes. Introduce physiology of pain and explore treatments for pain. Explore physical agents (heat, cold, sound and electricity) and their adjunctive application, mechanism of action. Explore therapeutic modes of soft-tissue mobilization, neural tension, and other techniques.

KNPT 9320 DIFFERENTIAL DIAGNOSIS (3) LEC. 3. Differentiate: 1) Less common musculoskeletal pathology that might require referral to a physician. These musculoskeletal conditions may be disorders of acquired, genetic, developmental, metabolic, infectious and neoplastic nature; 2) Systemic medical conditions that can mimic and /or complicate common musculoskeletal conditions. How to screen for and differentially diagnose overlaps between common musculoskeletal conditions and other medical problems and/or co-morbidities that can affect clinical decision-making. Basic interpretation of imaging studies, electroneuromyography and selected laboratory test results.

KNPT 9340 ORTHOTICS & PROSTHETICS (3) LEC. 2. LAB. 2. Introduce the entry-level doctor of physical therapy student to the theory, design, function, and application of prosthetic and orthotic devices for the extremities and spine. Discuss evolution of prosthetics and orthotics, with exposure to recent advancements including state-of-the-art devices, which allow optimal function for patients. Discuss indications for devices, a physical therapist's role in management and inter-professional collaboration, and applicable interventions. Information regarding the education and responsibilities of a certified prosthetist/orthotist will be presented.

KNPT 9500 PROFESSIONAL DEVELOPMENT IN PHYSICAL THERAPY (2) LEC. 2. Critical examination of responsibilities, challenges, and opportunities inherent in physical therapy practice. Develop practitioners engaged in professionalism, commitment to the demonstration of attributes to enhance practice of physical therapy at individual and societal levels. Develop expert reasoning and psychomotor skills to allow highest quality of patient care. Understand ramifications and influence of cost-related factors in current healthcare system. Students must be willing to assume an active role in identifying emerging problems and seek appropriate solutions.

KNPT 9510 PHYSICAL THERAPY ADMINISTRATION, SUPERVISION & MANAGEMENT (3) LEC. 3. This course intends to introduce students to managerial and organizational skills, practice settings, and business models as they relate to the physical therapy profession. Review federal and Alabama rules on physical therapy assistant supervision. Students will also explore the various ethical and legal factors which impact patient care in the current physical therapy environment. Additionally, students will have the opportunity to practice these skills through group work and the development of group business plan.

KNPT 9600 EVIDENCE BASED PRACTICE FOR PHYSICAL THERAPY I (4) LEC. 4. This course introduces students to evidence-based practice and prepares the students to be consumers of professional literature in physical therapy. Students will identify, interpret, and distinguish between a wide variety of research relevant to the practice of physical therapy while also considering the roles of clinical expertise and patient values in applying the evidence, clinically. Course participation exposes the student to various research methodological principles and analytical concepts in preparation for their grand rounds.

KNPT 9610 EVIDENCE BASED PRACTICE FOR PHYSICAL THERAPY II (3) LEC. 3. Students will develop and demonstrate skills of evidence-based practice and patient/client management through completion of a written case study and oral presentation based on their clinical experience. This project includes a written summation of a patient's case, analyzing evidence and addressing clinical questions which arose during student's interactions. Students must develop and deliver an oral presentation and provide critical feedback on peer presentations.

KNPT 9620 EVIDENCE BASED PRACTICE FOR PHYSICAL THERAPY III (3) LEC. 3. Integrate evidence, patient values, and clinical expertise to critically analyze clinical decision making for complex cases across a range of practice settings. Identify and answer questions regarding physical therapy examination, prognosis, and intervention through empirical evidence. Use International Classification of Functioning, Disability, and Health (ICF) model of clinical reasoning to synthesize evidence, patient values and clinical expertise to make patient-centered decisions. Collaborative problem solving and professional communication skills are developed through group interactions with peers.

KNPT 9800 CLINICAL PLACEMENT I (4) FLD. 35. SU. This six-week clinical placement course is designed to introduce the physical therapy student to the clinical environment and to apply knowledge and basic skills developed up to this point in the curriculum in a real-world clinical setting.

KNPT 9810 CLINICAL PLACEMENT II (14) FLD. 40. SU. Pr. KNPT 9800. This course is designed to incorporate knowledge and skills obtained during the first short term placement, and synthesize information and skills developed in the final didactic portion of the curriculum, and apply them in real-world physical therapy practice setting that they are assigned to, under direct supervision of the clinical instructor (licensed physical therapist at the assigned placement site).

KNPT 9820 CLINICAL PLACEMENT III (14) FLD. 40. SU. Pr. KNPT 9800 and KNPT 9810. This course is designed to incorporate knowledge and skills obtained during the first short term placement as well as the intermediate placement, and synthesize information and skills developed in the final didactic portion of the curriculum, and apply them in real-life physical therapy practice setting that the student is assigned to, under direct supervision of the clinical instructor (licensed physical therapist at the assigned clinical site).

KNPT 9900 GRAND ROUNDS I (1) LEC. 1. SU. Grand Rounds I serves as a platform where students, faculty, and guest speakers converge to elevate their diagnostic, clinical, and treatment proficiencies through case presentations and discussions. Clinicians and faculty specializing in physical therapy and related health professions are welcomed as presenters. Beyond the dissemination of physical therapy best practices, the overarching objective is to foster an interactive dialogue involving diverse healthcare professions, thus enriching the discourse on optimal patient care. Course may be repeated for a maximum of 2 credit hours.

KNPT 9910 GRAND ROUNDS II (1) LEC. 1. SU. Students will demonstrate advanced skills such as deductive reasoning, clinical decision-making, formulation of evidence-based interventional strategies, professional presentation proficiency, and independent critical thinking, all rooted in their own clinical experiences, through interactive case presentations and discussions. Beyond the transmission of physical therapy best practices, the primary aim is to foster a robust and participatory dialogue that actively engage participants in shaping optimal approaches to patient care. Course may be repeated for a maximum of 3 credit hours.

Exercise Science (KESB)

Freshman

Fall	Hours	Spring	Hours
Select one of the following:	4	BIOL 2500 Human Anatomy and Physiology I	3
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory		BIOL 2501 Human Anatomy and Physiology I Laboratory	1
BIOL 1027 Honors Biology		ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Social Science	3
Core Social Science	3	Core Humanities	3
MATH 1130 Pre-Calculus Trigonometry	3	KINE 2250 Motor Development Across the Lifespan ***or*** 2257 Honors Motor Development Across the Lifespan	2
KINE 1100 Wellness & Public Health	**3**		
	16		**15**

Sophomore

Fall	Hours	Spring	Hours
BIOL 2510 Human Anatomy and Physiology II	3	CHEM 1030 Fundamentals Chemistry I	3
BIOL 2511 Human Anatomy and Physiology II Laboratory	1	CHEM 1031 Fundamental Chemistry I Laboratory	1
Core Literature[1]	3	Core Literature or Core Humanities[1]	3
Core History[1]	3	Core History or Core Social Science[1]	3
Core Fine Art	3	Elective	3
KINE Electives	**3**	**PHED Elective**	**2**
	16		**15**

Junior

Fall	Hours	Spring	Hours
PHYS 1500 General Physics I	4	Select one of the following:	4
KINE 3650 Motor Learning and Performance *or* 3657 Honors Motor Learning and Performance	**3**	BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory	

KINE 4620 Exercise and Sport Psychology *or* 4627 Honors Exercise and Sport Psychology	**3**	BIOL 1037 Honors Organismal Biology	
PHED Elective	**2**	**KINE 3620 Biomechanical Analysis of Human Movement *or* 3627 Honors Biomechanical Analysis of Human Movement**	**3**
Directed Electives	3	**KINE 3621 Biomechanical Analysis of Human Movement Laboratory**	**1**
		KINE 3680 Physiology of Exercise	**3**
		KINE Electives	**3**
	15		**14**

Senior

Fall	Hours	Spring	Hours
KINE 4760 Introduction to Exercise Science Research *or* 4767 Honors Intro to Exercise Science Research	**3**	**KINE 4780 Exercise Science Research, 4787 Honors Exercise Science Research, *or* 4997 Honors Thesis (Or approved senior capstone course)[3]**	**3**
Directed Electives	11	Directed Electives	12
		UNIV 4AA0 Achieve the Creed	0
	14		**15**

Total Hours: 120

1 Students must complete a history sequence or a literature sequence.
2 Directed Electives and KINE Electives: See advisor for options.
3 See advisor for approved senior capstone course substitution options. These may be granted only upon availability of approved courses.

Exercise, Performance & Health Optimization (EPHB)

Freshman

Fall	Hours	Spring	Hours
Select one of the following:	4	BIOL 2500 Human Anatomy and Physiology I	3
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory		BIOL 2501 Human Anatomy and Physiology I Laboratory	1
BIOL 1027 Honors Biology		ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Humanities	3
MATH 1130 Pre-Calculus Trigonometry	3	Core Social Science	3
Core Fine Art	3	KINE 2250 Motor Development Across the Lifespan ***or*** 2257 Honors Motor Development Across the Lifespan	2
KINE 1100 Wellness & Public Health	**3**		
	16		**15**

Sophomore

Fall	Hours	Spring	Hours
BIOL 2510 Human Anatomy and Physiology II	3	Select one of the following:	4

BIOL 2511 Human Anatomy and Physiology II Laboratory	1		BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory	
Core Literature[1]	3		BIOL 1037 Honors Organismal Biology	
Core History[1]	3		Core Literature or Core Humanities[1]	3
Core Social Science	3		Core History or Core Social Science[1]	3
KINE Elective[2]	**3**		**KINE Elective[2]**	**3**
			PHED Elective	**2**
	16			**15**

Junior

Fall	Hours	Spring	Hours
KINE 3620 Biomechanical Analysis of Human Movement ***or*** 3627 Honors Biomechanical Analysis of Human Movement	3	**KINE 3650 Motor Learning and Performance *or* 3657 Honors Motor Learning and Performance**	**3**
KINE 3621 Biomechanical Analysis of Human Movement Laboratory	1	Directed Electives[2]	4
KINE 3680 Physiology of Exercise	**3**	**KINE 4600 Strength and Conditioning Development**	**3**
PHED Elective	**2**	**KINE 4560 Sport Technique and Movement Analysis**	**3**
Directed Electives[2]	6	**KINE 4450 Physical Activity and Public Health**	**3**
	15		**16**

Senior

Fall	Hours	Spring	Hours
KINE 4620 Exercise and Sport Psychology *or* 4627 Honors Exercise and Sport Psychology	**3**	**KINE 5920 Internship**	**12**
KINE 4630 Strength and Conditioning Preparation	**3**	UNIV 4AA0 Achieve the Creed	0
KINE 4690 Corrective Exercise Specialist Preparation	**3**		
KINE 5400 Exercise Assessment, Prescription, & Programming	**3**		
Elective[2]	3		
	15		**12**

Total Hours: 120

1 Students must complete a history sequence or a literature sequence.
2 Directed Electives and KINE Electives: See advisor for approved course options.

Sport Coaching Minor

Code	Title	Hours
15 semester hours in minor		
KINE 3820	Principles of Sport Coaching	3
Select 12 hours from list:		12
KINE 2000	Pillars of Health: A Journey to Optimal Health & Wellbeing	
KINE 3050	Care and Prevention of Injuries	

KINE 3100	Adaptive Sports
KINE 3110	Paralympic Sport
KINE 3830	Theory and Practice of Sports Officiating
KINE 3840	Coaching the Mental Side of Sports
KINE 3870	Legal and Illegal Sports Supplements
KINE 4560	Sport Technique and Movement Analysis
KINE 4600	Strength and Conditioning Development
KINE 4620	Exercise and Sport Psychology
KINE 5820	Sport Management
ERMA 4330	Introduction to Sports Analytics
Total Hours	**15**

Department of Special Education, Rehabilitation, and Counseling

Undergraduate Degree Programs

- Collaborative Teacher Education (BS) (p. 556)
- Early Childhood/Elementary Special Education (BS) (p. 557)
- Rehabilitation and Disability Studies (BS) (p. 559)

Undergraduate Minor Programs

- Counseling (p. 553)

Non-Degree Programs

- EAGLES Program (p. 540)

Undergraduate Degree Programs (BS)

The Department of Special Education, Rehabilitation and Counseling prepares students in the following areas: collaborative teacher education, early childhood/elementary special education, and rehabilitation and disability studies.

Collaborative Teacher Education — BS

This Bachelor of Science in Collaborative Teacher Education program prepares students to be teachers who serve students with disabilities in grades K-12. The program includes coursework that covers most disabilities with the exception of sensory impairments and certain severe disabilities. Graduates are prepared to implement evidence-based practices in inclusive general education settings as well as develop programs that meet students' unique educational needs in different school-based and community-based settings. Collaborative teacher education meets the criteria for ALSDE Class B certification in K-12 grade levels.

Early Childhood/Elementary Special Education — BS

This Bachelor of Science in Early Childhood/Elementary Special Education prepares teachers and early interventionists to serve children with a variety of disabilities from birth to age 9 in a range of settings from home to elementary school. Graduates are prepared to implement evidence-based practices that support families and the development of young children who have or are at-risk for developmental delays and disabilities, as well as elementary-age students with disabilities. Early childhood/elementary special education meets the criteria for ALSDE Class B certification in birth through 6th grade and includes Infants and toddlers (birth to 2 years of age); preschoolers (3 to 4 years of age); and K-6 grade levels.

Rehabilitation and Disability Studies — BS

This Bachelor of Science program is a 120-credit hour program that prepares students to become professionals in the fields of disability studies and services which include counseling, allied health fields (occupational therapy/physical therapy), case management, human services, orthotics and prosthetics, and other related fields. Coursework covers the foundation and history of the disability movement. The program has a large component of field experience which allows students experience working with consumers in different areas of rehabilitation services. The focus is on current research in rehabilitation strategies and processes.

Minor

The department offers a minor in counseling. The counseling minor provides students interested in careers in the helping professions with a foundational understanding of the roles and activities of counselors and facilitates the development of the core professional values of the counseling and related fields.

Information about the Counseling minor can be found at: Counseling Minor Curriculum.

Non-Degree Programs

EAGLES

The Education to Accomplish Growth in Life Experiences for Success, or EAGLES, is a comprehensive transition program (CTP) for students with intellectual disabilities. The program provides a post-secondary education opportunity for students with intellectual disabilities to engage in a two or four-year campus experience to help students achieve their employment and independent living goals upon successful completion of the program. The EAGLES program is a non-degreed program focusing on (1) academic enrichment, (2) personal and social skills, (3) independent living skills, (4) health and wellness, and (5) integrated work experiences. Students in the program receive an inclusive post-secondary education providing them with an enriching and rewarding Auburn experience as they prepare to transition to gainful employment, that aligns with the student's strengths and interests and independent living goals. The EAGLES program curriculum is structured to help students become contributing members of society through their career interests both now and in the future.

Information about graduate programs is available at: Special Education, Rehabilitation, and Counseling - MA, MEd, MS, EdS, PhD, Graduate Certificates.

Majors

- Early Childhood/Elementary Special Education: P–6 (p. 557)
- Collaborative Teacher Special Education: K–12 (p. 556)
- Rehabilitation and Disability Studies (p. 559)

Minors

- Counseling (p. 553)

Counselor Ed, Counseling Psych Courses

COUN 1000 CAREER ORIENTATION EXPLORATION (2) LEC. 1. LAB. 2. The process of career decision-making through hands- on activities, in-class exercises, and job shadowing.

COUN 2000 LIVING AND COMMUNICATING IN A DIVERSE SOCIETY (3) LEC. 3. The class developing cultural competence in context of relationships, issues, and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, and mental and physical abilities/disabilities.

COUN 2007 HONORS LIVING AND COMMUNICATING IN A DIVERSE SOCIETY (3) LEC. Pr. Honors College. The class developing cultural competence in context of relationships, issues, and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, and mental and physical abilities/disabilities.

COUN 2020 INTRODUCTION TO LGBTQ STUDIES (3) LEC. 3. The class focuses on content addressing and introduces lesbian, gay, bisexual, and transgender studies. The course will examine the historical, scientific, psychological, and cultural contexts of relationships, issues and trends in a diverse society related to sexual orientation.

COUN 2300 MENTAL HEALTH DISPARITIES (3) LEC. 3. This course will introduce students to mental health disparities and strategies for addressing the social factors of mental health.

COUN 2900 DIRECTED STUDIES (1-3) IND. SU. Reading, research, or other work undertaken by a student focused on an area of special interest. Directed by faculty member. Course may be repeated for a maximum of 9 credit hours.

COUN 2940 DIRECTED FIELD EXPERIENCE (1-3) DSL/FLD. Course may be repeated for a maximum of 9 credit hours.

COUN 2950 THRIVING THROUGH TRANSITIONS (1) SEM. 1. This course requires participation in activities that support healthy living and assignments that facilitate understanding of mechanisms that promote well-being. Course content reviews the process of recovery from addiction and mechanisms used to support long-term recovery. Course may be repeated for a maximum of 12 credit hours.

COUN 2970 SPECIAL TOPICS IN COLLEGE STUDENT DEVELOPMENT (1-3) DSL. Selected topics in college student development. Fall, Spring. Course may be repeated for a maximum of 12 credit hours.

COUN 3000 CAREER SUCCESS (2) LEC. 2. Developing a career plan via instruction on researching careers, writing resumes, developing portfolios, interviewing, net working and other career development practices. May count either COUN 3000 or COUN 3003.

COUN 3100 COUNSELING AND HUMAN SERVICES (3) LEC. 3. Counseling concepts and skills appropriate in the helping professions. Not open to graduate students in counseling education.

COUN 3980 SUPERVISED RESEARCH EXPERIENCE IN COUNSELING (3) LAB. 3. SU. This course provides students with the opportunity to gain supervised research experience in counselor education, counseling psychology, and special education programs. Students will work with the faculty instructor to gain experience in a range of research activities. Course may be repeated for a maximum of 12 credit hours.

COUN 4000 INTRODUCTION TO COUNSELING AND PSYCHOTHERAPY (3) LEC. 3. Pr. COUN 2000 or COUN 2007. Current theory, research, and practice regarding counseling and psychotherapy. We will cover several current issues related relevant to counseling and psychotherapy, including the process of change, theoretical perspectives, ethical issues.

COUN 4010 INTRODUCTION TO PREVENTION AND MENTAL HEALTH PROMOTION (3) LEC. 3. Pr. COUN 2000 or COUN 2007. Addressing the ideas of prevention and health promotion in counseling psychology. We will address such concepts as positive psychology, mindfulness, stress, health promotion, body image, social justice theory, social advocacy, and prevention theory.

COUN 4910 PRACTICUM (1-3) PRA. SU. This course provides students with the opportunity to be actively involved in social justice efforts that affect the region and nation through gaining hands-on experience in a social justice agency. Course may be repeated for a maximum of 6 credit hours.

COUN 4970 SPECIAL TOPICS IN COUNSELING (3) DSL/ST1. Introduction to selected topic in counseling. Course will provide a semester-long introduction and introduction into research in the topic of interest using a seminar style of instruction. Course may be repeated for a maximum of 9 credit hours.

COUN 7010 MEDICAL VOC & PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. An introduction to medical terminology, body systems, common physical and cognitive conditions therapeutic/restorative services, and psychosocial & vocational considerations of various disabilities. May count COUN 7010 or RSED 6010.

COUN 7110 OCCUPATIONAL, CAREER AND PLACEMENT SERVICES (3) DSL/LEC. The course is designed to familiarize students with career theory and methods used by rehabilitation practitioners to analyze and apply vocational techniques to place individuals with disabilities. May count COUN 7110 or RSED 6220.

COUN 7130 VOCATIONAL EVALUATION (3) LEC. 3. Principles, process and techniques used to diagnose vocationally-related assets and liabilities of the individual with disabilities. May count either RSED 7130, COUN 7130.

COUN 7200 INTRODUCTION TO MEASUREMENT AND ASSESSMENT (3) LEC. 3. Pr. COUN 7100 or COUN 7400. Introduction to the history and theory of measurement and assessment as it applies to counselors and psychologists.

COUN 7220 INTELLECTUAL ASSESSMENT OF CHILDREN AND ADOLESCENTS (3) LEC. 3. Pr. COUN 7200. Theory and measurement of children's intelligence. Administration and interpretation of selected tests.

COUN 7230 CAREER DEVELOPMENT AND VOCATIONAL APPRAISAL (3) LEC. 3. Career development theories appraising vocationally related interests, aptitudes, and personal characteristics. Laboratory practice in test procedures.

COUN 7240 COUNSELING CHILDREN AND ADOLESCENTS (3) LEC. 3. Course provides awareness, knowledge, and skills for counseling children and adolescents using effective theoretical approaches, counseling modalities, and specific techniques.

COUN 7250 ADVANCED ASSESSMENT AND DIAGNOSIS IN COUNSELING (3) LEC. 3. Assessment/diagnostic skills related to counseling: intake, assessment, diagnostic criteria, treatment planning, counseling interventions.

COUN 7310 COUNSELING APPLICATIONS OF LIFESPAN DEVELOPMENT (3) LEC. 3. Theories and current research in development across the lifespan with emphasis on applications to counseling.

COUN 7320 COUNSELING THEORIES (3) LEC. 3. Study of major counseling theories.

COUN 7330 COUNSELING DIVERSE POPULATIONS (3) LEC. 3. Departmental approval. Special counseling and advocacy issues. Needs of diverse populations are considered.

COUN 7340 GROUP COUNSELING (3) LEC. 3. Leading, developing, evaluating a counseling group; including group proposal, session development, group dynamics, group leadership and evaluation, treatment planning; group intervention, counseling skills.

COUN 7350 INTRODUCTION TO COUNSELING PRACTICE (3) LEC. 3. Pr. COUN 7320 or COUN 7400 or COUN 8530. Methods, interventions, and skills essential to counseling.

COUN 7360 ADVANCED COUNSELING PRACTICE: FAMILY SYSTEMS (3) LEC. 3. This course will introduce students to Marriage/ Couple and Family Counseling theories. Using a learning-centered educational approach, students will be introduced to systemic, cognitive-behavioral, and postmodern family therapy theories using clinical case documentation. Diversity, evidence-based therapies, and the research foundations will also be covered.

COUN 7370 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count as COUN 7370 or RSED 6340.

COUN 7400 ORIENTATION TO PROFESSIONAL COUNSELING (3) LEC. 3. Orientation to the counseling field with emphasis on philosophical, historical, psychological, and organizational foundations of professional practice.

COUN 7410 ORIENTATION TO CLINICAL MENTAL HEALTH COUNSELING (3) LEC. 3. Orientation to clinical mental health counseling to include roles, responsibilities, systems, theories, professional issues, and history.

COUN 7420 ORIENTATION TO SCHOOL COUNSEL (3) LEC. 3. Orientation to the role and activities of the K-12 school counselor. Emphasis on the components of a developmentally-oriented school counseling program.

COUN 7450 FOUNDATIONS OF SCHOOL COUNSELING (3) LEC. 3. This course is designed to extend beyond the orientation to counseling course and expand the practical knowledge of school counselors-in-training to prepare students to work as effective school counselors based on current research and practical experiences. Restricted to students in Master's Program in School Counseling.

COUN 7460 LEADERSHIP AND ADVOCACY FOR SCHOOL COUNSELORS (3) LEC. 3. This course is designed to provide an overview of school counseling leadership and advocacy. School counselors in training will develop a deeper knowledge of their role of educational leaders while serving as school counselors. Restricted to students in Counselor Education.

COUN 7500 CRISIS INTERVENTION IN COUNSELING (3) LEC. 3. Development of skills and knowledge for crisis intervention and management in counseling, including prevention planning, intervention strategies and evaluation.

COUN 7510 ADVANCED CLINICAL MENTAL HEALTH COUNSELING INTERVENTIONS (3) LEC. 3. Pr. COUN 7320. Advanced counseling interventions, practices, techniques and methods for mental health counselors, including treatment planning, counseling processes, and evaluation.

COUN 7520 INTRODUCTION TO REHABILITATION AND CASE MANAGEMENT IN REHABILITATION COUNSELING (3) LEC. 3. Program organization and development of materials for curriculum improvement and teaching practices in a disability specialization area. COUN 7520 may be repeated for a maximum combined total of 9 credits with a change in disability specialization.

COUN 7900 DIRECTED STUDIES (1-3) IND. SU. Independent learning effort directed at desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

COUN 7910 PRACTICUM (3) LEC. 3. SU. Supervised experiences appropriate to student's program emphasis area. Course may be repeated for a maximum of 9 credit hours.

COUN 7920 INTERNSHIP (1-9) INT. SU. Pr. COUN 7910 or COUN 7916. Supervised on-the-job experiences. Course may be repeated for a maximum of 9 credit hours.

COUN 7930 ADVANCED THEORIES IN COUNSELING PRACTICE (3) LEC. 3. Intensive study of advanced theories within rehabilitation counseling, as well as an examination of outcome research relating to the use and application of these theories and techniques. May count COUN 7930 or RSED 7940.

COUN 7950 EMERGING ADULTHOOD AND TRANSITION IN REHABILITATION (3) LEC. Introduction to the transition process of youth with disabilities from school to adulthood and employment with emphasis on the developmental stage emerging adulthood. May count COUN 7950 or RSED 7950.

COUN 7960 SPECIAL PROBLEMS (1-10) IND. SU. May be repeated. Course may be repeated for a maximum of 10 credit hours.

COUN 7970 SPECIAL TOPICS (1-3) AAB. An in-depth study of a current topic(s) impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8110 COUNSELING ASSESSMENT ACROSS THE LIFESPAN (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, and attitude tests across the lifespan.

COUN 8120 APPRAISAL IN COUNSELING AND PSYCHOLOGY (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, attitude tests. Includes assessment interview, behavioral observation.

COUN 8200 INTELLECTUAL ASSESSMENT OF ADULTS (3) LEC. 2. LAB. 3. Pr. COUN 8120. Theory and measurement of adult intelligence. Administration and interpretation of selected tests.

COUN 8210 TEST ADMINISTRATION AND PROFESSIONAL PRACTICE (3) LEC. 3. Pr. COUN 8530. Administration and scoring of selected tests, primarily WAIS-IV, to familiarize students with measurements for assessment of adult intelligence.

COUN 8220 PSYCHOLOGICAL SCIENCE AND HEALTH (3) LEC. 3. Pr. PSYC 7150 and PSYC 7180 and COUN 7330 and COUN 7310. In this course, fundamental science relating to health and psychology will be reviewed, focusing on major theoretical foundations, research findings, and empirically supported interventions. Students will be expected to integrate foundational knowledge in psychological science with particular emphasis on biological.

COUN 8230 COLLOQUIUM IN COUNSELING PSYCHOLOGY I (1) SEM. 1. SU. This course provides pre-practicum students with training in the conduct of counseling psychology research to provide foundational skills in research design and implementation.

COUN 8240 COLLOQUIUM IN COUNSELING PSYCHOLOGY II (2) LAB. 1, LAB/SEM. 1. SU. This course provides continued education and training in counseling psychology research and provides opportunities to demonstrate an ability to evaluate psychotherapy research in order to achieve readiness for practicum in research skills.

COUN 8250 COLLOQUIUM IN COUNSELING PSYCHOLOGY III (3) LAB. 1, LAB/SEM. 2. Pr. COUN 8240. This course provides advanced education and training in the development, conduct, and dissemination of counseling psychology research and provides opportunities to demonstrate an ability to contribute to meaningful scholarship in Counseling Psychology.

COUN 8260 COLLOQUIUM IN COUNSELING PSYCHOLOGY IV (3) LAB. 1, SEM. 2. Pr. COUN 8250. This course provides advanced education and training in the development, conduct, and dissemination of counseling psychology research and provides opportunities to demonstrate an ability to integrate concepts of equity and justice in the contribution to meaningful scholarship in Counseling Psychology.

COUN 8300 RESEARCH DESIGN IN COUNSELING AND EVALUATION (3) LEC. 3. Departmental approval. Methods for counseling research design . Studies, experimental, quasi-experimental, non-experimental, survey, between subjects and within subjects.

COUN 8310 COGNITION AND EMOTION (3) LEC. 3. Theory and empirical evidence on the cognitive and affective bases of human behavior. Integration of scientific knowledge regarding cognition and emotion.

COUN 8320 GREAT IDEAS IN PSYCHOLOGY (3) LEC. 3. Orientation to the individuals and ideas that shaped psychology using a history and systems perspective.

COUN 8400 PROFESSIONAL SEMINAR COUNSELING PSYCHOLOGY (1-3) LEC. Scientific foundations of the counseling psychology profession and application of that foundational knowledge in counseling interventions. Course may be repeated for a maximum of 9 credit hours.

COUN 8510 CONTEMPORARY ISSUES IN COUNSELOR EDUCATION (3) LEC. 3. Departmental approval. History, development, current issues. Philosophical assumptions, legal and ethical considerations, new research service initiatives.

COUN 8530 CONTEMPORARY ISSUES IN COUNSELING PSYCHOLOGY (3) LEC. 3. History, development, and current professional issues. Philosophical and cultural assumptions, legal and ethical considerations, and current research topics.

COUN 8540 COUN SUPERVISION-THEORY & PRAC (3) LEC. 3. Advanced theories, skills, models and methods used in counseling supervision including counselor development, supervisory processes and evaluation.

COUN 8550 COUNSELOR EDUCATION PEDAGOGY (3) LEC. 3. Counselor Education pedagogical skills and knowledge including; theories, course and curriculum development methods, and professional responsibilities.

COUN 8610 ADVANCED THEORIES: EXISTENTIAL/HUMANISTIC (3) LEC. 3. Theory and practice of humanistic/existential approaches to individual and group therapy.

COUN 8620 ADVANCED COUNSELING THEORIES AND PRACTICE (3) LEC. 3. Advanced study of counseling theories. Includes research relating to application of theories and techniques. Course will emphasize integration, evidence-based approaches, case conceptualization and models for evaluation.

COUN 8630 ADVANCED THEORIES: PSYCHODYNAMIC THEORIES (3) LEC. 3. Departmental approval. The origins, current status, and emerging applications of psychodynamic approaches to counseling.

COUN 8700 DIVERSITY AND SOCIAL JUSTICE IN COUNSELOR EDUCATION (3) LEC. 3. Must be admitted to the Counselor Education Doctoral Program. This advanced course provides students with information about issues of diversity and social justice. Students apply this information to their roles in the counseling profession, specifically as future counselor educators, leaders of the profession, and advocates.

COUN 8800 PROFESSIONAL DEVELOPMENT INTERNSHIP SKILLS (3) LEC. 3. This three-hour required course is designed to help students solidify their professional identity and effectively apply for their one-year Counseling Psychology internship.

COUN 8910 PRACTICUM (1-3) LEC. 1-3. SU. Advanced supervised experiences appropriate to student's program emphasis. Course may be repeated for a maximum of 15 credit hours.

COUN 8920 INTERNSHIP (1-9) INT. SU. Advanced supervised on-the-job experiences appropriate to doctoral-level study. Course may be repeated for a maximum of 9 credit hours.

COUN 8930 INTERNSHIP IN COUNSELING PSYCHOLOGY (0) INT. SU. Departmental approval. Supervised, full-time experience in Counseling Psychology at the doctoral level. May be repeated to satisfy 2000 clock hour accreditation requirement.

COUN 8970 SPECIAL TOPICS (1-3) SEM. An in-depth study of the current educational, sociological, psychological, economic, health, legal, technological, and professional issues impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated. Course may be repeated with change in topics.

EAGLES Program Courses

EAGL 0100 POSITIVE CHOICES (0) SEM. 3. Departmental approval. In this course, students explore positive choices on healthy relationships, sexuality, and safe boundaries. The course is designed to increase critical thinking about relationships.

EAGL 0110 TRANSITION TO POSTSECONDARY EDUCATION (0) SEM. 3. Departmental approval. This course introduces life as a student on a college campus. It includes an overview of skills needed to manage daily life, support health, and wellness goals, and engage in social interactions on a college campus.

EAGL 0130 TRANSITION TO INDEPENDENT LIVING: ON-CAMPUS LIVING (0) SEM. 3. Departmental approval. This course prepares students for living independently in that of maintaining a clean-living space. This includes but is not limited to, educating on the proper cleaning tools for different tasks, following a chore list and or chart, and the aspect of courtesy of keeping shared spaces clean, especially when living with others.

EAGL 0140 FINANCIAL LITERACY (0) DSL/SEM. 3. Departmental approval. In this course, students build their knowledge of financial literacy as it relates to all settings (school, work, community, and home). Students demonstrate an understanding of counting money, managing their finances, budgeting, and relating their financial security to their chosen career area.

EAGL 0150 EMPLOYMENT EXPLORATION (0) SEM. 3. Departmental approval. In this course, EAGLES students explore career paths related to their personal interests and goals. Students identify occupational areas of interest using assessment results that they might prepare for and pursue while in the program and beyond.

EAGL 0200 EMPLOYMENT PREPARATION (0) SEM. 3. Departmental approval. This course focuses on strengthening skills learned and acquired as a first-year college student. This course also focuses on developing healthy habits for employment through the creation of a detailed habit plan and incorporates application-based activities, and real-world practice in the students' everyday lives. Students identify healthy habits and how they will personally incorporate them into all domains of their lives: Academics, Employment, Independent Living, Personal/Social, and Health and Wellness.

EAGL 0210 TRANSITION TO INDEPENDENT LIVING - MEAL PREP GROCERY SHOPPING (0) SEM. Departmental approval. The purpose of this course is to provide the EAGLES students with independent skills involving meal preparation and grocery shopping. These skills help the students transition to an independent lifestyle by learning how to prepare, shop, and cook meals while developing healthy eating habits.

EAGL 0220 LIVING IN THE MODERN WORLD (0) SEM. Departmental approval. This course prepares students to live independently and in the modern world by learning about challenges and pressures, self-determination, and resilience. Students will learn different strategies for self-care and develop an individualized plan for their personal self-care needs. Students will learn about community resources and community safety through outdoor exploration and guest speakers.

EAGL 0230 LIVING ARRANGEMENTS 101 (0) SEM. 3. Department approval required. Students have access to almost all their basic needs on a college campus; however, to successfully transition, students need to learn how to access these supports in their community and how to access them independently. The goal of this course is to teach second-year EAGLES students how to create a Housing Plan according to their independent living goals, financial means, and supports required to be successful at living on their own. This course is meant to introduce students to the real world of living independently through application-based lessons in the community.

EAGL 0310 EMPLOYMENT IMPLEMENTATION (0) LEC. 0. The goal of this course is to teach third year EAGLES students how to generalize skills they have learned into a community setting. Students are taught how to access all supports, like going to the post office, the eye doctor, and taking their animal to the vet, in their community independently. This course is meant to introduce students to the Auburn community so they can be engaged citizens through application-based lessons. Departmental Approval.

EAGL 0320 TRANSITION TO INDEPENDENT LIVING- OFF-CAMPUS LIVING (0) SEM. Departmental approval. The goal of this course is to teach third and fourth year EAGLES students how to generalize skills they have learned into a community setting. Students have access to almost all their basic needs on a college campus, however, to successfully transition, students need to learn how to access these supports in their community and how to access them independently.

EAGL 0330 HOT TOPICS IN TRANSITION (0) SEM. 3. Departmental approval required. In this course, students build upon their knowledge from the first financial literacy class and create a personal budget and finance portfolio to plan their future expenses across all domains for living based on their income, family support, SSI benefits, and a nest egg to support the student while living on their own. Additionally, this course reviews how to protect oneself from fraud.

EAGL 0340 MEDICAL ASPECTS (0) SEM. 3. Assist students in developing working knowledge of medical aspects of their disability and the routine medical needed to live a healthy life. This course helps students develop a medical binder to help them be autonomous when answering questions at routine medical appointments. Additionally, this course explains the process of how insurance works, medical services needed, like routine physicals, dental health, and women’s health and how to address acute issues like the common cold, headaches, etc. Departmental approval required.

EAGL 0410 EAGLES CAPSTONE PREPARATION (0) SEM. Departmental approval. Students will create an online portfolio including sections reflecting the five pillars of the EAGLES Program: academic enrichment, personal and social skills, independent living skills, health and wellness, and integrated work experiences. Students will explore areas of interest and set goals when it comes to career-making decisions and obtaining meaningful employment. Students will identify and learn to navigate resources available to them both while they are in the program and once they are alumni of the program, such as Auburn Career Services, LinkedIn, Indeed, and more. Students will hear from guest speakers focused on presenting valuable information regarding each area of the EAGLES Program’s five pillars and how students can sustain their focus on these areas after completion of the advanced program.

EAGL 0420 WORK READY, WORLD READY (0) SEM. Departmental approval. In this course, students identify, explore, and interact with agencies that will benefit them post-program. Students learn resources available to individuals with intellectual disabilities and how to access and utilize the agencies. Students learn the benefits of each agency related to employment, independent living, and community living upon completion of the program.

EAGL 0430 BECOMING AN EAGLES ALUMNI (0) SEM. 3. The purpose of this course is to assist students in developing S.O.A.R. Planning documents in preparation for life after the EAGLES Program. The course helps students work through the 5 domains of the EAGLES Program to identify accommodations needed, personal goals, supports to achieve goals and action steps. Additionally, this course will assist EAGLES students in developing and updating important documents needed post-program. Departmental approval required.

Rehabilitation Special Ed Courses

RSED 2000 DISABILITY AWARENESS AND MENTORSHIP (3) LEC. 3. LAB. 3. Overview of disabilities and strategies to address disparities in society through awareness, advocacy, and international PEER certified educator/mentorship. EAGLES counselors and WINGS peer mentor requirement.

RSED 3000 DIVERSITY AND EXCEPTIONALITY OF LEARNERS (3) LEC. 3. Exploration of philosophical, social, cultural, and legal factors, and individual characteristics shaping education for individuals with disabilities; and roles/responsibilities of educators in inclusive settings. May count either RSED 3000 or RSED 3003.

RSED 3010 INTRODUCTION TO SPECIAL EDUCATION (3) LEC. 3. Orientation to special education profession including history, philosophy, federal legislation, contemporary issues and national organizations. Only CMDS Majors may take this course. Departmental approval for all other majors.

RSED 3020 INTRODUCTION TO REHABILITATION (3) LEC. 3. Orientation to the profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3110 ASSESSMENT: ELIGIBILITY FOR SPECIAL EDUCATION (3) LEC. 3. Selection, administration, scoring and interpretation of standardized aptitude and educational tests used in the field of special education. May count either RSED 3110 or RSED 3113.

RSED 3120 ASSESSMENT IN REHABILITATION (3) LEC. 3. Selection, administration, scoring and interpretation of work sample systems and standardized tests of intelligence, aptitude, achievement, interest, and dexterity used in the field of rehabilitation.

RSED 4010 BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Skills to manage the behavior of special education students including behavioral assessment, selection criteria for appropriate intervention strategies and evaluation of intervention effectiveness.

RSED 4100 PROFESSIONAL COMMUNICATION IN REHABILITATION (3) LEC. 3. Theoretical and practical aspects of written and oral communication with rehabilitation and other professionals, clients, and family members.

RSED 4120 INDEPENDENT LIVING SERVICES IN REHABILITATION (3) LEC. 3. The history, legislation and philosophy of the independent living movement and its impact on the quality of life for people with severe disabilities.

RSED 4130 ETHICAL PRACTICES IN REHABILITATION (3) LEC. 3. Departmental approval. Ethical dilemmas that are routinely faced by practitioners in human service occupations.

RSED 4140 ASSESSMENT: PROGRAM PLANNING IN SPECIAL EDUCATION (3) LEC. 3. Pr. P/C RSED 4920 or P/C RSED 4923. A framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on application assessment of students with disabilities, and how to use assessment data to inform instructional planning and IEP goal development.

RSED 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Emphasis on exceptional learners. Course may be repeated for a maximum of 3 credit hours.

RSED 4910 PRACTICUM (1-6) DSL. SU. Departmental approval. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 4911 PRACTICUM ELEMENTARY I LITERACY & NUMERACY (1-3) LEC. 2. LAB. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4920 CLINICAL RESIDENCY (9) AAB. 9. SU. Comprehensive supervised on-the job experience in a school, college or community-based setting serving individuals with disabilities. Departmental approval or admission to internship.

RSED 4931 PRACTICUM ELEMENTARY II LITERACY & NUMERACY (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4941 PRACTICUM SECONDARY I (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4951 PRACTICUM PRE-K – SECONDARY II (1-3) LEC. 2. LAB. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4970 SPECIAL TOPICS (1-3) DR4/ST1. Seminar in which upper-level students and professors engage in critical thinking regarding selected concepts, theories, research, and issues germane to the field of disabilities. Course may be repeated for a maximum of 9 credit hours.

RSED 5000 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 5010 MEDICAL ASPECTS OF DISABILITY (3) LEC. 3. Medical terminology, basic body systems, common malfunctions, therapeutic services, restorative techniques, and disability evaluation for different disability groups and the vocational implications of each. May count RSED 5010, RSED 5013, RSED 6010, or RSED 6016.

RSED 5020 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment. May count RSED 5020, RSED 5023, RSED 6020, or RSED 6026.

RSED 5070 MILD DISABILITIES (3) LEC. 3. The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. May count either RSED 5070 or RSED 6070.

RSED 5100 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 3010. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 5110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION: LITERACY AND DEVELOPMENTAL DOMAINS (3) LEC. 3. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. Admission to Teacher Education. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 5120 CURRICULUM IN ELEMENTARY: LITERACY AND MATHEMATICS IN SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum activities for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 5130 CURRICULUM IN LITERACY FOR STUDENTS WITH DISABILITIES (3) LEC. This course is designed to provide students with the understanding of language development, development of early literacy, and screening for early literacy deficits. This class will introduce language systems (orthography, phonetics, phonology, morphology, syntax, and semantics) and their role in the development of literacy. The course will provide opportunities for implementation of assessment and explicit system instruction in oral language, phonemic awareness, letter/sound correspondence, and basic reading. May count RSED 5130 or RSED 6130.

RSED 5140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Pr. RSED 3010. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 5150 LITERACY METHODS IN SPECIAL EDUCATION (3) LEC. 3. Instructional strategies in reading for students with disabilities. May count RSED 5150 or RSED 6150.

RSED 5160 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Admission to Teacher Education. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 5163, RSED 6160, or RSED 6166.

RSED 5170 TRANSITION AND SECONDARY METHODS (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on best practices, secondary methods, programs, and services. May count RSED 5170 or RSED 6170.

RSED 5180 LITERACY AND INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the understanding of literacy development and the practical application and management of interventions to support written language, vocabulary, and reading comprehension. The focus of this class will be to discuss proactive approaches to supporting students' literacy development. Students will be introduced to applied and research readings related to instructional management. These research findings will be integrated into discussions on the practical aspects of developing effective programs. After completing this class, students will be able to design and implement effective literacy and instructional strategies. May count RSED 5180 or RSED 6180.

RSED 5190 FUNCTIONAL CURRICULUM AND TRANSITION (3) LEC. 3. This course prepares teachers to support students who follow an alternative curriculum in elementary and secondary settings. This includes teaching functional skills, community-based instruction and supports for transition to post-secondary settings. May count either RSED 5190 or RSED 6190.

RSED 5200 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3. Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. May count RSED 5200, RSED 5203, RSED 6200, or RSED 6206.

RSED 5210 OCCUPATIONAL INFORMATION (3) LEC. 3. Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities. May count RSED 5210, RSED 6210, or RSED 6216.

RSED 5220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. Theories, strategies, and techniques for job development, accommodation, modification, and placement of people with disabilities with application skills needed to facilitate employment. May count RSED 5220, RSED 5223, RSED 6220, or RSED 6226.

RSED 5230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 5300 TRANSITION AND EMERGING ADULTHOOD IN REHABILITATION SERVICES (3) LEC. 3. This course is an introduction to the transition process of youth with disabilities from school to adulthood and employment with an emphasis on the developmental stages of emerging adulthood and the services surrounding this specialized area for rehabilitation professionals.

RSED 5330 ASSESSMENT FOR ELIGIBILITY (3) LEC. 3. This course provides students with a framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on standardized assessments for evaluating students with disabilities. This course will include assessment processes for eligibility for each category of special education eligibility. The course provides opportunities for application of concepts in assessment in special education as well as administration, review, and interpretation of standardized assessment data. The course covers historical, ethical, practical, and theoretical perspectives on identifying disabilities and planning individualized instructional programs for students with special needs. May receive credit for RSED 5330 or RSED 6330.

RSED 5340 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 5420 SPECIALIZED CURRICULUM IN MATHEMATICS (3) LEC. 3. This course will provide learners with understanding of a functional/developmental approach to the selection, development, implementation, and evaluation of appropriate mathematics curriculum and activities for the instruction of students with high incidence disabilities in grades 3-5. Content includes extensive exploration of various curricular theories focusing on individual and group approaches in mathematics concepts. May count for RSED 5420 or RSED 6420.

RSED 6000 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 6010 MEDICAL VOC & PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. An introduction to medical terminology, body systems, common physical and cognitive conditions therapeutic/restorative services, and psychosocial & vocational considerations of various disabilities. May count RSED 6010 or RSED 6016.

RSED 6040 LEARNING DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5040, RSED 6040, or RSED 6046.

RSED 6100 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 6110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION: LITERACY AND DEVELOPMENTAL DOMAINS (3) LEC. 3. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 6120 CURRICULUM IN ELEMENTARY: LITERACY AND MATHEMATICS IN SPECIAL EDUCATION (3) LEC. 3. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 6130 CURRICULUM IN LITERACY FOR STUDENTS WITH DISABILITIES (3) LEC. 3. This course is designed to provide students with the understanding of language development, development of early literacy, and screening for early literacy deficits. This class will introduce language systems (orthography, phonetics, phonology, morphology, syntax, and semantics) and their role in the development of literacy. The course will provide opportunities for implementation of assessment and explicit system instruction in oral language, phonemic awareness, letter/sound correspondence, and basic reading. May count RSED 5130 or RSED 6130.

RSED 6140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 6150 LITERACY METHODS IN SPECIAL EDUCATION (3) LEC. 3. Instructional strategies in reading for students who have disabilities. May count RSED 5150 or RSED 6150.

RSED 6160 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 5163, RSED 6160, or RSED 6166.

RSED 6170 TRANSITION AND SECONDARY METHODS (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on best practices, secondary methods, programs, and services. May count RSED 5170 or RSED 6170.

RSED 6180 LITERACY AND INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the understanding of literacy development and the practical application and management of interventions to support written language, vocabulary, and reading comprehension. The focus of this class will be to discuss proactive approaches to supporting children's literacy development. Students will be introduced to applied and research readings related to instructional management. These research findings will be integrated into discussions on the practical aspects of developing effective programs. After completing this class, students will be able to design and implement effective literacy and instructional strategies. May count RSED 5180, RSED 6180.

RSED 6190 FUNCTIONAL CURRICULUM AND TRANSITION (3) LEC. 3. This course prepares teachers to support students who follow an alternative curriculum in elementary and secondary settings. This includes teaching functional skills, community-based instruction and supports for transition to post-secondary settings. May count either as RSED 5190 or RSED 6190.

RSED 6220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. The course is designed to familiarize students with career theory and methods used by rehabilitation practitioners to analyze and apply vocational techniques to place individuals with disabilities. May count RSED 6220 or RSED 6226.

RSED 6230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 6330 ASSESSMENT FOR ELIGIBILITY (3) LEC. 3. This course provides students with a framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on standardized assessments for evaluating students with disabilities. This course will include assessment processes for eligibility for each category of special education eligibility. The course provides opportunities for application of concepts in assessment in special education as well as administration, review, and interpretation of standardized assessment data. The course covers historical, ethical, practical, and theoretical perspectives on identifying disabilities and planning individualized instructional programs for students with special needs. May receive credit for RSED 5330 or RSED 6330.

RSED 6340 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 6420 SPECIALIZED CURRICULUM IN MATHEMATICS (3) LEC. 3. This course will provide learners with understanding of a functional/developmental approach to the selection, development, implementation, and evaluation of appropriate mathematics curriculum and activities for the instruction of students with high incidence disabilities in grades 3-5. Content includes extensive exploration of various curricular theories focusing on individual and group approaches in mathematics concepts. May count for RSED 5420 or RSED 6420.

RSED 7010 REHABILITATION PROFESSIONS, PROGRAMS AND ETHICS (3) LEC. 3. This course exposes students to the ethics, history and development of the rehabilitation counseling movement inclusive of its legal base, philosophies, concepts, and current socio-political trends. May count either RSED 7010 or RSED 7016.

RSED 7110 ADVANCED ASSESSMENT AND INTERVENTION EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Assessment and intervention strategies for special needs children, pre-k through 3rd grade. Departmental approval. May count either RSED 7110 or RSED 7116.

RSED 7120 ADVANCED ASSESSMENT IN SPECIAL EDUCATION (3) LEC. 3. Advanced study of educational tests and procedures for diagnosing special training problems. Departmental approval. May count either RSED 7120 or RSED 7126.

RSED 7130 ADVANCED ASSESSMENT I IN REHABILITATION (3) LEC. 3. Principles, process and techniques used to diagnose vocationally-related assets and liabilities of the individual with disabilities. May count either RSED 7130 or RSED 7136.

RSED 7150 MULTICULTURAL ASPECTS OF DISABILITIES (3) LEC. 3. Study of three main areas relevant to multicultural competencies and standards for rehabilitation professionals: (a) acquisition of communication skills; (b) attitudes towards ethnic minorities, and (c) knowledge about minority populations. May count either RSED 7150 or RSED 7156.

RSED 7200 ADVANCED INTERVENTION WITH INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 7100 or RSED 7106. Administration and on-going management of early intervention programs and service coordination of individualized family service plans and family support. Departmental approval. May count either RSED 7200 or RSED 7206.

RSED 7210 ADVANCED INTERVENTION IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 7110 or RSED 7116. Curriculum methods, intervention plans, intervention methods, physical and medical management, environmental and behavioral management, and evaluation of child and family outcomes. Departmental approval. May count either RSED 7210 or RSED 7216.

RSED 7220 ADVANCED TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. This course presents principles and procedures associated with content enhancement, strategy instruction and universal design for learning. This course will emphasize research-supported strategies for individuals with high incidence disabilities. Students will engage in hands-on experiences and practice implementing instructional interventions appropriate for students with disabilities who participate in the general education curriculum.

RSED 7230 ADVANCED BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Provides skills necessary to direct academic and social performance and appropriately manage the behavior of students with special needs. Departmental approval. May count either RSED 7230 or RSED 7236.

RSED 7240 SENINAR IN REHABILITATION RESEARCH AND DESIGN (3) LEC. 3. Research in rehabilitation counseling, with focus on acquisition of knowledge about traditional and recent developments in research methods, and skill application. May count either RSED 7240 or RSED 7246.

RSED 7310 PROPRIETARY REHABILITATION (3) LEC. 3. Vocational rehabilitation in private sector including case management and expert witness for workers compensation, personal injury litigation, and social security.

RSED 7320 INDIVIDUAL COUNSELING APPROACHES IN REHABILITATION COUNSELING (3) LEC. 3. Survey of theoretical approaches involved in individual counseling with an emphasis on persons with disabilities using an eclectic point of view and psycho-educational approach. May count either RSED 7320 or RSED 7326.

RSED 7400 CURRICULUM AND TEACHING IN SPECIALIZATION (3) LEC. 3. Curriculum design, content, and materials selection related to teaching practices in areas of specialization (intellectual disability, learning disabilities, behavioral disorders, etc.). RSED 7400 and RSED 7406 may be repeated for a maximum combined total of 6 credit hours.

RSED 7410 PROGRAM IMPLEMENTATION IN SPECIALIZATION AUTISM (3) LEC. 3. This course presents principles and procedures for implementing educational programs for children and youth with autism spectrum disorders. Students will apply their knowledge of evidence-based practices for children and youth with ASD by planning and implementing accommodations, instructional methods, and behavioral supports.

RSED 7420 RESEARCH IN SPECIALIZATION (3) LEC. 3. Examination and interpretation of applied research in specialization area (intellectual disabilities, learning disabilities, behavioral disorders, etc.). Course may be repeated with a change in research area. May count either RSED 7420 or RSED 7426. Course may be repeated for a maximum of 6 credit hours.

RSED 7430 RESEARCH INTO PRACTICE (3) LEC. 3. Applied opportunities for translating instructional and behavioral research into practice. The course may be repeated with a change in research topic. Departmental approval. May count either RSED 7430 or RSED 7436. Course may be repeated for a maximum of 6 credit hours.

RSED 7440 SEMINAR IN SPECIALIZATION (3) DSL/SEM. 3. Departmental approval. Advanced students and professor(s) engage in critical thinking regarding selected concepts, theories, research and issues germane to the field of disabilities. Course may be repeated with change in topics.

RSED 7460 POSITIVE BEHAVIOR SUPPORTS (3) LEC. 3. Evaluating and implementing Positive Behavior Interventions and Supports (PBIS) for students grades PK through 12 in traditional and alternative educational settings. May count either RSED 7460 or RSED 7466.

RSED 7470 LEADERSHIP IN SPECIAL EDUCATION (3) LEC. 3. The goal of competent teacher leadership in special education is to provide the supports necessary to ensure effective instruction for all students in a variety of contexts. This course is designed to develop the knowledge, skills, understanding, and attitudes necessary to support special education leadership across an educational service delivery continuum.

RSED 7480 PROGRAM IMPLEMENTATION BIRTH TO AGE 5 (3) LEC. 3. This course provides advanced understanding of a family and child centered practices which include the development, implementation, and evaluation of appropriate routine based and curriculum activities for children ages birth to age 6 with mild learning/behavior disabilities and their families. Content also includes extensive exploration of various curricular and development theories, transition, assistive technology, assessment, and program planning.

RSED 7511 PRACTICUM PRE-K TRADITIONAL (1-3) LEC. 14. LAB. 2. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7531 PRACTICUM TRADITIONAL ELEMENTARY I (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7541 PRACTICUM ELEMENTARY II TRADITIONAL (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Departmental approval required. Course may be repeated for a maximum of 3 credit hours.

RSED 7551 PRACTICUM (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with advanced student learning guided by the instructor. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 3 credit hours.

RSED 7911 PRACTICUM ELEMENTARY I LITERACY & NUMERACY (1-3) LEC. 2. LAB. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7920 CLINICAL RESIDENCY (1-9) DSL. SU. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Course may be repeated for a maximum of 12 credit hours.

RSED 7931 PRACTICUM ELEMENTARY II LITERACY & NUMERACY (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7940 ADVANCED THEORIES IN REHABILITATION COUNSELING (3) LEC. 3. Intensive study of advanced theories within rehabilitation counseling, as well as an examination of outcome research relating to the use and application of these theories and techniques. May count either RSED 7940 or RSED 7946.

RSED 7941 PRACTICUM SECONDARY I LITERACY & MATH (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7950 EMERGING ADULTHOOD AND TRANSITION IN REHABILITATION (3) LEC. 3. Introduction to the transition process of youth with disabilities from school to adulthood and employment with emphasis on the developmental stage emerging adulthood. May count either RSED 7950 or RSED 7956.

RSED 7951 PRACTICUM PRE-K – SECONDARY II (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7980 NON-THESIS PROJECT (1-3) DSL. SU. Course may be repeated for a maximum of 10 credit hours.

RSED 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. The content focus of the study area will be translated into specific objectives with the student learning toward that end, guided by the instructor. In addition to regular meetings with the instructor, the student will be evaluated and graded according to learning performance. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 10 credit hours.

RSED 8010 DISABILITIES AND RESEARCH METHODS (3) LEC. 3. Departmental approval. History, principles, and methodology of single subject research with emphasis on the various types of research designs applied in rehabilitation and special education.

RSED 8020 DISABILITIES AND APPLIED RESEARCH IN MEASUREMENT (3) LEC. 3. Departmental approval. Classical measurement theory, individual differences determination, constructs related to diagnostic labels, measurement bias and fairness, nature-nurture controversy, and clinical versus statistical inference.

RSED 8030 DISABILITIES AND PROFESSIONAL ISSUES (3) LEC. 3. Critical and contemporary issues regarding disability and its relationship to the leadership roles of professionals in special education and rehabilitation. May count either RSED 8030 or RSED 8036.

RSED 8040 DISABILITIES AND ASSISTIVE TECHNOLOGY (3) LEC. 3. Departmental approval. Adaptive technology for use by persons with disabilities and proficiency in the use of computers and the World Wide Web as they relate to disabilities.

RSED 8050 DISABILITIES AND THE LAW (3) LEC. 3. Departmental approval. Development of rehabilitation and special education laws from a historical, policy, leadership, and advocacy. perspective.

RSED 8060 DISABILITIES AND LIFE SPAN TRANSITIONS (3) LEC. 3. Departmental approval. Advanced study of historical, legal, legislative, philosophical, and service delivery issues and trends with emphasis on research studies and programs.

RSED 8070 PROFESSIONAL SEMINAR (3) LEC. 3. SU. Departmental approval. A series of doctoral seminars devoted to professional technical writing, grant writing, management, and research. Course may be repeated with change in topics.

RSED 8230 EXAMINING DISABILITY DATABASES (3) LEC. 3. Conducting descriptive and correlational research by using existing publicly available databases in the field of disabilities.

RSED 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Course may be repeated with change in topics.

RSED 8950 SEMINAR (1-3) DSL/SEM. Departmental approval. Provides an opportunity for advanced graduate students and professors to pursue cooperatively selected concepts and theoretical formulations. Course may be repeated for a maximum of 9 credit hours.

RSED 8980 NON-THESIS PROJECT (1-10) DSL/IND. SU. Departmental approval. May be repeated with change in topic. Provides an opportunity for advanced graduate students to pursue a project of interest. Course may be repeated with change in topics.

RSED 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated. Course may be repeated with change in topics.

Counselor Education – Clinical Mental Health Counseling Option — MEd

Code	Title	Hours
Clinical Mental Health Counseling MEd (On-Campus or Online)		
COUN 7200	Introduction to Measurement and Assessment	3
COUN 7230	Career Development and Vocational Appraisal	3
COUN 7240	Counseling Children and Adolescents	3
COUN 7250	Advanced Assessment and Diagnosis in Counseling	3
COUN 7310	Counseling Applications of Lifespan Development	3
COUN 7320	Counseling Theories	3
COUN 7330	Counseling Diverse Populations	3
COUN 7340	Group Counseling	3
COUN 7350	Introduction to Counseling Practice	3
COUN 7360	Advanced Counseling Practice: Family Systems	3
COUN 7370	Foundations of Substance Use Counseling	3
COUN 7400	Orientation to Professional Counseling	3
COUN 7410	Orientation to Clinical Mental Health Counseling	3
COUN 7500	Crisis Intervention in Counseling	3
COUN 7510	Advanced Clinical Mental Health Counseling Interventions	3
COUN 7910	Practicum	3
COUN 7920	Internship	9
ERMA 7200	Basic Methods in Education Research	3
Total Hours		**60**

Counseling Minor

Code	Title	Hours
The counseling minor will provide students interested in careers in the helping professions with a foundational understanding of the roles and activities of counselors and facilitate the development of the core professional values of the counseling and related fields.		
15 semester hours in minor		
Required Courses		9
COUN 2000	Living and Communicating in a Diverse Society	3
COUN 4000	Introduction to Counseling and Psychotherapy	3
COUN 4010	Introduction to Prevention and Mental Health Promotion	3
Elective Courses - See approved list below.		6

COUN 2940	Directed Field Experience	1-3
COUN 3100	Counseling and Human Services	3
COUN 3980	Supervised Research Experience in Counseling	3
COUN 4970	Special Topics in Counseling	3
RSED 4100	Professional Communication in Rehabilitation	3
RSED 5020	Psychosocial Aspects of Disability	3
COUN 2020	Introduction to LGBTQ Studies	3
COUN 2300	Mental Health Disparities	3
RSED 2000	Disability Awareness and Mentorship	3

Counseling Psychology — MA, PhD

Counseling Psychology — MA, PhD (https://education.auburn.edu/serc/academic-programs/counseling-psychology/phd-counseling-psychology.php)

The MA degree program is only open to students simultaneously enrolled and first admitted to the Counseling Psychology Ph.D. program.

Master of Arts

Code	Title	Hours
COUN 8530	Contemporary Issues in Counseling Psychology	3
COUN 7250	Advanced Assessment and Diagnosis in Counseling	3
COUN 7320	Counseling Theories	3
COUN 7330	Counseling Diverse Populations	3
COUN 7340	Group Counseling	3
COUN 7350	Introduction to Counseling Practice	3
ERMA 8350	Advanced Measurement Theory	3
Select 6 Hours of COUN 7910 or COUN 8910		6
Stats courses approved by program		6
Total Hours		**33**

COUN 8910: Advanced Practicum can substitute for COUN 7910 (the student must still complete 6 credits total from COUN 7910 or COUN 8910).

In addition to the above stated requirements, students must submit documentation of their clinical hours (including hours of direct provision of psychotherapy services to clients), evaluation forms completing by external supervisors for the two semesters of COUN 7910 (COUN 8910, if used to substitute for COUN 7910), and annual self-evaluations required by the program using the program form.

The student must meet the following additional outcomes beyond completion of courses with grades of Satisfactory (for S/U) courses and a GPA of 3.0 or better for traditionally graded courses: (A) accumulate 100 hours of direct provision of psychotherapy services to clients; (B) receive ratings of "consistent with beginning practicum student" or better in two semesters of practicum (COUN 7910 or COUN 8910) for the following items on the student evaluation form completed by external supervisors: (1) ability to form good relationships with clients, (2) ability to work with diverse clients (a rating of "cannot judge" is acceptable for one of the two semesters of this particular outcome but no ratings of "below expectations" or worse are acceptable for the two semesters used to meet this required outcome for the MA degree), and (3) ability to handle cases more effectively as a result of supervision; (C) two semesters of practicum ratings in which they did not receive a rating suggesting that the supervisor believes the student violated ethical principles of psychologists (this criterion requires that, for two semesters of practicum, a supervisor not indicate "yes" in response to the question, "Do you have any reason to believe that the student has violated ethical principles of psychologists?" found on the rating form that is completed by external supervisors); (D) successful completion of an outcome assessment assignment used in COUN 7910 (successful completion is defined as "acceptable/meets expectations/satisfactory" or better); and (E) receive a rating of satisfactory on making progress in research from program faculty during annual faculty evaluations of students.

Doctor of Philosophy

The American Psychological Association (APA) is the accrediting body for this program. The APA implemented new standards (called the Standards of Accreditation) with corresponding Implementing Regulations (which specify how standards are to be met and can be modified more frequently) that became effective January 1, 2017. This curriculum is designed to meet those standards.

Code	Title	Hours
COUN 7230	Career Development and Vocational Appraisal	3
COUN 7250	Advanced Assessment and Diagnosis in Counseling	3
COUN 7310	Counseling Applications of Lifespan Development	3
COUN 7320	Counseling Theories	3
COUN 7330	Counseling Diverse Populations	3
COUN 7340	Group Counseling	3
COUN 7350	Introduction to Counseling Practice	3
COUN 7910	Practicum (I)	3
COUN 7910	Practicum (II)	3
COUN 8120	Appraisal in Counseling and Psychology	3
COUN 8200	Intellectual Assessment of Adults	3
COUN 8220	Psychological Science and Health	3
COUN 8230	Colloquium in Counseling Psychology I	1
COUN 8240	Colloquium in Counseling Psychology II	2
COUN 8250	Colloquium in Counseling Psychology III	3
COUN 8260	Colloquium in Counseling Psychology IV	3
COUN 8310	Cognition and Emotion	3
COUN 8320	Great Ideas in Psychology	3
COUN 8400	Professional Seminar Counseling Psychology	3
COUN 8530	Contemporary Issues in Counseling Psychology	3
COUN 8540	Coun Supervision-Theory & Prac	3
COUN 8800	Professional Development Internship Skills	3
COUN 8910	Practicum (Advanced I)	3
COUN 8910	Practicum (Advanced II)	3
ERMA 8350	Advanced Measurement Theory	3
PSYC 7150	Biological Psychology	3
PSYC 7180	Social Psychology	3
or COUN 8970	Special Topics	
One program approved elective course of 3 hours or 3 hours of program approved electives		3
Program approved first semester doctoral stats course		3
Program approved second semester doctoral stats course		3
COUN 8930	Internship in Counseling Psychology (3 semesters)	0
COUN 8990	Research And Dissertation	10
Total Hours		**97**

Counselor Education — PhD

Counselor Education — PhD (https://education.auburn.edu/serc/academic-programs/counselor-education/phd-counselor-education.php)

Code	Title	Hours
COUN 8300	Research Design in Counseling and Evaluation	3
COUN 8510	Contemporary Issues in Counselor Education	3
COUN 8540	Coun Supervision-Theory & Prac	3

COUN 8550	Counselor Education Pedagogy	3
COUN 8620	Advanced Counseling Theories and Practice	3
COUN 8700	Diversity and Social Justice in Counselor Education	3
COUN 8910	Practicum (Teaching)	3
COUN 8910	Practicum (Advanced Counseling)	3
COUN 8910	Practicum (Supervision)	3
COUN 8910	Practicum (Research)	3
COUN 8920	Internship (Counselor Education)	9
COUN 8990	Research And Dissertation	10
ERMA 7210	Theory and Methodology of Qualitative Research	3
ERMA 7300	Design and Analysis in Education I	3
ERMA 7310	Design and Analysis in Education II	3
ERMA 8100	Program Evaluation	3
ERMA 8200	Survey Research Methods	3
Total Hours		**64**

Collaborative Teacher Education (RSCB)

The **Bachelor of Science in Collaborative Teacher Education** program prepares students to be teachers who serve students with disabilities in grades K-12. The program includes coursework that covers most disabilities with the exception of sensory impairments and certain severe disabilities. Graduates are prepared to implement evidence-based practices in inclusive general education settings as well as develop programs that meet students' unique educational needs in different school-based and community-based settings. Collaborative Teacher Education (RSCB) meets the criteria for ALSDE Level B certification in K-12 grade levels.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Fine Arts	3	Core Literature I	3
HIST 2010 Survey of United States History to 1877 ***or*** 2020 Survey of United States History Since 1877 (or Core History)	3	ECON 2020 Principles of Microeconomics ***or*** 2030 Principles of Macroeconomics	3
GEOG 1010 Global Geography	3	POLI 1050 Global Politics and Issues ***or*** 1090 American Government in Multicultural World	3
COMM 1000 Public Speaking	3		
EDUC 1010 Orientation to Teacher Education[3]	0		
	15		**12**

Sophomore

Fall	Hours	Spring	Hours
Core Literature II	3	MATH 2860 Mathematics for Elementary Education II	3
Core Humanities	3	GEOL 1100 Dynamic Earth (or PHYS 1150)	4
SCMH 1010 Concepts of Science	4	RSED 3000 Diversity and Exceptionality of Learners	3

MATH 2850 Mathematics for Elementary Education I	3	CTEE 2000	4
MATH 2870 Mathematics for Elementary Education III	3	Free Elective	6
or Math Elective			
	16		**20**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
FOUN 3000 Diversity of Learners and Settings[2]	**3**	**FOUN 3100 Child Development, Learning, Motivation and Assessment[2]**	**6**	RSED 4910 Practicum (Practicum Grades 6-12)	1
RSED 5160 Framework for Collaboration in K-12	3	**RSED 4910 Practicum[1,2]**	**1**	RSED 5140 Curriculum in Severe Disabilities	3
RSED 5130 Curriculum in Literacy for Students with Disabilities	3	RSED 5330 Assessment for Eligibility	3	RSED 5180 Literacy and Instructional Classroom Management	3
RSED 4010 Behavior Management in Special Education	3	RSED 5150 Literacy Methods in Special Education	3		
RSED 5120 Curriculum in Special Education: Mathematics	3				
	15		**13**		**7**

Senior

Fall	Hours	Spring	Hours
RSED 4910 Practicum[1,2]	**1**	**RSED 4920 Clinical Residency[2]**	**9**
EDMD 3300 Utilization of Instructional Technology for Educators	2	UNIV 4AA0 Achieve the Creed	0
RSED 5190 Functional Curriculum and Transition [2]	3	RSED 4140 Assessment: Program Planning in Special Education[1,3]	3
RSED 5420 Specialized Curriculum in Mathematics	3		
RSED 5170 Transition and Secondary Methods	3		
	12		**12**

Total Hours: 122

1 Prerequisite: Admission to Teacher Education.
2 Prerequisite: Admission to Internship (application for internship is one year in advance).
3 Prerequisite for Admission to Internship.
4 Co-requisite with Internship.

Early Childhood/Elementary Special Education: P–6 (RSDB)

The **Bachelor of Science in Early Childhood/Elementary Special Education** prepares teachers and early interventionists to serve children with a variety of disabilities from birth to age 9 in a range of settings from home to elementary school. Graduates are prepared to implement evidence-based practices that support families and the development of young children who have or are at risk for developmental delays and disabilities, as well as elementary-age students with disabilities. Early childhood/elementary special

education (RSDB) meets the criteria for ALSDE Level B certification in birth through 6th grade. RSDB includes infants and toddlers (birth to 2 years of age); preschoolers (3 to 4 years of age); and K-6 grade levels.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
HIST 2010 Survey of United States History to 1877 ***or*** 2020 Survey of United States History Since 1877	3	POLI 1050 Global Politics and Issues ***or*** 1090 American Government in Multicultural World	3
GEOG 1010 Global Geography	3	ECON 2020 Principles of Microeconomics ***or*** 2030 Principles of Macroeconomics	3
Core Fine Arts	3	Free Elective	3
COMM 1000 Public Speaking	3	Core Math	3
EDUC 1010 Orientation to Teacher Education	0		
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Literature I	3	MATH 2860 Mathematics for Elementary Education II	3
SCMH 1010 Concepts of Science	4	Core Literature II	3
RSED/COUN Elective	3	GEOL 1100 Dynamic Earth (or PHYS 1150)	4
MATH 2850 Mathematics for Elementary Education I	3	**RSED 3000 Diversity and Exceptionality of Learners**	**3**
MATH 2870 Mathematics for Elementary Education III (or Math Elective)	3	CTEE 2000	4
	16		**17**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
FOUN 3000 Diversity of Learners and Settings[2]	**3**	**FOUN 3100 Child Development, Learning, Motivation and Assessment**[1,2]	**6**	RSED 4910 Practicum (K-3 or 4-6)	1
RSED 5160 Framework for Collaboration in K-12[2]	3	**RSED 4910 Practicum**[1,2]	**1**	RSED 5140 Curriculum in Severe Disabilities	3
RSED 4010 Behavior Management in Special Education	3	RSED 5150 Literacy Methods in Special Education	3	RSED 5180 Literacy and Instructional Classroom Management	3
RSED 5130 Curriculum in Literacy for Students with Disabilities[2]	3	RSED 5330 Assessment for Eligibility	3		
RSED 5120 Curriculum in Special Education: Mathematics	3				
	15		**13**		**7**

Senior

Fall	Hours	Spring	Hours
RSED 4910 Practicum[1,2]	**1**	**RSED 4920 Clinical Residency[1]**	**9**
RSED 5110 Curriculum in Early Childhood Special Education[1,2]	3	RSED 4140 Assessment: Program Planning in Special Education[3]	3
EDMD 3300 Utilization of Instructional Technology for Educators	2	UNIV 4AA0 Achieve the Creed	0
RSED 5100 Infants and Toddlers with Disabilities[1]	3		
RSED 5420 Specialized Curriculum in Mathematics [2]	3		
	12		**12**

Total Hours: 122

1 Prerequisite: Admission to Teacher Education
2 Prerequisite to RSED 4920
3 Corequisite with RSED 4920

Rehabilitation and Disability Studies (RSRB)

Our 120-credit hour Rehabilitation and Disability Studies Bachelor of Science program prepares students to become professionals in the fields of disability studies and services which include counseling, allied health fields (Occupational Therapy/Physical Therapy), case management, human services, orthotics and prosthetics, and other related fields. Coursework covers the foundation and history of the disability movement. The program has a large field experience component that allows students to gain experience working with consumers in different areas of rehabilitation services. We focus on current research in rehabilitation strategies and processes.

Freshman

Fall	Hours	Spring	Hours
Select one of the following:	4	Select one of the following:	4
BIOL 1000 Introduction to Biology & BIOL 1001 Introduction to Biology Laboratory		BIOL 1010 A Survey of Life & BIOL 1011 A Survey of Life Laboratory	
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory		BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory	
BIOL 1027 Honors Biology		BIOL 1037 Honors Organismal Biology	
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Fine Arts	3	Core Math	3
Core Social Science	3	PSYC 2010 Introduction to Psychology	3
Elective	3	COMM 1000 Public Speaking	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Literature or Core Humanities	3
Core History[1]	3	Core History or Core Social Science	3
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3

BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
Elective	3	STAT 2510 Statistics for Biological and Health Sciences (May count as STAT 2513. May also count as STAT 2507 (Honors course) if it is created in the future)	3
Philosophy CORE	3	PSYC elective 3000 or above	3
	16		**16**

Junior

Fall	Hours	Spring	Hours
RSED 3020 Introduction to Rehabilitation (May count as RSED 3023)	**3**	**RSED 3120 Assessment in Rehabilitation (May count as RSED 3123)**	**3**
RSED 4120 Independent Living Services in Rehabilitation (May count as RSED 4123)	**3**	**RSED 4910 Practicum (May count as RSED 4913)[2]**	**1**
RSED 4910 Practicum (May count as RSED 4913)[2]	**1**	RSED 5020 Psychosocial Aspects of Disability (May count as RSED 5023)	3
RSED 5010 Medical Aspects of Disability (May count as RSED 5013)	**3**	**RSED 5210 Occupational Information (May count as RSED 5213)**	**3**
RSED 5340 Foundations of Substance Use Counseling (May count as RSED 5343)	3	**RSED 5230 Rehabilitation Assistive Technology (May count as RSED 5233)**	**3**
		RSED 5300 Transition and Emerging Adulthood in Rehabilitation Services (May count as RSED 5303)	3
	13		**16**

Senior

Fall	Hours	Spring	Hours
RSED 4100 Professional Communication in Rehabilitation (May count as RSED 4103)	3	**RSED 4920 Clinical Residency (May count RSED 4923)**	**9**
RSED 4130 Ethical Practices in Rehabilitation (May count as RSED 4133)	**3**	Electives	4
RSED 4910 Practicum (May count as RSED 4913)[2]	**2**	UNIV 4AA0 Achieve the Creed	0
RSED 5220 Placement Services in Rehabilitation (May count as RSED 5223)	**3**		
ELECTIVE	3		
	14		**13**

Total Hours: 120

1 Students must complete a history sequence or a literature sequence.
2 Students are required to complete four hours of practicum, which may be taken over 2-4 semesters.

EAGLES Program

The Education to Accomplish Growth in Life Experiences for Success, or EAGLES, is a comprehensive transition program (CTP) for students with intellectual disabilities. The program provides a post-secondary education opportunity for students with intellectual disabilities to engage in a two or four-year campus experience to help students achieve their employment and independent living goals upon successful completion of the program.

The EAGLES program is a non-degreed program focusing on (1) academic enrichment, (2) personal and social skills, (3) independent living skills, (4) health and wellness, and (5) integrated work experiences. Students in the program receive an inclusive post-secondary education providing them with an enriching and rewarding Auburn experience as they prepare to transition to gainful employment, that aligns with the student's strengths and interests and independent living. The EAGLES program curricula are structured to help students become contributing members of society through their career interests both now and in the future.

Inclusive Elementary Education Practices — Graduate Certificate

This graduate certificate provides opportunities for elementary teachers in general education or special education to learn about curricula design, specialized teaching techniques, program implementation, current research directions and findings, and translating research into elementary inclusive teaching practices.

The program requires 15 hours of coursework. Everyone in the program will complete six hours of required coursework. Key assessments will be included in these classes which will be used for program evaluation. Students will select nine additional hours of coursework from a given list.

Code	Title	Hours
Required Courses (6 hours)		
CTEE 7010	Approaches to Teaching (Required) Fall	3
RSED 7220	Advanced Teaching Methods in Special Education (Required) Summer	3
Choose 9 hours from options below		
RSED 7460	Positive Behavior Supports (Optional) Fall	3
CTEE 7420	Curriculum and Teaching in Language Arts (Grades K-6) (Optional) Fall	3
CTEE 7440	Curriculum and Teaching in Mathematics (Grades K-6) (Optional) Summer	3
RSED 6160	Framework for Collaboration in K-12 (Optional) Fall	3

Counselor Education – School Counseling Option (Certification) — MEd

Code	Title	Hours
Class A Program Checklist for School Counseling (On Campus or Online)		
Instructional Support Area: 33 hours		
At least 1/3 of the program shall be teaching field courses		
COUN 7200	Introduction to Measurement and Assessment	3
COUN 7230	Career Development and Vocational Appraisal	3
COUN 7240	Counseling Children and Adolescents	3
COUN 7310	Counseling Applications of Lifespan Development	3
COUN 7320	Counseling Theories	3
COUN 7330	Counseling Diverse Populations [1]	3
COUN 7340	Group Counseling	3
COUN 7350	Introduction to Counseling Practice	3
COUN 7400	Orientation to Professional Counseling	3
COUN 7420	Orientation to School Counsel	3
COUN 7500	Crisis Intervention in Counseling	3
Internship: 9 hours		
COUN 7920	Internship	9
Practicum: 3 hours		
COUN 7910	Practicum	3
Survey of Special Education/Diversity Course		
See RSED 6000 in Additional Courses AND COUN 7330 in Instructional Support Area [1]		
Additional Courses: 15 hours		
Required: 6 hours		

COUN 7450	Foundations of School Counseling	3
COUN 7460	Leadership and Advocacy for School Counselors	3
Select 9 hours from the following:		9
RSED 6000	Advanced Survey of Exceptionality [1]	
COUN 7250	Advanced Assessment and Diagnosis in Counseling	
ERMA 7200	Basic Methods in Education Research	
Other advisor-approved supporting courses 6000 level and above [2]		
Total Hours		**60**

1 RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with COUN 7330 Counseling Diverse Populations.

2 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Majors

Minors

Samuel Ginn College of Engineering

MARIO EDEN, *Dean*
MARIA AUAD, *Associate Dean for Graduate Studies and Faculty Development*
DEAN HENDRIX, *Associate Dean for Undergraduate Studies and Program Assessment*
ALLAN DAVID, *Associate Dean for Research*
JANET MOORE, *Assistant Dean for Student Services*

ENGINEERS ARE FACED with worldwide problems and expectations awesome in responsibility, yet exciting as professional challenges. These range from the extremes of interplanetary exploration through earth orbiting systems to the problems arising from our population explosion: energy, better productivity, housing, transportation and environmental issues.

As a renewed appreciation develops for the contributions of science and technology, engineering leaders are calling for engineers who are better equipped to tackle the specific, technical problems of the future. They also are calling for engineers who by breadth of education and understanding of other disciplines can convince others of the role of engineers not only in technical matters but in policy decisions to ensure the use of technology to benefit mankind.

Engineering education at Auburn provides in a four-year curriculum both the technical knowledge and the broad general education necessary to equip engineers for their problem-solving challenges. Centered on mathematics and the physical sciences, the curricula also stress the importance of social sciences, humanities and communication skills. Auburn’s engineering programs enable individuals to develop their natural talents and provide knowledge, skills and understanding that will help them to find their places in society as well as in their vocations.

Admission

Freshmen eligibility is determined by the Office of Enrollment Services. However, since the requirements for engineering education necessitate high school preparatory work of high intellectual quality and of considerable breadth, the following program is recommended as minimum preparation: English, four units; mathematics (including algebra, geometry, and trigonometry), four units; chemistry, one unit; history, literature, social science, two or three units. Calculus, physics and foreign languages are recommended but not required.

Transfers from other institutions must apply through the Office of Enrollment Services. The exact placement in courses can be determined only upon review of the student's transcript by the Samuel Ginn College of Engineering. See Admission of Transfer Students for complete requirements.

The college allows credit for courses completed with satisfactory grades provided the courses correspond in time and content to courses offered at Auburn. Courses that are taught at the 3000-level or higher at Auburn are generally not transferable from junior colleges.

Many courses required by the Samuel Ginn College of Engineering are highly specialized in their content and potential transfer students need to select courses with care. Therefore, to ensure maximum transferability of credits, students are encouraged to contact the College as soon as possible about acceptable credits.

Transfers from on-campus must be approved by the Samuel Ginn College of Engineering. The requirements for a student to advance from the pre-engineering program into an engineering curriculum are subsequently described in the “Scholastic Requirements” section.

Programs

Pre-Engineering

The Pre-Engineering Program consists of a freshman program of studies to prepare students for curricula in the Samuel Ginn College of Engineering. Students are provided with academic guidance and support to assist students in determining the curriculum that best fulfills their personal and educational objectives.

Pre-engineering students are eligible to move into a major upon successful completion of the academic requirements specified for each degree program. These minimum academic requirements must be completed within four resident semesters, not including the summer term between the freshman and sophomore years.

Aerospace, Biosystems*, Materials, & Mechanical Engineering

Unadjusted Cumulative Auburn GPA of 2.0

Complete the following pre-engineering courses with a grade of “C” or better:
Calculus I (MATH 1610), Calculus II (MATH 1620), Chemistry (CHEM 1030 or CHEM 1110), Engineering Physics (PHYS 1600), Intro to Engineering (ENGR 1110), Engineering Orientation (ENGR 1100), Introduction to Computing: MATLAB (COMP 1230)

*includes Bioprocess, Ecological, and Forest Engineering options

Civil, Industrial & Systems, & Electrical Engineering

Unadjusted Cumulative Auburn GPA of 2.0

Complete the following pre-engineering courses with a grade of “C” or better:
Calculus I (MATH 1610), Calculus II (MATH 1620), Chemistry (CHEM 1030 or CHEM 1110), Engineering Physics (PHYS 1600), Intro to Engineering (ENGR 1110), Engineering Orientation (ENGR 1100), Introduction to Computing: PYTHON (COMP 1220)

Chemical Engineering

Unadjusted Cumulative Auburn GPA of 2.0

Complete the following pre-engineering courses with a grade of “C” or better:
Calculus I (MATH 1610), Calculus II (MATH 1620), Chemistry I (CHEM 1110/CHEM 1111 or CHEM 1030/CHEM 1031) Chemistry II (CHEM 1120/CHEM 1121 or CHEM 1040/CHEM 1041), Intro to Engineering (ENGR 1110), Engineering Orientation (ENGR 1100)

Computer Engineering

Unadjusted Cumulative Auburn GPA of 2.0

Complete the following pre-engineering courses with a grade of “C” or better:
Calculus I (MATH 1610), Calculus II (MATH 1620), Chemistry (CHEM 1030 or CHEM 1110), Engineering Physics (PHYS 1600), Intro to Engineering (ENGR 1110), Engineering Orientation (ENGR 1100), Introduction to Computing: JAVA (COMP 1210)

Computer Science, Software Engineering

Unadjusted Cumulative Auburn GPA of 2.0

Complete the following pre-engineering courses with a grade of “C” or better:

Calculus I (MATH 1610), Discrete Structures (COMP 2240), Approved Degree-Applicable Lab Science* Engineering Orientation (ENGR 1100), Intro to Engineering (ENGR 1110), and Introduction to Computing: JAVA (COMP 1210)

*BIOL 1020/BIOL 1021 or CHEM 1030/CHEM 1031 or PHYS 1600

Professional Programs

The following undergraduate engineering programs are accredited by the Engineering Accreditation Commission of ABET (https://www.abet.org/): Aerospace Engineering, Biosystems Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial and Systems Engineering, Materials Engineering, Mechanical Engineering, Polymer and Fiber Engineering, and Software Engineering.

The undergraduate Computer Science program is accredited by the Computing Accreditation Commission of ABET (https://www.abet.org/).

These curricula are designed to meet the educational requirements of the engineering professions. The program in the fundamental sciences of mathematics, chemistry and physics is followed by a study of basic engineering sciences. Specialized or departmental courses are taken in the third and fourth years. Flexibility is provided in all degree programs through electives so that the individual may emphasize areas of personal interest.

A bioprocess engineering option, an ecological engineering option and a forest engineering option are available under the biosystems engineering program. The forest engineering option is offered jointly by the Department of Biosystems Engineering and the College of Forestry, Wildlife and Environment.

Cooperative Education

The Cooperative Education Program is offered in all curricula of the Samuel Ginn College of Engineering. Refer to the program information in the Special Academic Opportunities section of the Bulletin. For additional information, contact: Cooperative Education (Co-op) Program, 1333 Brown Kopel Student Achievement Center, Auburn, AL, 36849. Telephone: (334) 844-2250. Website: eng.auburn.edu/cdcr/co-op/index (https://www.eng.auburn.edu/cdcr/co-op/index/).

Graduate

The Samuel Ginn College of Engineering offers masters (thesis and non-thesis) and PhD degrees in aerospace engineering, biosystems engineering, chemical engineering, civil engineering, computer science and software engineering, electrical and computer engineering, industrial and systems engineering, materials engineering, mechanical engineering, and polymer and fiber engineering. The college offers additional masters degrees including the master of engineering management, master of engineering (interdisciplinary), MS in artificial intelligence engineering, MS in cybersecurity engineering, and MS in data science and engineering (joint with the College of Sciences and Mathematics). The college also offers a dual-degree master of science in industrial and systems engineering and master of business administration.

Continuing Education

The Engineering Online and Continuing Education Office extends the resources of the Samuel Ginn College of Engineering to the people, businesses and industries of the state. Programs in this service are technical assistance, short courses, conferences, workshops and seminars. For more information, contact: Director, Engineering Online and Continuing Education Programs, 217 Ramsay Hall, Auburn, AL 36849.

Online Courses

The college offers graduate-level courses for credit and non-credit to off-campus students through its Graduate Outreach Program. Graduate-level courses are recorded in the classroom on the Auburn campus and delivered to off-campus students via streaming video. Students enrolled in the program are required to do the same homework assignments and take the same exams as the on-campus students enrolled in the course. For information on admission to the program, fees, course offerings and other particulars, write to Engineering Online and Continuing Education Programs, 217 Ramsay Hall, Auburn, AL 36849 or call (334) 844-5807.

Degree Requirements

To earn the bachelor's degree in the Samuel Ginn College of Engineering, students must complete the subjects in the curriculum, have a minimum grade-point average of 2.0 in all work attempted at Auburn University and have a cumulative grade-point average of 2.0 on courses passed in the major at Auburn. The major is defined as all course work shown in bold print on the relevant curriculum model. It is the student's responsibility to keep informed of course requirements and scheduling. Failure to do so may jeopardize graduation.

Military Science

All curricula in the Samuel Ginn College of Engineering permit the use of six hours of basic or advanced ROTC courses passed at Auburn University. For the options, see the specific curriculum. For programs that do not have sufficient electives, credit will be determined on an individual basis. ROTC courses cannot be substituted for university core courses or courses required by the major except as specified in the curriculum model.

Majors

- Aerospace Engineering (p. 630)
- Biosystems Engineering (p. 640)
- Biosystems Engineering — Bioprocess Engineering Option (p. 637)
- Biosystems Engineering — Ecological Engineering Option (p. 642)
- Biosystems Engineering — Forest Engineering Option (p. 639)
- Chemical Engineering (p. 649)
- Civil Engineering (p. 665)
- Computer Engineering (p. 688)
- Computer Science (p. 677)
- Computer Science — Online Degree Completer Program (p. 675)
- Electrical Engineering (p. 690)
- Industrial and Systems Engineering (p. 702)
- Materials Engineering (p. 716)
- Mechanical Engineering (p. 717)
- Software Engineering (p. 679)

Minors

- Advanced Manufacturing Processes (p. 700)
- Business Engineering Technology (p. 700)
- Computer Science (p. 678)
- Information Technology (p. 679)
- International Business Engineering Technology (p. 703)
- Materials Engineering (p. 715)
- Material Science (p. 715)
- Nuclear Power Generation Systems (p. 718)
- Tribology (p. 718)

Undergraduate Certificates

- Applied Safety and Ergonomics
- Artificial Intelligence Engineering (p. 676)
- Cyber Defense (p. 677)
- Manufacturing Systems (p. 701)
- Pulp, Paper, and Bio-Resources Engineering (p. 649)

Graduate Programs

- Aerospace Engineering — MS, PhD (p. 1545)
- Artificial Intelligence Engineering — MS (p. 1579)
- Artificial Intelligence Engineering — Graduate Certificate (p. 1579)
- Automotive Manufacturing Systems — Graduate Certificate (p. 1689)
- Bioproducts and Bioprocessing — Graduate Certificate (p. 1557)
- Biosystems Engineering — MS, PhD (p. 1558)
- Chemical Engineering — MS, PhD (p. 1568)

- Civil Engineering — MCE, MS, PhD (p. 1571)
- Computer Science and Software Engineering — Graduate Certificate, MS, PhD (p. 1579)
- Cybersecurity Engineering — Graduate Certificate, MS (p. 1581)
- Data Engineering — Graduate Certificate (p. 1582)
- Data Science — Graduate Certificate (p. 1706)
- Data Science and Engineering — MS (p. 1582)
- Earth System Science — Interdisciplinary PhD Program (p. 1635)
- Ecosystems Engineering — Graduate Certificate (p. 1641)
- Electrical Engineering — MS, PhD (p. 1654)
- Engineering — ME (p. 1704)
- Engineering Management — MEM (p. 1689)
- Geotechnical Engineering — Graduate Certificate (p. 1674)
- Industrial and Systems Engineering — Graduate Certificate, MS/MBA, MS, MEM, PhD (p. 1688)
- Manufacturing Systems — Graduate Certificate (p. 1691)
- Materials Engineering — MS, PhD (p. 1704)
- Mechanical Engineering — MS, PhD (p. 1707)
- Modeling and Data Analytics for Operations — Graduate Certificate (p. 1692)
- Occupational Safety & Ergonomics — Graduate Certificate (p. 1692)
- Pavement Analysis and Design — Graduate Certificate (p. 1729)
- Pavement Materials — Graduate Certificate (p. 1730)
- Polymer and Fiber Engineering — MS, PhD (p. 1750)
- Polymer Engineering — Graduate Certificate (p. 1750)
- Power Engineering — Graduate Certificate (p. 1752)
- Pulp and Paper Engineering — Graduate Certificate (p. 1757)
- Structural Analysis in Structural Engineering — Graduate Certificate (p. 1786)
- Structural Design in Structural Engineering — Graduate Certificate (p. 1786)
- Tribology — Graduate Certificate (p. 1792)
- Water Environmental Modeling — Graduate Certificate (p. 1795)
- Water Resources Engineering — Graduate Certificate (p. 1795)
- Wireless Engineering — Graduate Certificate (p. 1797)

Aerospace Engineering Courses

AERO 2200 AEROSPACE FUNDAMENTALS (2) LEC. 1. LAB. 3. Pr. ENGR 1110 and (PHYS 1600 or PHYS 1607). C or better in PHYS 1600 and ENGR 1110. Introduction to the fundamental physical concepts required for the successful design of aircraft and spacecraft.

AERO 3110 AERODYNAMICS I (3) LEC. 3. Pr. MATH 2650 and AERO 2200. C or better in AERO 2200 and MATH 2650. Properties of fluids, fluid statics, conservation of mass and momentum, atmospheric properties, two dimensional airfoils, three dimensional wings, drag, and flight performance.

AERO 3120 AERODYNAMICS II (3) LEC. 3. Pr. ENGR 2010 and MATH 2650 and AERO 2200. C or better in AERO 2200, MATH 2650, and ENGR 2010. Principles of compressible flow including flows with area changes, friction and heat transfer. Fundamental analysis of aerodynamics and potential flow theory. Correlation of potential flow theory with experimental data.

AERO 3130 AERODYNAMICS LABORATORY (2) LEC. 1. LAB. 3. Pr. P/C AERO 2200. C or better in AERO 2200. Application of fundamental aerodynamic principles to subsonic and supersonic wind tunnel experiments.

AERO 3220 AEROSPACE SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650 and (MATH 2660 or MATH 2667). C or better in ENGR 2350, MATH 2650, and MATH 2660. Modeling of system elements, classical feedback control techniques used in the analysis of linear systems, analysis of systems undergoing various motions connected with flight.

AERO 3230 FLIGHT DYNAMICS (4) LEC. 3. LAB. 2. Pr. AERO 3110 and ENGR 2350 and MATH 2650 and AERO 3220. C or better in MATH 2650 and ENGR 2350. Airplane performance and stability and control including analytical prediction of performance characteristics, experimental determination of static stability parameters, and analytical prediction of dynamic stability characteristics.

AERO 3310 ORBITAL MECHANICS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650. C or better in ENGR 2350 and MATH 2650. Geometry of the solar system and orbital motion, mathematical integrals of motion, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories.

AERO 3610 AEROSPACE STRUCTURES I (2) LEC. 1. LAB. 3. Pr. ENGR 2070 or ENGR 2077. C or better in ENGR 2070. Fundamental concepts employed in the mechanical testing of engineering materials and structures. Load, stress, and strain measurement techniques are utilized to determine material properties and structural response.

AERO 3970 SPECIAL TOPICS (1-3) AAB. SU. Departmental approval. Investigation of various topics in Aerospace Engineering. Course may be repeated for a maximum of 6 credit hours.

AERO 4140 AERODYNAMICS III (3) LEC. 3. Pr. AERO 3110. Theoretical background essential to a fundamental understanding of laminar and turbulent boundary layers and their relations to skin friction and heat transfer.

AERO 4510 AEROSPACE PROPULSION (4) LEC. 3. LAB. 3. Pr. AERO 3120. Fundamental analysis of airbreathing jet propulsion. Introduction to chemical rocket propulsion.

AERO 4620 AEROSPACE STRUCTURES II (4) LEC. 3. LAB. 3. Pr. AERO 3610 and (MATH 2660 or MATH 2667). C or better in MATH 2660. Aircraft and space vehicle structures. An introduction to the finite element method and its application to structural analysis. The laboratory will utilize state-of-the-art software numerical solution of aerospace structural systems.

AERO 4630 AEROSPACE STRUCTURAL DYNAMICS (4) LEC. 3. LAB. 3. Pr. AERO 4620 and MATH 2650. C or better in MATH 2650. Free, forced and damped vibration of single and multiple degree-of-freedom systems. The laboratory will utilize state-of-the-art software for the analysis of the vibration and dynamic response of structural systems.

AERO 4710 AEROSPACE DESIGN I: AIRCRAFT DESIGN (3) LEC. 2. LAB. 3. Pr. AERO 3120 and AERO 3110 and AERO 3610 and P/C AERO 3230. Introduction to the principles required to design aerospace vehicles.

AERO 4720 AEROSPACE DESIGN II: AIRCRAFT DESIGN (3) LEC. 2. LAB. 3. Pr. AERO 4710. This course is continuation of AERO 4710.

AERO 4730 AEROSPACE DESIGN I: SPACE MISSION (3) LEC. 2. LAB. 3. Pr. AERO 3120 and AERO 3610 and P/C AERO 3310. Introduction to the design of space systems including the identification of launch requirements, spacecraft system components, satellite tracking and orbital analysis to achieve a stated scientific objective.

AERO 4740 AEROSPACE DESIGN II: SPACE MISSION (3) LEC. 2. LAB. 3. Pr. AERO 4730. A continuation of AERO 4730, Space Mission Design I.

AERO 4750 AEROSPACE DESIGN I: LAUNCH VEHICLE (3) LEC. 2. LAB. 3. Pr. AERO 3120 and AERO 3610 and AERO 3310. Introduction to the principles required to design aerospace vehicles.

AERO 4760 AEROSPACE DESIGN II: LAUNCH VEHICLE (3) LEC. 2. LAB. 3. Pr. AERO 4750. This course is continuation of AERO 4750.

AERO 4970 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) AAB. Departmental approval. Investigation of current state-of-the-art technologies in aerospace engineering. Course may be repeated for a maximum of 9 credit hours.

AERO 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Membership in the Honors College and departmental approval required; Directed research and writing of an honors thesis. Course may be repeated for a maximum of 3 credit hours.

AERO 4AA0 PROGRAM ASSESSMENT (0) LAB. SU. Pr. P/C AERO 4710 or P/C AERO 4730 or P/C AERO 4750. Academic program assessment covering the areas of aerodynamics, aerospace structures, orbital mechanics, propulsion and vehicle design.

AERO 5110 MISSILE AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 5120 ROTARY WING AERODYNAMICS (3) LEC. 3. Pr. AERO 3110. Aerodynamics and flight characteristics of rotary-wing aircraft.

AERO 5140 COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. Pr. AERO 3110. An introduction to finite-difference and finite-volume methods for solving partial differential equations of interest in fluid dynamics.

AERO 5210 FLIGHT SIMULATION (3) LEC. 3. Pr. AERO 3230. Time domain simulation of nonlinear, six-degree-of-freedom motion of flight vehicles. Development of modular digital simulations including vehicle models for aerodynamics and propulsion, control, guidance subsystems.

AERO 5330 APPLIED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 3310. Introduction to general and special perturbations; N-body and restricted three-body problems; C-W equations, targeting and rendezvous; satellite constellations.

AERO 5410 AEROACOUSTICS (3) LEC. 3. Pr. AERO 3120 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410 or AERO 6410.

AERO 5460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2650. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 5520 ROCKET PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 5530 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.

AERO 5630 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 6110 MISSILE AERODYNAMICS (3) LEC. 3. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 6120 ROTARY WING AERODYNAMICS (3) LEC. 3. Aerodynamics and flight characteristics of rotary-wing aircraft.

AERO 6140 COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. An introduction to finite-difference and finite-volume methods for solving partial differential equations of interest in fluid dynamics.

AERO 6210 FLIGHT SIMULATION (3) LEC. 3. Time domain simulation of nonlinear, six-degree-of-freedom motion of flight vehicles. Development of modular digital simulations including vehicle models for aerodynamics and propulsion, control, guidance subsystems.

AERO 6330 APPLIED ORBITAL MECHANICS (3) LEC. 3. Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 6410 AEROACOUSTICS (3) LEC. 3. Pr. AERO 4140 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410/5413 or AERO 6410/6416.

AERO 6460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2650. Departmental approval. Analytical solutions of nonlinear problems, ODES, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 6520 ROCKET PROPULSION (3) LEC. 3. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 6530 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.

AERO 6630 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 6640 ADVANCED VISCOELASTICITY (3) DSL/LEC. An introduction to polymers and the theory of viscoelasticity. Topics include (1) a review of stress and strain analysis and measurement; (2) characteristics, applications, and properties of polymers; (3) polymerization and classification; (4) differential constitutive equations; (5) time and temperature behavior of polymers; (6) viscoelastic stress analysis; and (7) rate and time-dependent failure.

AERO 7100 ADVANCED SUPERSONIC AERODYNAMICS (3) LEC. 3. Pr. AERO 4140. A rigorous development of linearized and nonlinear fluid flow theories and application. Lifting surfaces, lifting bodies, duct flow, boundary layer effects, shock and expansion waves and method of characteristics.

AERO 7120 DYNAMICS OF VISCOUS FLUIDS I (3) LEC. 3. Pr. AERO 7100 or AERO 7106. Exact solutions to the Navier Stokes equations. Exact and approximate solutions of the laminar boundary layer equations. Incompressible and compressible boundary layers in theory and experiment.

AERO 7130 DYNAMICS OF VISCOUS FLUIDS II (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Turbulent flows, the Reynolds stresses and turbulence modeling. Computation of incompressible and compressible turbulent boundary layers. Stability theory and transition.

AERO 7140 ADVANCED COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. Pr. AERO 5140 or AERO 6140. Advanced methods for solving problems in computational fluid dynamics. Topics include: discretization approaches, implicit solution techniques, curvilinear coordinate systems, and upwind schemes.

AERO 7150 COMPRESSIBLE FLUID DYNAMICS (3) LEC. 3. Pr. AERO 4140. Departmental approval. An introduction to the fundamental of compressible fluid dynamics. Application of conservation of mass, momentum and energy for compressible flows. May count either AERO 7150 or AERO 7156.

AERO 7160 PHYSICAL FOUNDATIONS OF TURBULENCE (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to turbulence using classical descriptions with a focus on the physics of turbulence phenomena. May count either AERO 7160 or AERO 7166.

AERO 7170 FUNDAMENTALS OF FLUIDS (3) LEC. 3. Introduction to principal concepts and methods of fluid dynamics; similarity and dimensional analysis; conservation of mass, momentum, and energy for flows in continuum; circulation and vorticity theorems; potential flow theory; introduction to some exact solutions based on simplifying assumptions for inviscid, viscous, unsteady, and compressible flow problems.

AERO 7200 DYNAMICS OF FLIGHT (3) LEC. 3. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of flight vehicle motion. Stability concepts and analysis of the stability of flight vehicle motions. Effects of variable mass and flexibility.

AERO 7210 FLIGHT DYNAMICS OF HYPERVELOCITY VEHICLES (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of hypersonic flight vehicle motion. Stability concepts and analysis of the stability of steady-state motions of very high speed flight vehicles.

AERO 7220 SPACECRAFT ATTITUDE DYNAMICS AND CONTROL (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Development of specialized concepts and methods in dynamics applicable to the modeling of spacecraft rotational motion. Methods for controlling spacecraft attitude. Analysis of the attitude stability and controllability of spacecraft attitude motion. Department approval.

AERO 7330 ORBIT DETERMINATION (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of orbit determination; least squares, minimum norm, minimum variance solutions; batch, sequential and extended sequential filters.

AERO 7340 ADVANCED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of time measurements, earth orientation/coordinate system; f and g series; Lambert's Problem; linear orbit theory and circumlunar trajectories.

AERO 7350 OPTIMAL CONTROL OF AEROSPACE VEHICLES (3) LEC. 3. Principles of optimization; Pontryagin's principle; Linear quadratic regulator; Observers, state estimation, LQG problem. Optimal output feedback; Synthesis of flight control systems. AERO 3220 or equivalent.

AERO 7360 ADVANCED TRAJECTORY OPTIMIZATION (3) LEC. 3. Departmental approval. This course reviews single- and multi-variable optimization techniques of deterministic continuous systems. A review of the necessary (KKT) and sufficient conditions for optimality is given. We will review principles of dynamic programming and the Hamilton-Jacobi-Bellman (HJB) equation. We will also review Linear Programming (LP) problems and Quadratic Programming (QP) problems. Application of the QP problems for minimum-snap trajectory optimization for path planning of quad-rotors is demonstrated. We will also introduce basic concepts of convex optimization, which uses many of the concepts introduced in the LP and QP problems. The final project is to solve a trajectory optimization problem using successive linearization, which is a widely used technique for converting non-convex problems to convex ones.

AERO 7410 LIGHT-FIELD IMAGING (3) LEC. 3. Pr. AERO 7160 or AERO 7166. Departmental approval. An introduction to light-field imaging. Topics include light parameterization, light field cameras, computational photography and Fourier slice photography theorem. May count either AERO 7410 or AERO 7416.

AERO 7420 PARTICE IMAGE VELOCIMETRY (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to particle image velocimetry and it variations including conventional planar PIV, stereo PIV, stereo-PIV and torno-PIV. May count either AERO 7420 or AERO 7426.

AERO 7450 AEROSPACE ENGINEERING ANALYSIS (3) LEC. 3. Analysis and techniques for solving ordinary and partial differential equations common in Aerospace applications.

AERO 7460 ADVANCED PERTURBATION METHODS (3) LEC. 3. Departmental approval. Solutions of nonlinear problems and integrals using WKB, Rayleigh-Janzen, Generalized Scales, Latta, van der Pol, Watson, Laplace, Adomian, homotopy, Pade, Liouville-Green and Burmann transformations. May count either AERO 7460/7466 or MATH 7460/7466.

AERO 7510 THRUST GENERATION (3) LEC. 3. Pr. AERO 4510. Aerothermodynamics of propulsion. Selected topics in gas dynamics, thermodynamics, and heat transfer as applied to airbreathing and space propulsion.

AERO 7520 ADVANCED AIR-BREATHING PROPULSION (3) LEC. 3. Topics emphasizing interaction between external aerodynamics and performance of airbreathing jet engines. Performance optimization of ramjet, turbojet, and turbofan engines. Component matching.

AERO 7530 AEROTHERMCHEM OF PROPULSION (3) LEC. 3. Aerothermodynamics of compressible flow, chemical propellant characteristics, heat transfer in fluid flow, statistical gas dynamics, kinetic theory of gases.

AERO 7600 AEROSPACE SOLID MECHANICS (3) LEC. 3. An introduction to solid mechanics concepts with aerospace engineering applications. The course develops equations of motions from conservation laws and introduces constitutive equations from linearized continuum mechanics perspective for aerospace related applications. Topics include elastostatic solutions, elastodynamic solutions and plasticity.

AERO 7620 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STATIC STRUCTURES (3) LEC. 3. Pr. AERO 4620. Departmental approval. Advanced techniques for the numerical solution of static elastic and plastic problems, including two and three dimensional solutions.

AERO 7630 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STRUCTURAL DYNAMICS (3) LEC. 3. Pr. AERO 4630. Departmental approval. Advanced techniques for the numerical solution to problems in structural dynamics, including steady state and transient response of two-and three-dimensional structures.

AERO 7950 SEMINAR (0) SEM. 0. SU. Weekly lectures on current developments in aerospace sciences by staff members, graduate students, and visiting scientists and engineers. Course may be repeated for a maximum of 1 credit hours.

AERO 7970 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) DSL. Course may be repeated for a maximum of 9 credit hours.

AERO 7980 AEROSPACE ENGINEERING PROJECT (3) LEC. 3. SU. Departmental approval. Intended for students in the MAE program. On or off-campus project. The nature of the project is to be determined by the student's major professor. Approval of the project and its final written report by the student's advisory committee is required. Course may be repeated with change in topic.

AERO 7990 RESEARCH AND THESIS (1-10) DSL/MST. Credit hours to be arranged. Course may be repeated with change in topics.

AERO 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

Biosystems Engineering Courses

BSEN 2210 ENGINEERING METHODS FOR BIOLOGICAL SYSTEMS (2) LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607) or Departmental approval. Introduction to experimental design methodology, basic engineering design and problem solving methodology for Biological Engineering. Visualization skills, computer-aided 3-D solid modeling of parts, 3-D assembly of solid part geometries, computation of mass properties, 2-D engineering drawings, engineering design process, safety, tools and fabrication processes and design, and hands-on shop fabrication of semester project.

BSEN 2240 BIOLOGICAL AND BIOENVIRONMENTAL HEAT AND MASS TRANSFER (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1600 or PHYS 1607) and P/C ENGR 2010. Basic principles of heat and mass transfer with special applications to biological and environmental systems. Introduction to steady state and transient heat conduction. Convection, radiation, diffusion, simultaneous heat and mass transfer, and generation and depletion of heat and mass in biological systems.

BSEN 3210 MECHANICAL POWER FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. ENGR 2010 and MATH 2650 and P/C ENGR 2350. Basic engineering analysis, synthesis, and design concepts applied to power sources, mobile equipment, and machinery applications for agricultural, forestry, and natural resource systems.

BSEN 3230 NATURAL RESOURCE CONSERVATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Engineering analysis applied to natural resource systems. Design principles and practices in rainfall-runoff relationships, soil erosion and its prediction and control, hydraulic structures, and open channel hydraulics.

BSEN 3240 PROCESS ENGINEERING IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. Theory and application of process operations in biological, food and agricultural systems. Heat transfer, fluid flow, thermal processing, evaporation, psychrometrics, refrigeration, drying freezing.

BSEN 3260 ENGINEERING FOR PRECISION AGRICULTURE AND FORESTRY (3) LEC. 2. LAB. 3. Pr. BSEN 3610 and MATH 2650. Departmental approval. Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site specific applications. Fall.

BSEN 3310 HYDRAULIC TRANSPORT IN BIOLOGICAL SYSTEMS (4) LEC. 3. LAB. 3. Pr. (ENGR 2050 or ENGR 2053) and MATH 2650 or Departmental approval. Fluid properties, Non-Newtonian fluids and biological systems, Fluid statics, Energy equation, mass and momentum balance, pipe flow for Newtonian and Non-Newtonian fluids, dimensional analysis, compressible flows.

BSEN 3610 INSTRUMENTATION AND CONTROLS FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and BSEN 2210. Departmental approval. Understanding of fundamentals of electrical circuits, sensing and sensors, simple digital electronics, analog measurement circuits, introductory digital signal processing, computer data acquisition.

BSEN 4200 POLYMERS FROM RENEWABLE RESOURCES (2) LEC. 2. Fundamental aspects of natural, biodegradable polymers, including fibers, adhesives, films and coatings, their synthesis, their structure/properties relationships, and the microbiology of their degradation.

BSEN 4210 IRRIGATION SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. Theory and design of irrigation systems for the application of water and wastewater including surveying techniques for system design. Systems include solid-set, traveler, center-pivot, and trickle. Fall.

BSEN 4250 HYDRAULIC CONTROL SYSTEMS DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3310 or Departmental approval. Principles of energy transfer by means of fluid power. Design of hydraulic control systems using prime movers, valves, actuators, and accessories. Spring.

BSEN 4300 PROFESSIONAL PRACTICE IN BIOSYSTEMS ENGINEERING (2) LEC. 1. LAB. 3. Pr. ENGR 2070 and (BSEN 4240 or BSEN 3230). This course focuses on issues related to the professional practice of biological engineering including preparing students for transition to careers as professional engineers.

BSEN 4310 ENGINEERING DESIGN FOR BIOSYSTEMS (3) LEC. 1. LAB. 6. Pr. BSEN 4300. Departmental approval. Capstone design course in biosystems engineering emphasizing teamwork, communication, safety engineering, and economic analysis to complete an engineering design project. Spring.

BSEN 4960 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) AAB/IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biosystems engineering. May be repeated with change in problem. Course may be repeated with change in topics.

BSEN 4970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) DSL. Departmental approval. Individual or small group study of a specialized area in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

BSEN 5220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 5230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. (CHEM 1040 or CHEM 1120) and BIOL 3200 and (BSEN 3230 or BSEN 4240). Introduction to animal waste management problems of confined production systems, and characterization of animal waste types. Design of biological treatment and processing systems. Departmental approval. May count either BSEN 5230 or BSEN 6230.

BSEN 5240 BULK BIOLOGICAL SOLIDS BEHAVIOR, HANDLING AND PROCESSING (3) LEC. 3. Pr. BSEN 3310 or CIVL 3310. Understanding of the properties of bulk solids and how these properties influence the behavior, handling and processability of biological solids.

BSEN 5250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. LAB. 2. Pr. MATH 2650. Modeling of biosystems, methods to deal with complexity, and validation tools.

BSEN 5260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Application and use of renewable energy in biological, food, forest and agricultural systems including bioenergy, solar energy, wind power and geothermal. Departmental approval. May count either BSEN 5260 or BSEN 6260.

BSEN 5270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Pr. BIOL 3200 and (CHEM 1040 or CHEM 1120). Or with the consent of the instructor. Introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries.

BSEN 5280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 1. Pr. BSEN 2240 and BSEN 3310. Introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 5510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities. Departmental approval. May count either BSEN 5510 or BSEN 6510.

BSEN 5520 WATERSHED MODELING (3) LEC. 3. Pr. BSEN 3230. Modeling of non-point source pollution at watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants. Departmental approval. May count either BSEN 5520 or BSEN 6520.

BSEN 5540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 1040 or CHEM 1120) and MATH 2650 and BSEN 3310. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 5560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230 or (CIVL 3110 and CIVL 3010). Development of student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts. Departmental approval. May count either BSEN 5560 or BSEN 6560.

BSEN 5570 COASTAL ECOLOGICAL ENGINEERING (3) LEC. 1. LAB. 4. Pr. BSEN 3310. Fundamentals of coastal processes and engineering and also provide an introduction to modeling the flow of water in coastal systems

BSEN 6220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 6230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Coreq. BSEN 3230. Introduction to the animal waste management problems of confined production systems and characterization of animal waste types. Design of biological treatment and processing systems.

BSEN 6240 BULK BIOLOGICAL SOLIDS BEHAVIOR, HANDLING AND PROCESSING (3) LEC. 3. Understanding of the properties of bulk solids and how these properties influence the behavior, handling and processing ability of biological bulk solids.

BSEN 6250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Modeling of biosystems, methods to deal with complexity, and validation tools.

BSEN 6260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Application and use of renewable energy in biological, food forest and agricultural systems including biomass and bioenergy, solar energy, wind power and geothermal.

BSEN 6270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Department/instructor approval. An introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries. May count either BSEN 5270 or BSE 6270.

BSEN 6280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. This course introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 6510 ECOLOGICAL ENGINEERING (3) LEC. 3. Departmental approval. The course introduces students to ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities.

BSEN 6520 WATERSHED MODELING (3) LEC. 3. Departmental approval. The course covers modeling of non-point source pollution at the watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants.

BSEN 6540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 6560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. The course is designed to develop student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts.

BSEN 6570 COASTAL ECOLOGICAL ENGINEERING (3) LEC. 1. LAB. 4. Fundamentals of coastal processes and engineering. Introduction to modeling the flow of water in coastal systems.

BSEN 7110 FUNDAMENTALS OF INSTRUMENTATION FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Students will gain an understanding of the fundamentals of sensing and sensors, simple digital electronics and measurement circuits, introductory digital signal processing, and computer data acquisition. They will be required to build and test instrumentation to collect data on biological systems that might include fluid flow, pressure, force, or other transducers.

BSEN 7140 ALGAE SYSTEMS ENGINEERING (3) LEC. 2. LAB. 1. This course is a study of engineered systems for cultivating algae for various uses in society. To develop an understanding of engineering principles applied to growing, cultivating, and producing algal biomass for a number of applications, study into the biology, physiology, and ecology of algae and similar species will be a major part of the course. Departmental Approval.

BSEN 7510 INTRODUCTION TO LAND AND WATER ENGINEERING (3) LEC. 3. This course aims at equipping students with the engineering tools and knowledge needed for advanced courses in land and water engineering.

BSEN 7520 INTRODUCTION TO FLUVIAL GEOMORPHOLOGY (3) LEC. 3. Pr. BSEN 3230. This course provides an overview of stream geomorphology as it relates to natural stream physical processes.

BSEN 7900 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in biosystems engineering at the graduate level. Pr., Course may be repeated with change in topics.

BSEN 7950 SEMINAR (1) SEM. SU. Reviews and discussions of research techniques, current scientific literature, and recent developments in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 7970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) AAB. Departmental approval. Individual or small group study of an advanced specialized area in biosystems engineering at the graduate level. Course may be repeated with change in topics.

BSEN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BSEN 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Chemical Engineering Courses

CHEN 1000 CONCEPTS OF CHEMICAL ENGINEERING: THE DESIGN OF COFFEE (3) LEC. 2. LAB. 2. This course is an introduction to chemical engineering concepts and approaches to innovation and problem solving. Qualitative overviews are presented for principles and practices of engineering analysis and design, with corresponding hands-on laboratories applying the concepts to processes for roasting and brewing coffee. The course is intended as a free elective for all majors.

CHEN 1007 HONORS CONCEPTS OF CHEMICAL ENGINEERING: THE DESIGN OF COFFEE (3) LEC. 2. LAB. 2. Pr. Honors College. This course is an introduction to chemical engineering concepts and approaches to innovation and problem solving. Qualitative overviews are presented for principles and practices of engineering analysis and design, with corresponding hands-on laboratories applying the concepts to processes for roasting and brewing coffee. The course is intended as a free elective for all majors.

CHEN 2100 PRINCIPLES OF CHEMICAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. (CHEM 1110 or CHEM 1117 or CHEM 1030 or CHEM 1033) and (MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1600 or PHYS 1607) and (P/C CHEM 1120 or P/C CHEM 1127 or P/C CHEM 1040 or P/C CHEM 1043). Application of multicomponent material and energy balances to chemical processes involving phase changes and chemical reactions.

CHEN 2110 CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3. Pr. CHEN 2100 and (P/C PHYS 1600 or P/C PHYS 1607) and (P/C MATH 2630 or P/C MATH 2633 or P/C MATH 2637) and (P/C CHEN 2650). This course is intended to comprehensively introduce the thermodynamics of single- and multi-phase, pure systems, including the first and second laws of thermodynamics, equations of state, simple processes and cycles, and their applications in chemical engineering. CHEN 2100 requires a grade of C or better.

CHEN 2610 TRANSPORT I (3) LEC. 3. Pr. (PHYS 1600 or PHYS 1607) and CHEN 2100 and P/C MATH 2650 and P/C CHEN 2110. CHEN 2100 requires a grade of C or better. Introduction to fluid statics and dynamics; dimensional analysis; compressible and incompressible flows; design of flow systems, introduction to fluid solids transport including fluidization, flow through process media and multiphase flows.

CHEN 2650 CHEMICAL ENGINEERING APPLICATIONS OF MATHEMATICAL TECHNIQUES (3) LEC. 3. Pr. CHEN 2100 and (P/C MATH 2630 or P/C MATH 2637) and P/C MATH 2650 and (COMP 1200 or COMP 1220 or COMP 1230). CHEN 2100 requires a grade of C or better. CHEN 2610 and MATH 2650 are Prerequisites with Concurrency. Application of a broad range of mathematical techniques to chemical engineering problems. Emphasis on engineering significance and interpretation of mathematical operations.

CHEN 2AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Pr. CHEN 2100. Progress assessment examination in basic science, general chemistry, physics, basic math principles (geometry, algebra), multivariable calculus, chemical engineering process principles (mass and energy balances). CHEN 2100 requires a grade of C or better. Course may be repeated with change in topics.

CHEN 3370 PHASE AND REACTION EQUILIBRIA (3) LEC. 3. Pr. (MATH 2630 or MATH 2633 or MATH 2637) and CHEN 2110 and CHEN 2100 and CHEN 2650. Molecular thermodynamics of phase and chemical reaction equilibria including non-ideal thermodynamics and multicomponent applications. ((ENGR 2010 or CHEN 2110) and CHEN 2100 require a grade of C or better.)

CHEN 3600 COMPUTER-AIDED CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. (COMP 1200 or COMP 1220 or COMP 1230) and MATH 2650 and CHEN 2610 and P/C CHEN 2650 and (MATH 2630 or MATH 2637) and CHEN 2110 and CHEN 2100. CHEN 2650 is prerequisite with concurrency. General and structured programming concepts, numerical methods, and introductory probability and statistics concepts. Application to chemical engineering problems involving material and energy balances and transport process, data validation, and analysis. (CHEN 2100 and (CHEN 2110 or ENGR 2010) and CHEN 2610 all require a grade of C or better.)

CHEN 3620 TRANSPORT II (3) LEC. 3. Pr. CHEN 2110 and CHEN 2610 and MATH 2650 and P/C CHEN 2650. Fundamentals and applications of heat and mass transfer in chemical processes including conduction, convection, and radiation, heat exchange, evaporation, chemical reaction gas absorption, drying and humidification. ((ENGR 2010 or CHEN 2110) and CHEN 2610 require a grade of C or better.)

CHEN 3650 CHEMICAL ENGINEERING ANALYSIS (3) LEC. 2. LAB. 3. Pr. CHEN 2650 and CHEN 3600 and CHEN 3620 and CHEN 2AA0 and MATH 2650 and P/C CHEN 3700. CHEN 2650, CHEN 3600 and CHEN 3620 all require a grade of C or better. Mathematical modeling, analytical, numerical and statistical analysis of chemical processes.

CHEN 3660 CHEMICAL ENGINEERING SEPARATIONS (3) LEC. 3. Pr. CHEN 2100 and CHEN 3370 and CHEN 3620. Separations processes including distillation, extraction, membrane separation, and other separation operations. (CHEN 3370, CHEN 3600, and CHEN 3620 all require a grade of C or better.)

CHEN 3700 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. MATH 2650 and CHEN 2610 and CHEN 2110 and P/C CHEN 3620 and P/C CHEN 3600. Design of chemical reactors with homogeneous reaction systems. CHEN 2610 and (ENGR 2010 or CHEN 2110) require a grade of C or better.

CHEN 3820 CHEMICAL ENGINEERING LABORATORY I (2) LEC. 1. LAB. 3. Pr. CHEN 3600 and CHEN 3620 and MATH 2650. Experimental study of chemical thermodynamics, heat and momentum transfer with analytical, numerical, and statistical analysis. CHEN 3600 and CHEN 3620 require a grade of C or better.

CHEN 3AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr. CHEN 2AA0 and P/C CHEN 3370 and P/C CHEN 3650 and P/C CHEN 3700 and P/C CHEN 3660 and CHEN 2650. Progress assessment examination in thermodynamics, linear differential equations, organic chemistry, transport phenomena (fluid mechanics, heat, mass transfer), phase and reaction equilibria, reaction engineering, design and conduction of experiments, analysis and interpretation of data, professional, ethical, societal and contemporary issues. CHEN 2650 requires a grade of C or better. Course may be repeated with change in topics.

CHEN 4100 PULP AND PAPER PROCESSING LABORATORY (2) LAB. 6. Pr. CHEN 5090 or Departmental approval. Experimental study of pulping and papermaking operations.

CHEN 4170 DIGITAL PROCESS CONTROL (3) LEC. 3. Pr. (CHEN 3650 or CHEN 3653) and CHEN 3600 and CHEN 3660. Introduction of basic concepts and principles for control system. Analysis of open loop and closed-loop processes using transfer functions. CHEN 3600, CHEN 3650, and CHEN 3660 all require a grade of C or better.

CHEN 4450 PROCESS ECONOMICS AND SAFETY (3) LEC. 2. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and (CHEN 3650 or CHEN 3653) and CHEN 3660 and CHEN 3700 and CHEN 3600. Fundamentals and applications of process economics and design, computer-aided cost estimation, profitability analysis and process improvement. Application of chemical process safety, risk assessment and management, hazard and operability analysis, chemical engineering principles for risk reduction. (CHEN 3370, CHEN 3600, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4460 PROCESS SIMULATION SYNTHESIS AND OPTIMIZATION (2) LEC. 1. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and CHEN 3650 and CHEN 3660 and CHEN 3700 and CHEN 3600. Fundamentals of computer-aided simulation and synthesis. Process integration and optimization principles including their applications in design, retrofitting and operation of chemical processes. (CHEN 3370, CHEN 3600, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4470 PROCESS DESIGN PRACTICE (3) LEC. 2. LAB. 3. Pr. CHEN 3AA0 and CHEN 4450 and CHEN 4460 and CHEN 3650 and CHEN 3660 and CHEN 3700 and PHYS 1610. Flow sheet simulation and techno-economic analysis applied to complex, open-ended chemical processes. Screening of alternatives and economic optimizations. Capstone design course. CHEN 3650, CHEN 3660, and CHEN 3700 all require a grade of C or better.

CHEN 4860 CHEMICAL ENGINEERING LABORATORY II (2) LEC. 1. LAB. 3. Pr. CHEN 3660 and CHEN 3820 and P/C CHEN 3700 and CHEN 3650 and P/C CHEN 4170 and PHYS 1610. Experimental study of mass transfer, separations and reaction engineering. Emphasis is on open-ended laboratory projects with electronic instrumentation; experimental design with numerical and statistical analysis of data. CHEN 3650 requires a grade of C or better.

CHEN 4970 SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-10) AAB. Departmental approval. Topical courses in special areas. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 10 credit hours.

CHEN 4980 UNDERGRADUATE RESEARCH (1-3) IND. Pr. 3.00 GPA. Departmental approval. GPA of 3.0 or higher and junior standing. Individual and small group projects. Topic must be arranged with instructor during preregistration. Research Report. Course may be repeated for a maximum of 3 credit hours.

CHEN 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

CHEN 5090 PULP AND PAPER TECHNOLOGY (3) LEC. 3. Pr. (ENGR 2010 or CHEN 2110) and (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and MATH 2650. An introductory course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.

CHEN 5110 PULP AND PAPER ENGINEERING (3) LEC. 3. Pr. CHEN 3620 and CHEN 3700 and P/C CHEN 4450. Chemical and engineering principles in the manufacturing of pulp and paper. (CHEN 3620 and CHEN 3700 require a grade of C or better.)

CHEN 5120 SURFACE AND COLLOID SCIENCE (3) LEC. 3. Pr. CHEN 3620 and CHEN 4100. Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits. (CHEN 3620 and CHEN 4100 require a grade of C or better).

CHEN 5130 INTEGRATED BIOREFINERIES (3) LEC. 3. Pr. CHEN 5090 or CHEN 6090. Departmental approval. Chemical and engineering principles in biomass conversion processes with emphasis on producing value-added materials and chemicals. By the end of the semester students should understand the principles and reasoning behind emerging biorefinery processes integrated to the pulp and paper manufacturing.

CHEN 5410 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reputation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers. (CHEN 3370 requires a grade of C or better.)

CHEN 5420 POLYMER CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 2070 or CHEM 2077) and CHEN 3620 and CHEN 5410. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing. (CHEN 3620 and CHEN 5410 require a grade of C or better).

CHEN 5430 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3. Pr., Departmental Approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.

CHEN 5660 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Departmental approval. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials.

CHEN 5800 BIOCHEMICAL ENGINEERING (3) LEC. 3. Pr. P/C CHEN 3700. Bioreactor design. Analysis of enzyme and microbial processes. (CHEN 3700 requires a grade of C or better).

CHEN 5810 BIOMEDICAL ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and P/C CHEN 3620. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 5970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 6090 PULP AND PAPER TECHNOLOGY (3) LEC. 3. An introductory graduate level course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.CHEN Department Approval and Alabama Center for Paper and Bioresource Engineering Director approval.

CHEN 6110 PULP AND PAPER ENGINEERING (3) LEC. 3. Chemical and engineering principles in the manufacturing of pulp and paper.

CHEN 6130 INTEGRATED BIOREFINERIES (3) LEC. 3. Pr. CHEN 5090 or CHEN 6090. Departmental approval. Chemical and engineering principles in biomass conversion processes with emphasis on producing value-added materials and chemicals. By the end of the semester students should understand the principles and reasoning behind emerging biorefinery processes integrated to the pulp and paper manufacturing.

CHEN 6410 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reptation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers.

CHEN 6660 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials. Or departmental approval. May count either CHEN 6660 or CHEN 6666.

CHEN 6800 BIOCHEMICAL ENGINEERING (3) LEC. 3. Bioreactor design. Analysis of enzyme and microbial processes.

CHEN 6810 BIOMEDICAL ENGINEERING (3) LEC. 3. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy, and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 6970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) DSL. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 7100 TRANSPORT PHENOMENA (3) LEC. 3. Principles of heat, mass and momentum transport in application of intermediate complexity. Mathematical analysis of transport problems.

CHEN 7110 CHEMICAL ENGINEERING ANALYSIS AND ADVANCED TRANSPORT PHENOMENA (3) LEC. 3. Pr. CHEN 7100 or CHEN 7106. Analytical solutions of ordinary and partial differential equations pertaining to transport phenomena and other areas of chemical engineering.

CHEN 7200 CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3. Chemical reaction and phase equilibrium applied to chemical engineering problems. Properties of multicomponent real gases, liquids, and solids and property relationships. Criteria for thermodynamic equilibrium and stability, molecular thermodynamics.

CHEN 7250 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. P/C CHEN 7100 or P/C CHEN 7106. Analysis and design of homogeneous and heterogeneous chemical reactors. Physicochemical factors and analysis of non-ideal chemical reactor behavior.

CHEN 7900 INDEPENDENT STUDY (1-10) DSL/IND. SU. Departmental approval. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 20 credit hours.

CHEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Seminar. Course may be repeated for a maximum of 12 credit hours.

CHEN 7970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) DSL. Departmental approval. Topical courses for graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 12 credit hours.

CHEN 7990 RESEARCH AND THESIS (1-20) MST. Credit hours to be arranged. Course may be repeated with change in topics.

CHEN 8990 RESEARCH AND DISSERTATION (1-20) DSR. Credit hours to be arranged. Course may be repeated with change in topics.

Civil Engineering Courses

CIVL 2010 SURVEYING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 1610 or MATH 1613 or MATH 1617) and (COMP 1200 or COMP 1220 or COMP 1230). Civil engineering surveying theory and practice including history of land surveys and U.S. datums; field measurements, office calculations and graphical/digital presentation of spatial data.

CIVL 3010 CIVIL ENGINEERING ANALYSIS (4) LEC. 3. LAB. 3. Pr. MATH 2650 and (COMP 1200 or COMP 1220 or COMP 1230) and (ENGR 2050 or ENGR 2053) and STAT 3010. Applications of calculus and ordinary differential equations, numerical methods, vector algebra, and linear algebraic expressions to practical civil engineering problems. Heavy emphasis on computerized techniques and civil engineering software.

CIVL 3110 HYDRAULICS (4) LEC. 3. LAB. 3. Pr. (ENGR 2010 or ENGR 2200) and MATH 2650 and P/C ENGR 2350 and P/C CIVL 3010. Pr. ENGR 2010 is only allowed for students who transfer into Civil Engineering. Students already enrolled in Civil Engineering should take ENGR 2200. Introduction to fluid mechanics, fluid properties, hydrostatics, kinematics, dynamics, energy equation, ideal flow and energy losses. Applications of fluid mechanics, pipe flow, fluid measurements, pumps, open channel flow, dimensional analysis and theory of modeling.

CIVL 3220 WATER AND WASTE TREATMENT (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and BIOL 3200. Fundamentals of potable water treatment and wastewater treatment and disposal. Treatment systems; operation/ process physics, chemistry, and biology; operation and maintenance issues; regulatory requirements. Credit will not be given to students majoring in Civil Engineering.

CIVL 3230 ENVIRONMENTAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. BSEN 3310 or CIVL 3010 or ENGR 2200 and CHEM 1040 or CHEM 1043. Fundamental principles of environmental engineering, including basic environmental chemistry and microbiology; materials and energy balances; diffusion; chemical equilibrium; kinetics; and chemical reaction engineering.

CIVL 3310 GEOTECHNICAL ENGINEERING I (4) LEC. 3. LAB. 3. Pr. (CHEM 1040 or CHEM 1043) and (ENGR 2070 or ENGR 2077). Soil-forming processes, physical properties of soils, subsurface investigations, clay mineralogy, soil classification, permeability, effective stress, consolidation theory, time-settlement analysis, compaction, shear strength, geosynthetics.

CIVL 3410 CONSTRUCTION ENGINEERING (3) LEC. 3. Pr. CIVL 2010 and P/C CIVL 3010. Basic concepts of the construction industry, contractual methods, estimating and scheduling.

CIVL 3510 TRANSPORTATION ENGINEERING (4) LEC. 4. Pr. CIVL 2010 and STAT 3010. Introduction to transportation engineering practice with emphasis on highway facility design, traffic operations, and life-cycle costing.

CIVL 3610 STRUCTURAL ANALYSIS (4) LEC. 3. LAB. 3. Pr. (ENGR 2070 or ENGR 2077) and P/C CIVL 3010. Basic structural analysis of determinate and indeterminate structures, deflections by moment-area and virtual work, influence lines, force method and moment-distribution methods of analysis.

CIVL 3820 CIVIL ENGINEERING MATERIALS (3) LEC. 2. LAB. 3. Pr. P/C CIVL 3310. Introduction to common materials used in construction of civil facilities including highways; aggregate, concrete, asphalt, and steel.

CIVL 4210 WATER AND WASTEWATER TREATMENT AND DESIGN (3) LEC. 3. Pr. CIVL 3230. Departmental approval. The fundamentals of theory, design, and operation of water and wastewater treatment systems are covered.

CIVL 4211 WATER AND WASTEWATER LABORATORY (1) LAB. 3. Pr. CHEM 1040 and BIOL 3200. Coreq. CIVL 4210. Introduction to analytical techniques used to assess water quality. Credit will not be given to students majoring in Civil Engineering.

CIVL 4220 ENVIRONMENTAL ENGINEERING DESIGN (3) LEC. 3. Pr. CIVL 4210 or CIVL 4230. Process design of environmental engineering systems.

CIVL 4230 URBAN HYDRAULIC SYSTEM DESIGN (3) LEC. 3. Pr. CIVL 3230 and CIVL 3110. Engineering approaches to designing and managing urban water supply, sanitary sewer, storm water collection systems and flood control works.

CIVL 4310 GEOTECHNICAL ENGINEERING II (3) LEC. 3. Pr. CIVL 3310. Analysis and design in geotechnical engineering based on principles of soil mechanics and soil behavior. Problems of slope stability, earth pressure and design of earth retaining structures, foundation bearing capacity and settlement.

CIVL 4420 PROJECT MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Planning and management of construction/engineering projects and organizations, project management techniques, skills, and applications.

CIVL 4490 DESIGN-BUILD PROJECT (3) LEC. 3. Pr. CIVL 4420. Develop a design-build proposal for a civil engineering improvement including engineering study, consideration of alternative designs, and formal written and oral presentation.

CIVL 4500 TRAFFIC ENGINEERING FUNDAMENTALS (3) LEC. 3. Pr. CIVL 3510. The fundamental elements of traffic engineering including traffic operations and traffic control devices.

CIVL 4520 AIRPORT DESIGN (3) LEC. 3. Pr. CIVL 3510. Departmental approval. An analysis of the elements affecting the design of airports including forecasting, runway configuration, capacity analyses, geometric design of runways and taxiways, pavement design and airfield drainage.

CIVL 4530 GEOMETRIC DESIGN (3) LEC. 3. Pr. CIVL 3510. An analysis of the elements affecting the location and design of rural highways, urban highways and arterial streets including design controls and criteria.

CIVL 4590 TRANSPORTATION DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4530. Individual senior design project requiring the development of plans for a roadway over a large land segment: horizontal and vertical curves in accord with State and AASHTO standards; topographic terrain features; historical preservation area; minimum elevation; intersection design; earthwork balance.

CIVL 4600 REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 3610. Concrete and reinforcing steel properties; analysis and design of reinforced concrete beams, one-way slabs, columns and footings; anchorage of reinforcement.

CIVL 4650 STRUCTURAL STEEL DESIGN (3) LEC. 3. Pr. CIVL 3610. Steel properties. Design and analysis of structural steel members in tension, compression, shear, flexure and combined compression and flexure. Bolted and welded connections.

CIVL 4690 STRUCTURAL DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4600. Execution of a comprehensive design of a major structure. Emphasis on the design process, creative thinking, analysis, synthesis, teamwork and communications.

CIVL 4960 SPECIAL PROBLEMS (1-3) LEC. Departmental approval. Individual student endeavor under staff supervision involving advanced special problems in civil engineering. Course may be repeated for a maximum of 6 credit hours.

CIVL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

CIVL 5110 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/ CIVL 6116.

CIVL 5120 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3010. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications. Departmental approval. May count either CIVL 5120 or CIVL 6120.

CIVL 5130 HYDRAULIC DESIGN OF PRESSURIZED SYSTEMS (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 5150 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport. Credit will not be given for both CIVL 5150 and CIVL 6150/CIVL 6156.

CIVL 5160 STORMWATER MANAGEMENT AND MODELING (3) LEC. 3. Pr. CIVL 3110. Introduction of current stormwater management practices (e.g., lower impact development and green infrastructures) and polices, rainfall analysis with different inter-event dry period, flood analysis, stormwater runoff hydrograph modeling (rainfall loss, overland flow hydrograph, unit hydrograph theory, and hydrograph routing), stormwater quality modeling (pollutant buildup, washoff, and transport), peak discharge control using detention ponds, and various best management practices for stormwater volume and quality control. May count either CIVL 5160, CIVL 6160, or CIVL 6166.

CIVL 5170 NUMERICAL SOLUTIONS FOR HYDRO-ENVIRONMENTAL APPLICATIONS (3) LEC. 3. Pr. CIVL 3110 and CIVL 3230. Theoretical and numerical solutions of various problems in water resources and environmental engineering using computational tools. Development of simple codes and spreadsheet-based tools for the description and prediction of flows, contaminant spreading, and other relevant processes in natural and built systems. May count either CIVL 5170 or CIVL 6170/6176.

CIVL 5210 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 5230 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 5240 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling, theory and design of control devices; legal/ administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 5250 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 5260 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment.

CIVL 5330 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 5340 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 5350 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining structures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 5410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.

CIVL 5420 CONSTRUCTION PROJECT SCHEDULING AND CONTROL (3) LEC. 3. Pr. CIVL 3410 and CIVL 4420. Principles related to planning, scheduling and control of civil engineering projects. Deterministic and probabilistic methods of scheduling, resource usage optimization. May count either CIVL 5420 or CIVL 6420.

CIVL 5430 CONSTRUCTION SAFETY AND HEALTH MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies for preventing worksite injuries and illness are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 5440 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 5450 EROSION AND SEDIMENT CONTROL TECHNOLOGIES IN CONSTRUCTION (3) LEC. 3. Pr. CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 5460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 5480 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 5500 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 5510 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants; hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 5560 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations.

CIVL 5580 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Departmental approval. Introduction to intelligent transportation systems, covering applications of information and communication technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Credit will not be given for both CIVL 5580 and CIVL 6580/CIVL 6586.

CIVL 5600 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 5620 PRESTRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable lay-out, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 5630 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials; chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 5640 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 5650 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 5660 BRIDGE ENGINEERING (3) LEC. 3. Pr. CIVL 4600 and CIVL 4650. The modern approach to design, evaluation, and rehabilitation of bridges, including design of abutments, piers, concrete deck slabs, non-composite and composite steel girders, and prestressed concrete girders.

CIVL 5670 ADVANCED STRUCTURAL ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Analysis of continuous beams and frames by slope-deflection method. Analysis of beams, trusses, grids, and frames by direct stiffness method. Buckling of planar frames. Use of structural analysis software. May count either CIVL 5670 or CIVL 6670/CIVL 6676.

CIVL 5690 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 5700 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 5710 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/ CIVL 6716.

CIVL 5720 RELIABILITY OF STRUCTURES (3) LEC. 3. Pr. CIVL 4600 or CIVL 4650. Reliability-based methods of structural analysis including review of probability and statistics, reliability analysis methods, development of design codes, load and resistance models, system reliability, and practical applications. May count either CIVL 5720 or CIVL 6720/6726.

CIVL 5810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction, quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 5820 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820 or CIVL 6820.

CIVL 5970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.

CIVL 6110 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/CIVL 6116.

CIVL 6120 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3110. Departmental approval. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications.

CIVL 6130 HYDRAULIC DESIGN OF PRESSURIZED SYSTEMS (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 6150 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport. May count either CIVL 5150 or CIVL 6150/CIVL 6156.

CIVL 6160 STORMWATER MANAGEMENT AND MODELING (3) LEC. 3. Introduction of current stormwater management practices (e.g., lower impact development and green infrastructures) and polices, rainfall analysis with different inter-event dry period, flood analysis, stormwater runoff hydrograph modeling (rainfall loss, overland flow hydrograph, unit hydrograph theory, and hydrograph routing), stormwater quality modeling (pollutant buildup, washoff, and transport), peak discharge control using detention ponds, and various best management practices for stormwater volume and quality control. Approval by the instructor (e.g., undergraduate hydraulics).

CIVL 6170 NUMERICAL SOLUTIONS FOR HYDRO-ENVIRONMENTAL APPLICATIONS (3) LEC. 3. Pr. CIVL 3110 and CIVL 3230. Theoretical and numerical solutions of various problems in water resources and environmental engineering using computational tools. Development of simple codes and spreadsheet-based tools for the description and prediction of flows, contaminant spreading, and other relevant processes in natural and built systems. May count either CIVL 5170 or CIVL 6170/6176.

CIVL 6210 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/ base equibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 6230 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 6240 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling theory and design of control devices; legal/administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 6250 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 6260 SURFACE WATER QUALITY MODELING (3) LEC. 3. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment

CIVL 6330 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 6340 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 6350 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining strictures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 6410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.

CIVL 6420 CONSTRUCTION PROJECT SCHEDULING AND CONTROL (3) LEC. 3. Pr. CIVL 3410 and CIVL 4420. Principles related to planning, scheduling and control of civil engineering projects. Deterministic and probabilistic methods of scheduling, resource usage optimization. May count either CIVL 5420 or CIVL 6420.

CIVL 6430 CONSTRUCTION SAFETY (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies preventing worksite injuries and illnesses are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 6440 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 6450 EROSION AND SEDIMENT CONTROL TECHNOLOGIES IN CONSTRUCTION (3) LEC. 3. Pr. CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 6460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 6480 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 6500 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 6510 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants: hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 6560 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations. Departmental approval. May count either CIVL 5560.

CIVL 6580 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Introduction to intelligent transportation systems, covering applications of information and communications technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Departmental approval. May count either CIVL 5580 or CIVL 6580/CIVL 6586.

CIVL 6600 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 6620 PRESTRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable layout, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 6630 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials, chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 6640 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 6650 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 6660 BRIDGE ENGINEERING (3) LEC. 3. Pr. CIVL 4600 and CIVL 4650. The modern approach to design, evaluation, and rehabilitation of bridges, including design of abutments, piers, concrete deck slabs, non-composite and composite steel girders, and prestressed concrete girders. May count either CIVL 5660 or CIVL 6660/6666

CIVL 6670 ADVANCED STRUCTURAL ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Analysis of continuous beams and frames by slope-deflection method. Analysis of beams, trusses, grids, and frames by direct stiffness method. Buckling of planar frames. Use of structural analysis software. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 6690 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 6700 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 6710 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/CIVL 6716.

CIVL 6720 RELIABILITY OF STRUCTURES (3) LEC. 3. Pr. CIVL 4600 or CIVL 4650. Reliability-based methods of structural analysis including review of probability and statistics, reliability analysis methods, development of design codes, load and resistance models, system reliability, and practical applications. May count either CIVL 5720 or CIVL 6720/6726.

CIVL 6810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 6820 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820, CIVL 6820 or CIVL 6826.

CIVL 6970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Departmental approval. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.

CIVL 7120 HYDROLOGIC MODELING (3) LEC. 3. Pr. (CIVL 6110 or CIVL 6116). Principles and practice of hydrologic modeling, introduction to hydrologic information systems, computer modeling of storm run-off, floodplain hydraulics and bridge hydraulics. Computer applications.

CIVL 7130 SOCIAL-ECOLOGICAL-ENGINEERED SYSTEMS (3) LEC. 3. This course explores foundational scholarship on the Social-Ecological Systems (SES) approach to understanding complex environmental problems with emphasis on the role of engineering in human interactions with natural systems. Students are expected to apply SES concepts and theories to analyses in their own areas of research. Note: This class is intended to be cross-listed with ESSI 7300.

CIVL 7140 ECOHYDROLOGY (3) LEC. 3. Pr. P/C CIVL 6120 or P/C CIVL 6126 or P/C GEOL 6100 or P/C FORY 7550. This course covers current theory, methods, and issues in ecohydrology. Topics include the soil-plant-atmosphere continuum; stochastic modeling of soil moisture; vadose zone hydrology; theory, measurement, and modeling of evapotranspiration; ecological competition in water-limited systems; and current issues and research topics.

CIVL 7170 NUMERICAL METHODS IN HYDRAULICS AND HYDROLOGY (3) LEC. 3. Pr. CIVL 3230. Numerical approximations of ordinary and partial differential equations representing problems common to civil engineering including groundwater flow, soil consolidation, and mass transport. The formulation and computational solution of diffusion and equilibrium problems are emphasized. Computer programming is required.

CIVL 7220 WATER AND WASTEWATER OPERATIONS AND PROCESSES I (3) LEC. 3. Pr. CIVL 3230. Departmental approval. Coreq. CIVL 6210. Physical and chemical principles applied to water and wastewater treatment. Advanced mathematical and modeling concepts.

CIVL 7230 WATER AND WASTEWATER OPERATIONS AND PROCESSES II (3) LEC. 3. Pr. CIVL 7220 or CIVL 7226. Departmental approval. Rigorous analysis of unit operations and processes used in modern water and wastewater treatment systems. Mixing, coagulation, sedimentation, filtration, and chemical precipitation.

CIVL 7250 BIOLOGICAL WASTEWATER TREATMENT (3) LEC. 3. Pr. CIVL 6250 or CIVL 6256. Departmental approval. Development and application of the theories of biological waste treatment.

CIVL 7270 ADVANCED NUMERICAL METHODS FOR SOLVING ENVIRONMENTAL ENGINEERING PROBLEMS (3) LEC. 3. Pr. CIVL 3010. Departmental approval. Basic concepts of finite element (FE) analysis. Development of FE computer codes for solving environmental engineering problems. FE grid generation and visualization methods.

CIVL 7280 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Departmental approval. Physical, chemical, biological and hydrological considerations relating to the degradation and self-purification of streams, lakes, and estuaries. Water uses and water quality goals, objectives and criteria. Principles of water quality modeling and waste load allocation.

CIVL 7310 FOUNDATION ENGINEERING (3) LEC. 3. Pr. CIVL 3310 and CIVL 4600. Analysis, design and construction of shallow and deep foundation systems.

CIVL 7330 SOIL PROPERTIES (3) LEC. 3. Pr. CIVL 3310. Soil behavior, shear strength, compressibility, hydraulic conductivity, and measurement of soil properties.

CIVL 7340 SOIL DYNAMICS (3) LEC. 3. Pr. CIVL 3310. Soil behavior during dynamic loads, wave propagation, dynamically loaded foundations, geotechnical earthquake engineering.

CIVL 7360 EARTH SLOPES AND DAMS (3) LEC. 3. Pr. CIVL 3310. Departmental approval. Engineering design of earth slopes, slope stability, cut slopes, embankments, settlement. Dam siting, stability, flownets, seepage analysis.

CIVL 7390 IN SITU TESTING OF SOILS (3) LEC. 3. Pr. CIVL 4310. In situ tests used in geotechnical engineering: test procedures, interpretation of results, and designing from in situ geotechnical data.

CIVL 7420 CONSTRUCTION ENGINEERING PROJECT PLANNING AND CONTROL (3) LEC. 3. Pr. CIVL 4420. Departmental approval. This course covers the processes needed to develop and use project plans and budgets for construction projects. These tools will be used to create different schedules needed for construction planning and monitoring and be able to adjust a project's projection to maximize performance throughout the project lifecycle. This will include the scheduling methods to predict desired outcomes and performance measures to actively gauge project performance.

CIVL 7440 CONSTRUCTION EQUIPMENT PRODUCTIVITY AND ENGINEERING ECONOMICS (3) LEC. 3. Pr. CIVL 4420. Departmental approval. This course will encompass the methods needed to select, use, and manage the proper construction equipment to accomplish different project tasks. This will include using engineering fundamentals to understand the production and efficiency capabilities of equipment and the economic and scheduling impact this will have on the construction project.

CIVL 7460 PRECONSTRUCTION ENGINEERING PROJECT PLANNING (3) LEC. 3. Pr. CIVL 4420. Departmental approval. Construction success starts with the planning process known commonly as Preconstruction. During this phase potential construction projects are considered, studied, planned, designed, scheduled, and budgeted. Project owners often rely on consultants such as construction managers to help evaluated a project idea, the factors associated with the idea becoming a reality, and overseeing the steps from project idea to project construction. The proposed course provides students with the tools needed to be able to oversee project planning and owner assistance to usher the project to completion.

CIVL 7470 ADVANCED ENGINEERING PROJECT MANAGEMENT (3) LEC. 3. Pr. CIVL 4420. Departmental approval. Construction management requires cutting edge methods to coordinate project activities from project inception through project closeout to meet project needs and maintain competitive balance. Project oversight from pre-construction planning, scheduling, and estimating management require constant management and control while sound decision methods are used for best management methods. The proposed course provides students with the tools needed to be able to meet project requirements and result in successful project completion.

CIVL 7540 TRANSPORTATION SAFETY (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Transportation safety problems and the engineer's role in developing and administering safety programs. Topics include hazardous location identification; analysis of accident data; development and evaluation of accident countermeasures and safety programs.

CIVL 7610 STRUCTURAL DYNAMICS I (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Single-degree-of-freedom systems, numerical solution techniques, response spectrum, multi-degree-of-freedom systems, eigenproblem solution, mode superposition analysis.

CIVL 7630 ADVANCED STRESS ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Hooke's 1-D, 2-D, 3-D stress-strain relations and applications, stress and strain transformations and Mohr's circle, material properties and failure theories, biaxial bending, unsymmetrical bending, composite material members, shear center, torsional stress, stress concentrations, beams on elastic foundations.

CIVL 7640 STABILITY OF STRUCTURES (3) LEC. 3. Coreq. CIVL 6670. Introduction to stability and failure of compression members, rigid bar buckling, elastic and inelastic buckling of columns, approximate methods of buckling analysis, beam-columns, buckling of frames, torsional buckling, lateral torsional buckling of beams.

CIVL 7660 FINITE ELEMENT METHODS IN STRUCTURAL MECHANICS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Introduction to finite element analysis; variational principles. 1D, 2D and 3D element formulation; nonlinear (geometric and constitutive) formulations and solutions; eigenvalue problems.

CIVL 7670 NUMERICAL TECHNIQUES IN STRUCTURAL ANALYSIS (3) LEC. 3. Basic concepts of non-linear analyses, formulation of the continuum mechanics incremental equations, total and updated Lagrangian formulations, finite elements for non-linear analyses, non-linear solution strategies.

CIVL 7680 FATIGUE AND FRACTURE MECHANICS (3) LEC. 3. Pr. CIVL 4650. Departmental approval. Linear-elastic and elastic-plastic fracture mechanics, fatigue, yield criteria, applications to highway structures.

CIVL 7720 EARTHQUAKE ENGINEERING (3) LEC. 3. Pr. (CIVL 7610 or CIVL 7616) and (CIVL 5670 or CIVL 6670 or CIVL 6676). Principles of earthquakes and earthquake engineering; Analysis and design of steel and reinforced concrete buildings for earthquakes. May count either CIVL 7720 or CIVL 7726.

CIVL 7820 ADVANCED PAVEMENT DESIGN AND REHABILITATION (3) LEC. 3. Pr. CIVL 7810 or CIVL 7816. Pavement management concepts, life cycle costs analysis, design and rehabilitation alternatives, serviceability concepts, empirical thickness selection models, reliability.

CIVL 7840 PAVEMENT MANAGEMENT AND REHABILITATION (3) LEC. 3. Pr. CIVL 3820. Departmental approval. Topics include: network and project level management, pavement distress surveys, non-destructive testing for condition measurements, flexible and rigid pavement maintenance and rehabilitation practices.

CIVL 7860 PAVEMENT CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820. Operation, quality control and specifications of component construction processes for asphalt and concrete paving; and overview of major rehabilitation strategies.

CIVL 7870 ADVANCED CHARACTERIZATION OF PAVEMENT MATERIALS (3) LEC. 2. LAB. 3. Pr. CIVL 3820. This course introduces theories and procedures for determining fundamental properties of asphalt materials for advanced material evaluation and pavement design.

CIVL 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CIVL 7970 SPECIAL TOPICS IN CIVIL ENGINEERING (1-3) DSL. Individual student or group endeavor under direct faculty supervision involving special topics of an advanced nature in civil engineering. Course may be repeated for a maximum of 9 credit hours.

CIVL 7980 ENGINEERING PROJECT (1-10) LEC. 1-10. Directed study on an engineering project or research supervised by an individual graduate faculty member. Course may be repeated for a maximum of 10 credit hours.

CIVL 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Credit to be arranged. Course may be repeated for a maximum of 10 credit hours.

CIVL 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Departmental approval. Credit to be arranged. Course may be repeated with change in topics.

Computer Sci Software En Courses

COMP 1000 PERSONAL COMPUTER APPLICATIONS (2) LEC. 2. Introduction to personal computers and software applications, including word processing, spreadsheets, databases, and presentation graphics; generation and retrieval of information with the Internet; integration of data among applications.

COMP 1100 THE POWER OF AI: FUNDAMENTALS TO APPLICATIONS (3) LEC. 3. A comprehensive introduction to artificial intelligence accessible to students across all disciplines. Addresses fundamental principles of AI, key concepts like knowledge representation, reasoning, machine learning, natural language processing, and neural networks. Topics such as AI's impact across various fields, critical analyses of the benefits and limitations of the state of the art, ethical considerations, and hands-on experience in leveraging AI technologies will be covered.

COMP 1200 INTRODUCTION TO COMPUTING FOR ENGINEERS AND SCIENTISTS (2) LEC. 2. Computer programming in a high-level language, with emphasis on use of the computer as a tool for engineering or science.

COMP 1201 INTRODUCTION TO COMPUTING LABORATORY (1) LAB. 1. SU. Coreq. COMP 1200. Laboratory activities focused on computer programming in a high-level language.

COMP 1210 FUNDAMENTALS OF COMPUTING I (3) LEC. 2. LAB. 3. Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

COMP 1220 INTRODUCTION TO COMPUTING WITH PYTHON (2) LEC. 1. LAB. 3. Computational problem-solving using Python, with emphasis on developing programs from specifications, verification and testing, and engineering applications.

COMP 1230 INTRODUCTION TO COMPUTING WITH MATLAB (2) LEC. 1. LAB. 3. Computational problem-solving using MATLAB, with emphasis on developing programs from specifications, verification and testing, and engineering applications.

COMP 1AA0 COMPUTER COMPETENCY TEST (0) TST. SU. A comprehensive test of all material covered in COMP 1000 and COMP 1003. Course may be repeated with change in topics.

COMP 2000 NETWORK PROGRAMMING WITH HTML AND JAVA (3) LEC. 3. Pr. COMP 1000 or COMP 1003 or ENGR 1110 or ENGR 1113. Introduction to network programming using HTML and Java to build web pages and web-based applications; presentation graphics; retrieval of information from the Internet; integration of data among applications. Pr., COMP 1000 or higher, or ENGR 1110.

COMP 2210 FUNDAMENTALS OF COMPUTING II (4) LEC. 3. LAB. 3. Pr. COMP 1210 or COMP 1213. Software development in the context of collections (e.g., lists, trees, graphs, hashtables). Communication, teamwork, and a design experience are integral course experience. Pr. COMP 1210 with a grade of C or higher.

COMP 2240 DISCRETE STRUCTURES (3) LEC. 3. Pr. (COMP 1210 or COMP 1213 or COMP 1217) and (MATH 1610 or MATH 1617). Characterization of computer science data structures and algorithms in terms of sets and relations, functions, recurrence relations. Use of propositional and predicate calculus to describe algorithms. Proving correctness and running time bounds for algorithms by induction and structural induction. Pr. COMP 1210 & MATH 1610, both with a grade of C or higher.

COMP 2710 SOFTWARE CONSTRUCTION (3) LEC. 3. Pr. COMP 2210 or COMP 2213. Intensive experience in software construction, to include topics such as testing, debugging, and associated tools; configuration management; low-level file and device I/O; systems and event-driven programming. Pr. COMP 2210 with a grade of C or higher.

COMP 2800 PROFESSIONAL DEVELOPMENT I (1) LEC. Introduction to career opportunities and student development options for majors in computer science and software engineering. Students will explore course, research, and extracurricular options within the department; create resumes and digital professional profiles; investigate post-graduation opportunities; and explore other professional development opportunities.

COMP 3000 OBJECT-ORIENTED PROGRAMMING FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr., Departmental approval. Fundamentals of object-oriented design and programming principles; data abstraction, identifying objects, problem decomposition, design and implementation of classes. Credit for the major will not be given to CSCI and SWEN, and WIRS majors.

COMP 3220 PRINCIPLES OF PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 2210 or COMP 2213. Study of programming language principles supporting procedural abstraction, data abstraction, storage allocation, and parallel execution; language types and examples; language translations. Pr. COMP 2210 with a grade of C or higher.

COMP 3270 INTRODUCTION TO ALGORITHMS (3) LEC. 3. Pr. COMP 2240 and (COMP 2210 or COMP 2213). Algorithms for standard computational problems and techniques for analyzing their efficiency; designing efficient algorithms and experimentally evaluating their performance. Pr. COMP 2210 & 2240, both with a grade of C or higher.

COMP 3350 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 3. Pr. ELEC 2200 or ELEC 2210. Stored Program Computers, hardware and software components; data representation, instruction sets, addressing modes; assembly language programming; linkers, loader, and operating systems.

COMP 3500 INTRODUCTION TO OPERATING SYSTEMS (3) LEC. 3. Pr. (COMP 2710 or COMP 2713) and (COMP 3350 or COMP 3353 or ELEC 2220). Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

COMP 3510 EMBEDDED SYSTEMS DEVELOPMENT (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220). Operating system design and analysis for embedded systems: Real-time issues, resource management, scheduling, exception handling, device driver development, kernel development, synchronization, network support.

COMP 3700 SOFTWARE MODELING AND DESIGN (3) LEC. 3. Pr. COMP 2710. Current processes, methods, and tools related to modeling and designing software systems. Communication, teamwork, and a design experience are integral course experiences.

COMP 3710 WIRELESS SOFTWARE ENGINEERING (3) LEC. 3. Pr. COMP 2710. Software engineering for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

COMP 4200 FORMAL LANGUAGES (3) LEC. 3. Pr. COMP 3240 or COMP 2240. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models. Pr. COMP 2240 with a grade of C or higher.

COMP 4300 COMPUTER ARCHITECTURE (3) LEC. 3. Pr. COMP 3350 or COMP 3353. Comparison of computer architectures, emphasizing the relationships between system software and hardware. Includes processor control and datapath organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

COMP 4320 INTRODUCTION TO COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220) or Departmental approval. Fundamentals of computer networks, OSI model, LAN, WAN, packet transmission, interworking, Internet Protocol, WWW and Java technology.

COMP 4710 SENIOR DESIGN PROJECT (3) LEC. 3. Pr. COMP 3700 or COMP 3710 or COMP 3703. Development of requirement definitions, architectural design specification, detailed design specification, testing plan and documentation for the software and/or hardware components of a comprehensive project.

COMP 4730 COMPUTER ETHICS (2) LEC. 2. Pr. PHIL 1020 or PHIL 1023 or PHIL 1027 or PHIL 1110 or PHIL 1113. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity. Communication and teamwork are integral course experiences.

COMP 4800 PROFESSIONAL DEVELOPMENT II (1) LEC. 1. Pr. COMP 2800. Discussion and activities in effective communication, ethical solutions, and career development in preparation for students to transition into professional practice and lifelong learning in Computer Science and Software Engineering.

COMP 4810 PROGRAM ASSESSMENT (0) LEC. SU. Pr. COMP 4800. Coreq. UNIV 4AA0. Academic program assessment to include curriculum, course offerings and content, student services, and career exploration and first destination outcomes. Course may be repeated for a maximum of 10 credit hours.

COMP 4960 SPECIAL PROBLEMS (1-4) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 4970 SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 12 credit hours.

COMP 5000 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 5020 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3. Pr. COMP 5000. Departmental approval. Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures.

COMP 5120 DATABASE SYSTEMS I (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 5130 DATA MINING (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 5210 COMPILER CONSTRUCTION (3) LEC. 3. Pr. COMP 4200 and COMP 3220. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 5320 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 4320 or COMP 4323. Departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

COMP 5350 DIGITAL FORENSICS (3) LEC. 3. Pr. COMP 2710 or ISMN 3080 or MNGT 3080 or MNGT 3087 or COMP 2713. Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 5360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Pr. COMP 4320. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM. A

COMP 5370 COMPUTER AND NETWORK SECURITY (3) LEC. 3. Pr. COMP 4320. Fundamentals of computer security. Access Control. Authentication. Digital signatures and watermarks. Modeling and performance assessment. Viruses and worms. Identification of avenues for compromising systems.

COMP 5520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Pr. COMP 4320. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 5530 SECURE CLOUD COMPUTING: PRINCIPLES, PRACTICE, AND APPLICATIONS (3) LEC. 3. Pr. COMP 3220 and COMP 3500. Cloud concepts and issues including architecture, service models, security, and implementation. Hands-on experience in both using, managing, and deploying clouds.

COMP 5600 ARTIFICIAL INTELLIGENCE (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 5610 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 5600. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic, and constraint programming, knowledge representation and heuristic search methods.

COMP 5620 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 5630 MACHINE LEARNING (3) LEC. 3. Pr. COMP 5600. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning. Pr. COMP 5600.

COMP 5650 DEEP LEARNING (3) LEC. 3. Pr. COMP 5630. Convolutional neural networks (CNNs); visualizing CNNs; detection CNNs; segmentation CNNs; recurrent neural networks; machine translation; unsupervised learning; and generative adversarial networks.

COMP 5660 EVOLUTIONARY COMPUTING (3) LEC. 3. Pr. COMP 3270 and (STAT 3010 or STAT 3600). This course covers in depth the fundamentals of evolutionary computing and surveys the most popular types of evolutionary algorithms (e.g., genetic programming), a class of stochastic, population-based algorithms inspired by natural evolution theory, genetics, and population dynamics, capable of solving complex optimization and modeling problems. It applies them to solve a series of challenging assignments involving intensive programming, experimentation, statistical analysis, and technical writing.

COMP 5700 SECURE SOFTWARE PROCESS (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Process models of the software life cycle as well as methods and tools for software development with a special emphasis on secure software engineering.

COMP 5710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 5720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Pr. COMP 3500 or COMP 3510. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 5830 CYBERSECURITY THREATS AND COUNTERMEASURES (3) LEC. 3. LAB. 0, DSL/LEC. 0. Pr. COMP 4320. Analysis of methods used by ethical hackers to identify security threats against networks, systems, and personnel. Examination of tactics, techniques, and procedures employed by threat actors and defensive countermeasures.

COMP 5870 SECURITY INTEGRATION AND APPLICATION (1) LEC/LST. Coreq. COMP 4710. Departmental approval. Exploration of the integration and application of state-of-the-practice cybersecurity topics.

COMP 5970 SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 6000 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 6120 DATABASE SYSTEMS I (3) LEC. 3. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 6130 DATA MINING (3) LEC. 3. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 6210 COMPILER CONSTRUCTION (3) LEC. 3. Departmental approval. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 6320 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3. Departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

COMP 6350 DIGITAL FORENSICS (3) LEC. 3. Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 6360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM.

COMP 6370 COMPUTER AND NETWORK SECURITY (3) LEC. 3. Departmental approval. Fundamentals of computer security. Access Control. Authentication. Digital signatures and watermarks. Modeling and performance assessment. Viruses and worms. Identification of avenues for compromising systems.

COMP 6520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Departmental approval. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 6530 SECURE CLOUD COMPUTING: PRINCIPLES, PRACTICE, AND APPLICATIONS (3) LEC. 3. Cloud concepts and issues including architecture, service models, security, and implementation. Hands-on experience in both using, managing, and deploying clouds.

COMP 6600 ARTIFICIAL INTELLIGENCE (3) LEC. 3. Departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 6610 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic and constraint programming, knowledge representation and heuristic search methods.

COMP 6620 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3. Departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 6630 MACHINE LEARNING (3) LEC. 3. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning.

COMP 6650 DEEP LEARNING (3) LEC. 3. Pr. COMP 6630. Convolutional neural networks (CNNs); visualizing CNNs; detection CNNs; segmentation CNNs; recurrent neural networks; machine translation; unsupervised learning; and generative adversarial networks.

COMP 6660 EVOLUTIONARY COMPUTING (3) LEC. 3. Departmental approval. This course covers in depth the fundamentals of evolutionary computing and surveys the most popular types of evolutionary algorithms (e.g., genetic programming), a class of stochastic, population-based algorithms inspired by natural evolution theory, genetics, and population dynamics, capable of solving complex optimization and modeling problems. It applies them to solve a series of challenging assignments involving intensive programming, experimentation, statistical analysis, and technical writing.

COMP 6700 SECURE SOFTWARE PROCESS (3) LEC. 3. Pr. COMP 3700. Process models of the software life cycle as well as methods and tools for software development with a special emphasis on secure software engineering.

COMP 6710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 6720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Departmental approval. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 6830 CYBERSECURITY THREATS AND COUNTERMEASURES (3) LEC. 3. Pr. COMP 4320. Analysis of methods used by ethical hackers to identify security threats against networks, systems, and personnel. Examination of tactics, techniques, and procedures employed by threat actors and defensive countermeasures.

COMP 6970 SPECIAL TOPICS (1-3) LEC. 1-3. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 7120 DATABASE SYSTEMS II (3) LEC. 3. Pr. COMP 6120 or COMP 6126. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of object-oriented database systems.

COMP 7270 ADVANCED TOPICS IN ALGORITHMS (3) LEC. 3. Departmental approval. In-depth study of advanced topics in algorithms.

COMP 7300 ADVANCED COMPUTER ARCHITECTURE (3) LEC. 3. Departmental approval. Modern instruction level parallel computer design, including superscalar and very-long instruction word processor design.

COMP 7370 ADVANCED COMPUTER AND NETWORK SECURITY (3) LEC. 3. Pr. COMP 6370 or COMP 6376. Departmental approval. Advanced, research-based examination of computer network attack and defense techniques, viruses and other malware; operating system vulnerabilities and safeguards.

COMP 7500 ADVANCED TOPICS IN OPERATING SYSTEMS (3) LEC. 3. Departmental approval. Advanced topics in operating system concepts, design and implementation.

COMP 7620 HUMAN-COMPUTER INTERACTION (3) LEC. 3. Pr. COMP 6620. Theoretical principles and practical aspects of interaction between humans and computers, design and evaluation of interactive systems.

COMP 7660 RESEARCH METHODS IN EVOLUTIONARY COMPUTING (3) LEC. 3. Pr. COMP 6660 or COMP 5660. This course prepares students to perform independent research in general, and in the field of evolutionary computing (EC) in specific. This course covers in the context of EC: ideation, literature review, proposal writing and evaluation, research software design and implementation, experiment design and analysis, scientific writing and evaluation, and scientific oral presentation.

COMP 7700 SOFTWARE ARCHITECTURE (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Methods and tools related to the analysis, specification and design of software architecture.

COMP 7720 SOFTWARE REVERSE ENGINEERING (3) LEC. 3. Pr. P/C COMP 6370 or COMP 6376. Process, methods and tools associated with software reverse engineering. Course covers static and dynamic analysis techniques applied to analyze malware (i.e., malicious software).

COMP 7800 ARTIFICIAL INTELLIGENCE FOR SECURITY (3) LEC. 3. Exposes students in mixed-discipline teams to applying concepts and techniques in the AI domain to real-world problems of the security domain. In addition to practical experience with both domains, it will also provide students the opportunity to apply a multidisciplinary perspective conveying the “conventional wisdom” and mindsets of both AI and security through project-based learning. This course mimics R&D environments where teams extract requirements from customers, identify the state-of-the-art, design and propose solutions, implement and evaluate those solutions, and culminates in both customer and technical communication of project artifacts.

COMP 7810 PROGRAM ASSESSMENT (0) LEC. SU. Coreq. UNIV 4AA0. Academic program assessment to include curriculum, course offerings and content, student services, and career exploration and first destination outcomes. Course may be repeated for a maximum of 10 credit hours.

COMP 7930 DIRECTED STUDY (1-3) IND/RES. Course may be repeated with change in topics.

COMP 7970 SPECIAL TOPICS (1-3) DSL. Course may be repeated with change in topics.

COMP 7980 CAPSTONE ENGINEERING PROJECT (3) LEC. 3. Planning, implementation, and completion of a design project. Project culminates in both a written report and an oral presentation.

COMP 7990 RESEARCH AND THESIS (1-15) DSL. May count either COMP 7990 or COMP 7996. Course may be repeated with change in topics.

COMP 8930 DIRECTED STUDY (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 8970 SPECIAL TOPICS (1-3) IND. Course may be repeated with change in topics.

COMP 8990 RESEARCH AND DISSERTATION (1-20) DSL/DSR. Course may be repeated with change in topics.

Computer Science Courses

CPSC 1210 INTRODUCTION TO COMPUTER SCIENCE I (3) LEC. 45. Admission into Bachelor of Computer Science Program. Introduces the fundamental concepts of object-oriented programming.

CPSC 1220 INTRODUCTION TO COMPUTER SCIENCE II (3) LEC. 45. Pr. CPSC 1213 or CPSC 1210. Admission into Bachelor of Computer Science Program. Continues the development of programming from an object-oriented perspective. Emphasizes sound software engineering principles and best practices.

CPSC 1230 DATA STRUCTURES (3) LEC. 45. Pr. CPSC 1223 or CPSC 1220. Admission into Bachelor of Computer Science Program. Developing programs that use data structures and collections to efficiently store data. Emphasis will be placed on the interplay between effective data structures and efficient algorithms.

CPSC 2010 INTRODUCTION TO COMPUTER SCIENCE I (3) DSL. 45. Admission into Bachelor of Computer Science Program. Introduces the fundamental concepts of object-oriented programming.

CPSC 2710 SOFTWARE CONSTRUCTION FUNDAMENTALS (3) LEC. 45. Pr. CPSC 1233 or CPSC 1230. Admission into Bachelor of Computer Science Program. Development of graphical user interface-based, event-driven desktop/laptop computer application using a modern object-oriented language. Systematic testing, debugging, documentation, and maintenance programming.

CPSC 3220 PROGRAMMING LANGUAGES AND TRANSLATION (3) DSL. Pr. (CPSC 1230 or CPSC 1233) and (CPSC 3300 or CPSC 3303). Admission into Bachelor of Computer Science Program. Fundamental concepts of programming language design, interpretation, and compilation.

CPSC 3240 DISCRETE STRUCTURES (3) LEC. 45. Admission into Bachelor of Computer Science Program. Basics of set theory, propositional and predicate logic as used to describe algorithms, recurrence relations. Proving correctness and estimating running time for algorithms. Mathematical and structural induction.

CPSC 3270 ALGORITHMS I (3) LEC. 45. Pr. CPSC 1233 or CPSC 1230. Admission into Bachelor of Computer Science Program. Introduction to algorithms as tools for computational l problem solving, language of algorithms, understanding algorithms, approximately analyzing correctness and efficiency of algorithms, algorithms that solve fundamental computational problems, basic algorithm design techniques, steps of computational problem solving.

CPSC 3280 ALGORITHMS II (3) LEC. 45. Pr. CPSC 3270 or CPSC 3273. Admission into Bachelor of Computer Science Program. Advanced complexity analysis techniques, notions of computational complexity, polynomial time hierarchy, computability, algorithms that solve advanced computational problems, advanced algorithm design techniques, computational problem solving.

CPSC 3300 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 45. Pr. (CPSC 3243 or CPSC 3240) and (CPSC 1213 or CPSC 1210). Admission into Bachelor of Computer Science Program. Stored program computers, hardware and software components, data representations, instruction sets, addressing modes, assembly language programming, loaders, linkers and operating systems.

CPSC 3320 COMPUTER ARCHITECTURE (3) LEC. 45. Pr. CPSC 3333 or CPSC 3330. Admission into Bachelor of Computer Science Program. Design of Computer Systems, emphasizing the relationship between computer hardware and software. Includes processor control and data path organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

CPSC 3330 OPERATING SYSTEMS (3) LEC. 45. Pr. (CPSC 1230 or CPSC 1233) and (CPSC 3300 or CPSC 3303). Admission into Bachelor of Computer Science Program. Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

CPSC 3340 PARALLEL SYSTEMS (3) LEC. 45. Pr. CPSC 3333 or CPSC 3330. Admission into Bachelor of Computer Science Program. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, and parallel applications.

CPSC 3350 COMPUTER NETWORKS I (3) LEC. 45. Pr. CPSC 3330 or CPSC 3333. Admission into Bachelor of Computer Science Program. Fundamentals of computer networks, TCP/IP layered model: application layer, transport layer, network layer, link layer, with examples of each layer, and explanation of design issues. IPv6.

CPSC 3360 COMPUTER NETWORKS II (3) LEC. 45. Pr. CPSC 3353 or CPSC 3350. Admission into Bachelor of Computer Science Program. Computer network design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

CPSC 3370 WIRELESS AND MOBILE NETWORKS (3) DSL. Pr. CPSC 3353 or CPSC 3350. Admission into Bachelor of Computer Science Program. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless, wireless TCP personal communication systems, and current mobile phone OTA protocols.

CPSC 3700 SOFTWARE ENGINEERING I (3) LEC. 45. Pr. CPSC 2713 or CPSC 2710. Admission into Bachelor of Computer Science Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 3710 SOFTWARE ENGINEERING II (3) DSL. Pr. CPSC 3703 or CPSC 3700. Admission into Computer Science Online Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 4000 SYSTEM ADMINISTRATION (3) LEC. 45. Pr. CPSC 3330 or CPSC 3333. Admission into Bachelor of Computer Science. Basics of system administration for Windows and Unix machines, including configuration of Performance measurement and enhancement.

CPSC 4200 FORMAL LANGUAGES (3) DSL/LEC. 45. Pr. (CPSC 3273 or CPSC 3270) and (CPSC 3243 or CPSC 3240). Admission into Bachelor of Computer Science Program. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models. Basics of interpretation and compilation.

CPSC 4730 COMPUTER ETHICS (3) LEC. 45. Admission into Bachelor of Computer Science Program. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity.

CPSC 4800 PROFESSIONAL DEVELOPMENT I (1) DSL. Discussion and activities in effective communication, ethical solutions, and career development in preparation for students to transition into professional practice and lifelong learning in Computer Science.

CPSC 4810 PROFESSIONAL DEVELOPMENT II (1) DSL. Pr. CPSC 4800. Discussion and activities in effective communication, ethical solutions, and career development in preparation for students to transition into professional practice and lifelong learning in Computer Science.

CPSC 4820 PROGRAM ASSESSMENT (0) DSL. SU. Coreq. UNIV 4AA0. Academic program assessment to include curriculum, course offerings and content, student services, and career exploration and first destination outcomes. Course may be repeated for a maximum of 10 credit hours.

CPSC 4970 SPECIAL TOPICS (3) LEC. 3. Investigation of current topics in computer science. Course may be repeated for a maximum of fifteen credit hours.

CPSC 5120 DATABASE I (3) LEC. 45. Pr. CPSC 1230 or CPSC 1233. Admission into Bachelor of Computer Science Program. The design and implementation of database applications, with a focus on relational database management systems.

CPSC 5130 DATABASE II (3) LEC. 45. Pr. CPSC 5123 or CPSC 5120. Admission into Bachelor of Computer Science Program. Theory, design, and implementation of database systems.

CPSC 5200 DEVELOPING WEB APPLICATIONS WITH XML (3) LEC. 45. Pr. CPSC 1230 or CPSC 1233. Admission into Bachelor of Computer Science Program. Comprehensive introduction to XML, working with XML and Databases, event-driven programming with XML, implementing Communication and Web Services with XML, working with XML, JQuery, XHTML and HML5.

CPSC 5210 WEB APPLICATION DEVELOPMENT WITH JSP (3) LEC. 40. Pr. CPSC 5203 or CPSC 5200. Admission into Bachelor of Computer Science Program. Advanced course in web development using JSP, includes JCP fundamentals, JAP and web server software development, and applying JSP in the real world.

CPSC 5330 MOBILE APPLICATIONS I (3) LEC. 45. Pr. CPSC 2710 or CPSC 2713. Admission into Computer Science Online Program. Software development for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

CPSC 5340 MOBILE APPLICATION DEVELOPMENT II (3) LEC. 3. Pr. CPSC 5330 or CPSC 5333. Admission into Bachelor of Computer Science Program. Builds mastery of mobile application development and the skills necessary to stay current in this fast-moving field throughout one’s career by introducing a new programming language and application programmer interface and interface and requiring the student to master them.

Electrical and Computer En Courses

ELEC 2110 ELECTRIC CIRCUIT ANALYSIS (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (COMP 1200 or COMP 1220 or COMP 1230 or COMP 1210 or COMP 1217) and (P/C ENGR 1110 or P/C ENGR 1113) and P/C MATH 2650. Basic laws and concepts; resistive circuits; first-order transient circuits; phasors and frequency response of circuits; RMS values and complex power.

ELEC 2120 SIGNALS AND SYSTEMS (4) LEC. 3. LAB. 3. Pr. ELEC 2110 and MATH 2650 and (MATH 2630 or MATH 2633 or MATH 2637). Time-domain and frequency-domain methods for modeling and analyzing continuous and discrete-data signals and systems. Generating and observing signals in the time and frequency domains. MATLAB instruction and programming for signal analysis.

ELEC 2200 DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr. COMP 1200 or COMP 1220 or COMP 1230 or COMP 1210 or COMP 1217. Electronic devices and digital circuits; binary numbers; Boolean algebra and switching functions; gates and flip-flops; combinational and sequential logic circuits; hierarchical design of digital systems; computer-aided design tools for digital design, simulation, and testing.

ELEC 2210 DIGITAL ELECTRONICS (4) LEC. 3. LAB. 3. Pr. ELEC 2110 and ELEC 2200 and (MATH 2630 or MATH 2633 or MATH 2637) and MATH 2650. History of electronics; semiconductors; biasing and operation of PN junction diodes; field-effect transistors and bipolar junction transistors; logic families and logic technologies; flip-flops and memory circuitry.

ELEC 2220 COMPUTER SYSTEMS (3) LEC. 3. Pr. ELEC 2200. Computer hardware/software organization, processor programming models, assembly language programming, design of memory systems, I/O device interfacing, programming and multiprocessing.

ELEC 3030 RF SYSTEMS LAB (1) LAB. 3. Pr. ELEC 2210. Assembly, testing and analysis of a radio. Integration of basic concepts of electronics, electromagnetics, and signals and systems.

ELEC 3040 ELECTRICAL SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2220 and (P/C ELEC 3030 and P/C ELEC 3500). Exploration and integration of electrical engineering concepts and professional practice issues through the design of a contemporary engineering system.

ELEC 3050 EMBEDDED SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2210 and ELEC 2220 and P/C ELEC 2120. Integration of hardware and software in the design of an embedded computing system; development of professional skills.

ELEC 3060 WIRELESS DESIGN LAB (1) LAB. 3. Pr. P/C ELEC 3400. Laboratory experiments geared towards understanding the implementation and testing of components used in wireless communication systems.

ELEC 3310 FUNDAMENTALS OF APPLIED ELECTROMAGNETICS (3) LEC. 3. Pr. (MATH 2660 or MATH 2667) and ELEC 2110 and (MATH 2630 or MATH 2633 or MATH 2637) and MATH 2650. Transmission lines are studied as a bridge to understanding electromagnetic theory. Then, electric and magnetic fields are studied using vector algebra, culminating in Maxwell's equations.

ELEC 3320 ELECTROMAGNETICS FOR WIRELESS COMMUNICATION (3) LEC. 3. Pr. ELEC 3310. Maxwell's equations are used in the study of plane waves, guided waves, fiberoptics, electromagnetic compatibility and interference, antennas and radiation, and satellite communication systems.

ELEC 3400 COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3800. Pulse code modulation, line coding, information rate, equalization, amplitude modulation, angle modulation, noise in communication systems.

ELEC 3500 CONTROL SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Analog and discrete transfer function models, system response specifications, control system characteristics, root locus analysis and design, frequency response analysis and design.

ELEC 3600 ELECTRIC POWER ENGINEERING (3) LEC. 3. Pr. ELEC 2110 and (MATH 2630 or MATH 2633 or MATH 2637) and MATH 2650. Introduction to the basic concepts in electric power engineering.

ELEC 3700 ANALOG ELECTRONICS (3) LEC. 3. Pr. ELEC 2210 and ELEC 2120. Amplifier modeling. Design and analysis of single-stage and multistage transistor amplifiers. Biasing for integrated circuit design. Operational amplifier circuits.

ELEC 3800 RANDOM SIGNALS AND SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Introduction to probability, random variables, random processes and basic statistics, analysis of random signals and noise.

ELEC 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING (3) LEC. 3. Pr. (PHYS 1610 or PHYS 1617) and P/C MATH 2650. Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems. Not open to ECE majors.

ELEC 4010 CAPSTONE DESIGN I (1) LEC. 1. Pr. (ELEC 3800 and P/C ELEC 3030 and P/C ELEC 3040) or (ELEC 3800 and P/C ELEC 3050 and P/C ELEC 4200) or (ELEC 3800 and P/C ELEC 3030 and P/C ELEC 3060). The engineering design process, project management and teamwork, ethical and social impacts of design projects, project documentation and presentation, business considerations, and intellectual property.

ELEC 4020 CAPSTONE DESIGN II (3) LEC. 3. Pr. (ELEC 4010 and ELEC 3030 and ELEC 3040 and ELEC 3320 and ELEC 3600 and ELEC 3700 and P/C ELEC 3400) or (ELEC 4010 and ELEC 3050 and ELEC 3800 and ELEC 4200 and COMP 3270 and P/C ELEC 5200 and P/C ELEC 5220) or (ELEC 4010 and ELEC 3030 and ELEC 3060 and P/C ELEC 4100 and P/C ELEC 5130 and P/C ELEC 5410). A capstone design project which draws on the accumulated curricular experience. Particular project sections may have additional prerequisites. Departmental approval needed.

ELEC 4100 WIRELESS COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3400. Introduction to mobile cellular radio and wireless personal communications, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.

ELEC 4200 DIGITAL SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. ELEC 2210 and ELEC 2220. Hierarchical, modular design of digital systems, computer-aided digital system modeling, simulation, analysis, and synthesis; design implementation with programmable logic devices and FPGAs.

ELEC 4980 SPECIAL PROJECTS (1-3) IND. Departmental approval. Supervised study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

ELEC 5120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Pr. ELEC 3400. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures

ELEC 5130 RF DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 3700. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 5150 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 5190 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Pr. ELEC 3700. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on front-end design skills.

ELEC 5200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Pr. ELEC 4200. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 5210 HARDWARE SECURITY I (3) LEC. 3. Pr. ELEC 2200. Hardware design of symmetric and asymmetric ciphers, digital signature generation and verification, key management, detection and avoidance of counterfeit ICs, cryptographic primitives, and automated hardware design aids.

ELEC 5220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 5230 PARALLEL PROCESSING (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.

ELEC 5240 NEURAL NETWORKS (3) LEC. 3. Pr. ELEC 2120. Principles, architectures, and technologies of neural networks; design and implementation of neural networks using electronics and optics; applications of neural networks.

ELEC 5250 COMPUTER AIDED DESIGN OF DIGITAL INTEGRATED CIRCUITS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation, verification, fault diagnosis and testing, RTL-to-GDSII ASIC flow.

ELEC 5260 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 5290 HARDWARE SECURITY II (3) LEC. 3. Pr. ELEC 5210. This course will provide an in-depth analysis of various topics, which includes advanced cryptography, hardware Trojans, PUFs, RFID security, side-channel attacks and solutions, and blockchain.

ELEC 5310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Pr. P/C ELEC 3320. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 5320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 5340 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 5350 RADAR PRINCIPLES (3) LEC. 3. Pr. ELEC 3320 and ELEC 3800. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 5410 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Pr. ELEC 3800. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 5470 FUNDAMENTALS OF VLSI TEST (3) LEC. 3. Test economics, automatic test equipment, fault models, automatic test pattern generation, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability, scan and boundary scan, IDDQ testing.

ELEC 5530 ROBOT CONTROL (3) LEC. 3. Pr. ELEC 3500. Design, analysis, and simulation of robotic manipulator control. An exploration of kinematics, inverse kinematics, equation of motion, various control strategies, including classic computed-torque feedback control, modern optimal control and AI-based methods such as reinforcement learning and neural network control.

ELEC 5600 ELECTRIC VEHICLES (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Electric vehicles, technical aspects, mathematical relationships, and basic design guidelines on electric powertrain, traction inverters, electric machines, motor drives, power converter components, Wide Band Gap power electronics, permanent magnets, battery charging infrastructures, grid interactions, the roles in microgrids and smart grids, and computer simulations.

ELEC 5610 POWER ELECTRONICS (3) LEC. 3. Pr. ELEC 3700 and ELEC 3600. Power electronic circuits, components, and devices.

ELEC 5620 POWER SYSTEM ANALYSIS (3) LEC. 3. Pr. ELEC 3600. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.

ELEC 5630 ELECTRIC MACHINES (3) LEC. 3. Pr. ELEC 3600. Departmental approval. Fundamentals of the electromagnetic-mechanical energy conversion process. Principles of operation, application, and control of ac and dc motors and generators.

ELEC 5640 RENEWABLE ENERGY IN ELECTRICAL POWER SYSTEMS (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Conventional power plants, global renewables, energy efficiency, marine hydrokinetic (ocean currents and waves), wind power (aerodynamic, generator, plants, grid integration, finance), photovoltaic (device, inverter, plant levels, finance), hydropower (generator, plant level, pumped storage hydro, advances in hydro),power systems grid integration, system impact studies, control and operation of inverter-based resources, ancillary services provisions, and other important aspects of renewables for bulk power (transmission levels) and for distribution power systems.

ELEC 5650 POWER SYSTEM PROTECTION (3) LEC. 3. Pr. ELEC 3600. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 5660 SMART GRIDS (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Conventional power systems, renewable energy, inverter base resources, smart grid challenges and opportunities, real-time management, grid edge sensors, communications, advanced system protection, restoration, reactive/voltage control, real power/frequency regulation, monitoring and diagnostics, microgrids concept.

ELEC 5670 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. 3. Pr. ELEC 3600. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 5690 MICROGRIDS (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Distribution power system modeling, inverter-based resources, control, protection, resilience, and security technologies within distributed energy resources (generation, distribution, energy storage, reactive compensation, renewable energy resources) covering microgrid design, analysis, and operation.

ELEC 5700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Pr. ELEC 2210. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 5710 SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 2210. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 5720 LASER-MATERIAL INTERACTIONS (3) LEC. 3. Pr. MATH 1620 or Departmental approval. Fundamental principles of lasers, optics, and laser-matter interaction mechanisms in various laser-based manufacturing, materials processing, and diagnostic techniques.

ELEC 5730 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Pr. ELEC 2210. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 5760 SOLID STATE SENSORS (3) LEC. 3. Pr. ELEC 3700. or consent of instructor. Theory, technology and design micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 5770 VLSI DESIGN (3) LEC. 3. Pr. ELEC 2210 and ELEC 2220. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 5780 ANALOG CIRCUIT DESIGN (3) LEC. 3. Pr. ELEC 3700. Departmental approval. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 5810 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 5820 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 5970 SPECIAL TOPICS (1-5) AAB. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 6120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.

ELEC 6130 RF DEVICES AND CIRCUITS (3) LEC. 3. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 6150 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 6190 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on on front-end design skills.

ELEC 6200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 6210 HARDWARE SECURITY I (3) LEC. 3. This course will provide an in-depth analysis of various topics, which include (i) introduction to cryptography - symmetric and asymmetric ciphers, message authentication codes, and digital signatures, (ii) detection & avoidance of counterfeit ICs, and (iii) security primitives - physically unclonable functions (PUFs) and true random number generators (TRNGs).

ELEC 6220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 6230 PARALLEL PROCESSING (3) LEC. 3. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.

ELEC 6240 NEURAL NETWORKS (3) LEC. 3. Principles, architectures, and technologies of neural networks; design and implementation of neural networks using electronics and optics; applications of neural networks.

ELEC 6250 COMPUTER AIDED DESIGN OF DIGITAL INTEGRATED CIRCUITS (3) DSL/LEC. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation, verification, fault diagnosis and testing, RTL-to-GDSII ASIC flow.

ELEC 6260 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 6290 HARDWARE SECURITY II (3) LEC. 3. Pr. ELEC 5210 or ELEC 6210. This course will provide an in-depth analysis of various topics, which includes advanced cryptography, hardware Trojans, PUFs, RFID security, side-channel attacks and solutions, and blockchain.

ELEC 6310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 6320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 6340 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 6350 RADAR PRINCIPLES (3) LEC. 3. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 6410 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 6470 FUNDAMENTALS OF VLSI TEST (3) LEC. 3. Test economics, automatic test equipment, fault models, automatic test pattern generation, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability, scan and boundary scan, IDDQ testing

ELEC 6530 ROBOT CONTROL (3) LEC. 3. Design, analysis, and simulation of robotic manipulator control. An exploration of kinematics, inverse kinematics, equation of motion, various control strategies, including classic computed-torque feedback control, modern optimal control and AI-based methods such as reinforcement learning and neural network control.

ELEC 6600 ELECTRIC VEHICLES (3) LEC. 3. Electric vehicles, technical aspects, mathematical relationships, and basic design guidelines on electric powertrain, traction inverters, electric machines, motor drives, power converter components, Wide Band Gap power electronics, permanent magnets, battery charging infrastructures, grid interactions, the roles in microgrids and smart grids, and computer simulations.

ELEC 6610 POWER ELECTRONICS (3) LEC. 3. Power electronic circuits, components, and devices. Departmental Approval.

ELEC 6620 POWER SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.

ELEC 6630 ELECTRIC MACHINES (3) LEC. 3. Departmental approval. Fundamentals of the electromagnetic-mechanical energy conversion process. Principles of operation, application, and control of ac and dc motors and generators.

ELEC 6640 RENEWABLE ENERGY IN ELECTRICAL POWER SYSTEMS (3) LEC. 3. Conventional power plants, global renewables, energy efficiency, marine hydrokinetic (ocean currents and waves), wind power (aerodynamic, generator, plants, grid integration, finance), photovoltaic (device, inverter, plant levels, finance), hydropower (generator, plant level, pumped storage hydro, advances in hydro), power systems grid integration, system impact studies, control and operation of inverter-based resources, ancillary services provisions, and other important aspects of renewables for bulk power (transmission levels) and for distribution power systems.

ELEC 6650 POWER SYSTEM PROTECTION (3) LEC. 3. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 6660 SMART GRIDS (3) LEC. 3. Conventional power systems, renewable energy, inverter base resources, smart grid challenges and opportunities, real-time management, grid edge sensors, communications, advanced system protection, restoration, reactive/voltage control, real power/frequency regulation, monitoring and diagnostics, microgrids concept.

ELEC 6670 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. 3. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 6690 MICROGRIDS (3) LEC. 3. Distribution power system modeling, inverter-based resources, control, protection, resilience, and security technologies within distributed energy resources (generation, distribution, energy storage, reactive compensation, renewable energy resources) covering microgrid design, analysis, and operation.

ELEC 6700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 6710 SEMICONDUCTOR DEVICES (3) LEC. 3. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 6720 LASER-MATERIAL INTERACTIONS (3) LEC. 3. Departmental approval. Fundamental principles of lasers, optics, and laser-matter interaction mechanisms in various laser-based manufacturing, materials processing, and diagnostic techniques.

ELEC 6730 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 6750 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3. Departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.

ELEC 6760 SOLID STATE SENSORS (3) LEC. 3. Theory, technology and design of micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 6770 VLSI DESIGN (3) LEC. 3. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 6780 ANALOG CIRCUIT DESIGN (3) LEC. 3. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 6810 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 6820 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 6970 SPECIAL TOPICS (1-5) DSL. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 24 credit hours.

ELEC 7190 ADVANCED RFIC DESIGN FOR WIRELESS COMMUNICATIONS (3) LEC. Pr. ELEC 5190 or ELEC 6190 or ELEC 6196. Wireless standards and multi-standard transceiver architectures, SiGe and CMOS RFIC designs for wireless transceiver building blocks, software defined radios, phase array radars, ultra-high speed data converters, and MIMO wireless transceivers.

ELEC 7250 VLSI TESTING (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Exponential nature of the test problem, fault models, test generation algorithms, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability approaches.

ELEC 7310 ADVANCED ELECTRODYNAMICS I (3) LEC. 3. Departmental approval. Review of basic electromagnetics. Electromagnetic wave propagation in infinite and bounded media. Equivalence Principle, Uniqueness Theorem, Reciprocity, Green's functions and Plane wave functions.

ELEC 7320 ADVANCED ELECTRODYNAMICS II (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Cylindrical wave functions. Spherical wave functions. Scattering by cylinders and spheres. Perturbational and variational techniques.

ELEC 7410 STOCHASTIC SIGNAL AND SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Applications of probability, random variables and stochastic processes in electrical engineering.

ELEC 7440 WIRELESS COMMUNICATION THEORY (3) LEC. 3. Pr. ELEC 3400 or ELEC 7410 or ELEC 7416. The basic of design, analysis and performance limits of wireless communication systems.

ELEC 7450 DIGITAL IMAGE PROCESSING (3) LEC. 3. Departmental approval. Digital image processing principles and applications such as enhancement, restoration and compression.

ELEC 7470 ADVANCED VLSI TEST (3) LEC. 3. Pr. ELEC 5470 or ELEC 6470. Memory/PLA/FPGA testing, delay fault testing, test compression, in-field testing, cell-aware test, adaptive test, system-level test.

ELEC 7500 STATE-VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 3. Departmental approval. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.

ELEC 7520 ADVANCED DISCRETE CONTROL (3) LEC. 3. Departmental approval. Discrete state modeling. Pole assignment and estimation. Multi-rate sampled systems. Non-synchronous sampled systems. MIMO.

ELEC 7560 NONLINEAR SYSTEMS AND CONTROL (3) LEC. 3. Pr. ELEC 7500 or ELEC 7506. Departmental approval. Principles of nonlinear system modeling and analysis; nonlinear control systems design; nonlinear system state estimation.

ELEC 7610 POWER SYSTEM DYNAMICS AND STABILITY (3) LEC. 3. Pr. (ELEC 5620 or ELEC 6620 or ELEC 6626) and (ELEC 5650 or ELEC 6650 or ELEC 6656). Departmental approval. Dynamic models of power systems and analysis of power system stability.

ELEC 7620 POWER SYSTEM OPERATION (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Unit commitment, power system security, state estimation, power system control centers and real-time applications.

ELEC 7630 ADVANCED ELECTRIC MACHINES (3) LEC. 3. Pr. ELEC 5630 or ELEC 6630 or ELEC 6636. Departmental approval. Advanced machine modeling, including Kron's generalized machine theory, Park's transformation, and generalized coordinate transformations. Derivation of traditional machine models. Machine non-linearities, including finite element analysis.

ELEC 7640 POWER SYSTEM TRANSIENTS (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Transients in electric power systems, including lightning and switching phenomena. Traveling waves on power transmission lines, BIL, BSL, line insulation. System modeling.

ELEC 7710 THE FIELD-EFFECT TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern field-effect transistor: the state-of-the art, the MOS capacitor, the 4-terminal MOSFET, short and narrow-channel effects, reliability, scaling theory, modeling, silicon-on-insulator technology, heterostructure devices.

ELEC 7720 THE BIPOLAR TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern bipolar junction transistor; the state-of-the-art, terminal currents, solutions for arbitrary doping profiles, the polysilicon emitter contact, high-injector effects, dynamic operation, device models, heterojunction bipolar transistors.

ELEC 7750 LOW TEMPERATURE ELECTRONICS (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of electronic devices operating at reduced temperatures: the case for cryogenic computers, semiconductor physics at low temperatures, carrier freeze-out, cooled CMOS technology, cooled bipolar technology, superconductors, packaging.

ELEC 7760 SILICON-BASED HETEROSTRUCTURE DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 5700 or ELEC 6700 or ELEC 6706. Departmental approval. Bandgap engineering, strained SiGe and Si, SiGe BiCMOS technology, noise, linearity, circuits applications.

ELEC 7770 ADVANCED VLSI DESIGN (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Departmental approval. Review of CMOS logic circuits; impact of fabrication issues on design; high speed switching circuits; high performance memory structures; advanced clocking strategies and clock distribution; performance optimization; deep submicron design issues; ASIC design flow: logic synthesis, placement and routing; design verification; low power design.

ELEC 7780 RF MICROELECTRONICS (3) LEC. 3. Pr. ELEC 5780 or ELEC 6780 or ELEC 6786. Departmental approval. Techniques used in the design of monolithic integrated circuits for RF applications.

ELEC 7830 PHOTOVOLTAICS (3) LEC. 3. Departmental Approval. Theory, technology, design and application of photovoltaic devices and systems.

ELEC 7900 INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 7950 ELECTRICAL ENGINEERING SEMINAR (1-10) SEM. SU. Course may be repeated for a maximum of 10 credit hours.

ELEC 7970 SPECIAL TOPICS (1-5) DSL. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change of topic. Course may be repeated for a maximum of 24 credit hours.

ELEC 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated for a maximum of 6 credit hours.

ELEC 8120 PRINCIPLES OF NETWORK PERFORMANCE ANALYSIS (3) LEC. 3. Pr. (ELEC 5120 or ELEC 6120 or ELEC 6126) and (ELEC 7410 or ELEC 7416). Data network performance analysis, queueing systems, admission control, network traffic modeling, network calculus, flow and congestion control, wireless network analysis, and network simulation.

ELEC 8420 DETECTION AND ESTIMATION THEORY (3) LEC. 3. Pr. ELEC 7410 or ELEC 7416. Decision theory concepts. Detection of deterministic and random signals in noise; parameter estimation. Bayesian and maximum likelihood approaches, non-random and random parameter estimation; signal estimation.

ELEC 8560 ADAPTIVE CONTROL (3) LEC. 3. Pr. ELEC 7500 or ELEC 7506. Departmental approval. Theory and application of adaptive control systems. Real-time parameter estimation, self-tuning regulators, model-reference adaptive systems, stability, auto-tuning and gain scheduling controllers.

ELEC 8710 ADVANCED TOPICS IN SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of selected topics in semiconductor devices. Course may be repeated for a maximum of 6 credit hours.

ELEC 8900 ADVANCED INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 8970 ADVANCED SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 9 credit hours.

ELEC 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individual doctoral dissertation research. Course may be repeated with change in topics.

Engineering Courses

ENGR 1100 ENGINEERING ORIENTATION (0) LEC. 1. SU. Introduction to the College of Engineering and its resources, exploration of engineering careers, orientation to campus resources and facilities, and assistance with academics and transition to college. Course may be repeated with change in topics.

ENGR 1110 INTRODUCTION TO ENGINEERING (2) LEC. 1. LAB. 3. Introduction to engineering design, engineering teams, graphical presentation, technical writing, oral presentation. May count either ENGR 1110 or ENGR 1113.

ENGR 1410 ENGINEERING SUCCESS STRATEGIES (1) LEC. 1. Topics and engagement with engineering academic support strategies, academic integrity and ethics, professional development skills, engineering learning strategies, inclusive engineering teaming, inclusion and diversity, effective technical communication techniques, career exploration strategies, and exploration of engineering challenges. Explores a variety of academic, personal development, and career exploration activities intended to build a sense of community with underrepresented engineering and computer science students.

ENGR 2010 THERMODYNAMICS (3) LEC. 3. Pr. (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and (MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720) and (P/C PHYS 1600 or P/C PHYS 1607). Principles and applications of thermodynamics to engineering problems.

ENGR 2030 FUNDAMENTALS OF 3D PRINTING (2) LEC. 1. LAB. 3. Introductory level practical aspects of 3D printing, including: model file generation, computer aided design (CAD), slicing, and hands-on printing. Overview of 3D printing technologies and practical troubleshooting.

ENGR 2050 STATICS (3) LEC. 3. Pr. (PHYS 1600 or PHYS 1607) and (P/C MATH 2630 or P/C MATH 2633 or P/C MATH 2637). Principles of vectors, forces, moments, free body diagrams, force systems, 2-D and 3-D equilibrium, friction, geometric properties of plane areas.

ENGR 2070 MECHANICS OF MATERIALS (3) LEC. 3. Pr. (ENGR 2050 or ENGR 2053) and P/C MATH 2650. Minimum grade of C or better in ENGR 2050. Principles of stress and strain; stress-strain relationships; uniaxially loaded members; torsion; bending; beam shear; shear, moment and thrust diagrams; transformed sections; column buckling.

ENGR 2077 HONORS MECHANICS OF MATERIALS (3) LEC. 3. Pr. Honors College. MATH 2650 and ENGR 2050 or ENGR 2053. Minimum grade of C or better in ENGR 2050. Principles of stress and strain; stress-strain relationships; uniaxially loaded members; torsion; bending; beam shear; shear, moment and thrust diagrams; transformed sections; column buckling.

ENGR 2100 FUNDAMENTALS OF ENGINEERING MECHANICS (3) LEC. 3. Pr. P/C PHYS 1600 or P/C PHYS 1607. Basic principles of two-dimensional force systems, free body diagrams, concepts of stress and strain, centroids of composite areas, kinematics and kinetics of particles and rigid bodies.

ENGR 2200 INTRODUCTION TO THERMODYNAMICS, FLUIDS AND HEAT TRANSFER (3) LEC. 3. Pr. (CHEM 1030 or CHEM 1033) and (PHYS 1610 or PHYS 1617). Principles and applications of thermodynamics, fluids and heat transfer.

ENGR 2350 DYNAMICS (3) LEC. 3. Pr. ENGR 2050 or ENGR 2053. Fundamental principles of dynamics including kinematics and kinetics of particles, kinematics and kinetics of rigid bodies, mass moments of inertia, three-dimensional dynamics of rigid bodies, and simple harmonic motion.

ENGR 2700 NUCLEAR POWER OPERATIONS, SYSTEM AND CAREERS (1) LEC. 1. SU. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Overview of nuclear power generation systems including civilian and government career options.

ENGR 3500 LEADERSHIP IN ENGINEERING & BUSINESS THEORY (4) LEC. 3. LAB. 3. This class investigates the challenges of integrating engineering design with business requirements as they related to product innovation. Specific focus is placed on strategic planning and leadership needs to successfully steer product ideas into business reality. Case study problems from business and engineering practice.

ENGR 3510 PRODUCT INNOVATION: FROM SKETCH TO SHELF (4) LEC. 3. LAB. 2.33. Pr. ENGR 3500 or ENGR 3520 and ENGR 3560. This course takes students on a journey from conceptualization (sketch) to production to market (shelf). Students are introduced to the basics of modern computer-aided design (CAD), classic manufacturing processes, and design tools. They will learn how to use Fusion 360 to create 2D and 3D models, as well as how to use CAD to generate concepts, conduct market research, benchmark designs, and create prototypes. Students will also learn about classic manufacturing processes such as casting. Department approval.

ENGR 3560 LEADERSHIP FOR BUSINESS AND ENGINEERS (1) LEC. 1. Overview of leadership concepts and skills.

ENGR 3710 BASIC NUCLEAR I: NUCLEAR AND MECHANICAL SYSTEMS (4) LEC. 3. LAB. 1. Pr. P/C ENGR 2700 and (P/C PHYS 1500 or P/C PHYS 1600 or P/C PHYS 1607). Multidisciplinary course teaching fundamental nuclear and mechanical principles as they are utilized in the nuclear power generation industry.

ENGR 3720 BASIC NUCLEAR II: MATERIALS, ELECTRIC, ELECTRONICS (4) LEC. 3. LAB. 2.5. Pr. ENGR 2700 and (PHYS 1500 or P/C PHYS 1600 or P/C PHYS 1607). Multidisciplinary course teaching fundamental electronic and electrical theory and materials theory as practiced in nuclear power generation industry.

ENGR 3920 INTERNSHIP IN ENGINEERING (0) INT. SU. Professional work experience in an engineering position. Students participating in ENGR 3920 are expected to work in a fulltime, 40 hour/week, engineering job. Course may be repeated for a maximum of 10 credit hours.

ENGR 3970 SPECIAL TOPICS: ENGINEERING, TECHNOLOGY AND SOCIETY (1-4) AAB/LLB. Special topics of interest within a global engineering context. Course may be repeated for a maximum of 9 credit hours.

ENGR 4710 ADVANCED REACTOR OPERATIONS I: HEALTH AND SAFETY (3) LEC. 3. Pr. P/C ENGR 2700. Advanced safety topics within regulatory and training structure of nuclear power industry.

ENGR 4720 ADVANCED REACTOR OPERATIONS II: SAFE OPERATIONS (4) LEC. 3. LAB. 1. Pr. ENGR 3710 or ENGR 3720. Nuclear power plant operations are discussed in detail, with a strong emphasis on safety compliance and industry's safety culture. Topics include the NRC’s regulatory processes, operator licensing, reactor design certifications, reactor licensing, reactor oversight, enforcement, reactor modes of operation, plant refueling, spent fuel storage, and plant decommissioning. There is a heavy emphasis on integrated plant systems and operations. Industry leaders discuss current topics.

ENGR 4721 ADVANCED REACTOR PLANT OPERATIONS II: LAB (1) LAB. 2.5. Pr. P/C ENGR 4710. Nuclear power plant operations are discussed with a strong emphasis on safety compliance and industry's safety culture. Focus is hands-on practical factors.

ENGR 5500 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. (ENGR 3500 or ENGR 3520) and ENGR 3560 and ENGR 3510. Acceptance into the BET minor program. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products and processes that influence the competitiveness of the firm. Department approval.

ENGR 5510 BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 4. Pr. (ENGR 3500 or (ENGR 3520 and ENGR 3560)) and ENGR 3510 and (ENGR 5500 or ENGR 6500). This course is the culminating design course for the BET minor. This is a required course for undergraduate students who are admitted to the Business Engineering Technology (BET) program and are pursuing the BET minor. Students must have completed the required pre-requisites. Department approval.

ENGR 5550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Must be in BET minor program. Processes to develop and present design proposal for cooperating industry. Credit will not be given for both BUSI 5970 and ENGR 5970.

ENGR 5600 INTERNATIONAL ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. ENGR 3500 or ENGR 3520 and ENGR 3560 and ENGR 3510. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products, and processes that influence the firm's competitiveness. The main emphasis of this course will be on the process of commercializing an innovation – bringing the innovation to market via the creation of a company. Must be enrolled in the Business-Engineering-Technology minor and participating in the International BET. Department approval.

ENGR 5610 INTERNATIONAL BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 4. Pr. (ENGR 3500 or (ENGR 3520 and ENGR 3560)) and ENGR 3510 and (ENGR 5600 or ENGR 6600). Must be admitted to International BET minor. This course is intended to immerse the student in the new product design and development experience. Students will work directly with international companies and fellow international students to generate working prototypes that offer solutions. Students are expected to develop a successful new product development plan and execute all necessary activities to bring a functional prototype to life by semester's end. Specific focus is placed on creative product ideas. Departmental approval required.

ENGR 6000 ADVANCED ENGINEERING ANALYSIS (3) LEC. 3. Pr. MATH 2660. Analytical solutions of linear and nonlinear problems involving transcendental equations, ODEs/PDEs, Taylor/Fourier/asymptotic series, functional expansions, power series, and approximation methods. May count either ENGR 6000 or ENGR 6006.

ENGR 6500 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. BUSI 3500 or ENGR 3500 or BUSI 3520 or ENGR 3520 and BUSI 3560 or ENGR 3560 and BUSI 3510 or ENGR 3510. This is an optional graduate-level course for undergraduate students admitted to the Business Engineering Technology (BET) program who are pursuing a BET minor. Students must have completed the required pre-requisites and have ABM approval. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products and processes that influence the competitiveness of the firm. Department approval.

ENGR 6510 BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 4. Pr. (BUSI 3500 or ENGR 3500) and (BUSI 3510 or ENGR 3510) and BUSI 5500 or ENGR 5500 or ENGR 6500. Acceptance into the BET minor with completion of all required pre-requisites and approved ABM. You will be required to apply everything you've learned in the Business Engineering Technology minor to deliver a "fully realized" working product along with supporting documentation. Department approval.

ENGR 6540 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Develop student skills for starting a new business and making strategic decisions concerning technology.

ENGR 6550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Develop student skills for starting a new business and making strategic decisions concerning technology.

ENGR 6600 INTERNATIONAL ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. BUSI 3500 or BUSI 3520 and BUSI 3560 and BUSI 3510. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products, and processes that influence the firm's competitiveness. The main emphasis of this course will be on the process of commercializing an innovation – bringing the innovation to market via the creation of a company. Must be enrolled in the Business-Engineering-Technology minor and participating in the International BET minor and have ABM approval. Department Approval.

ENGR 6610 INTERNATIONAL BET CAPSTONE (4) LEC. 1. LAB. 4. Pr. BUSI 3500 or ENGR 3500 and BUSI 3510 or ENGR 3510 and BUSI 5500 or ENGR 5500 or ENGR 6500. Acceptance into the BET minor, completing all required prerequisites and approved ABM and participating in the International BET Study Abroad minor. You will be required to apply everything you've learned in the Business Engineering Technology minor to deliver a "fully realized" working product along with supporting documentation. Department approval.

ENGR 7920 INTERNSHIP IN ENGINEERING (0) INT. SU. Professional work experience in an engineering position. Course may be repeated for a maximum of 10 credit hours.

ENGR 7940 MASTER OF ENGINEERING PROGRAM ASSESSMENT (0) IND. SU. The course will require that students describe how well the program helped them to attain the outcomes that they articulated in their application to the program. In addition to a reflective description, students will provide examples of work that demonstrate the skills or knowledge that they gained as part of the degree program. These work examples will then be evaluated using a standardized rubric for program assessment purposes, only.

ENGR TECH ENGINEERING TECH ELECTIVE (3) LEC. 3. Transfer Only Equivalency for Engineering Courses. Course may be repeated with change in topics.

Industrial Sys Eng Courses

INSY 3010 PROGRAMMING AND DATABASE APPLICATIONS FOR ISE (3) LEC. 3. Pr. COMP 1200 or COMP 1220 or COMP 1230. Programming and database applications for ISE students. Focus is on algorithm development as related to optimization, probability, statistics, and data analysis.

INSY 3017 HONORS PROGRAMMING AND DATABASE APPLICATIONS FOR ISE (3) LEC. 3. Pr. COMP 1200 or COMP 1220 or COMP 1230. Programming and database applications for ISE students. Focus is on algorithm development as related to optimization, probability, statistics, and data analysis.

INSY 3020 OCCUPATIONAL SAFETY ERGONOMICS (3) LEC. 3. Basic principles of occupational safety engineering and ergonomics in the evaluation and design of occupation work areas and processes that include human operators.

INSY 3021 METHODS ENGINEERING AND WORK MEASUREMENT (3) LEC. 2. LAB. 2.5. Develops the student's ability to design workplaces and methods while providing an understanding of the work measurements process. Enables students to generate much of the basic methods data utilized in most industrial engineering projects.

INSY 3030 MANUFACTURING PROCESSES AND CAD (3) LEC. 2. LAB. 2.5. Pr. (COMP 1200 or COMP 1210 or COMP 1217 or COMP 1220 or COMP 3000) and (ENGR 1110 or ENGR 1113). Use of computer technology to aid engineering design in industrial applications, e.g. represent and modify mechanical parts, diagrams, schematics, tools, equipment, office and plant layouts, etc. This course aims to provide students with all the necessary understanding of typical part design and fabrication processes.

INSY 3400 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 2660 or MATH 2667) and STAT 3600. with a grade of C or better in STAT 3600. Modeling and analysis of decision-making and operations subject to randomness including decision analysis, stochastic dynamic programming, Markov chains, and queuing theory.

INSY 3410 DETERMINISTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and MATH 2660 and P/C INSY 3010. Formulation, solution, interpretation, and implementation of mathematical models in operations research including linear programming, integer programming and network flows.

INSY 3420 SIMULATION (3) LEC. 2. LAB. 3. Pr. INSY 3400 and (COMP 3010 or COMP 3013 or INSY 3010) and STAT 3610. with a grade of C or better in INSY 3400. Simulation procedures for solving complex systems analysis problems. Emphasis on random processes, model building and construction of computer simulation models.

INSY 3600 ENGINEERING ECONOMY (3) LEC. 3. Pr. ENGR 1110 or ENGR 1113. Principles required in engineering economic studies. Junior or Senior standing.

INSY 3607 HONORS ENGINEERING ECONOMY (3) LEC. 3. Pr. Honors College. ENGR 1110 or ENGR 1113. Principles required in engineering economic studies.

INSY 3700 OPERATIONS PLANNING AND CONTROL (3) LEC. 3. Pr. INSY 3400 and INSY 3410 and STAT 3610. with a grade of C or better in both INSY 3400 and INSY 3410. Analytical methods for operations planning and control, including forecasting systems, production planning, inventory control systems, scheduling systems, and project management.

INSY 3800 MANUFACTURING SYSTEMS I (3) LEC. 2. LAB. 3. Introduction to the design, analysis, and operation of manufacturing systems, the first course in a required two-course sequence including Manufacturing Systems II. Departmental approval required for non-INSY majors.

INSY 4330 STATISTICAL QUALITY DESIGN AND CONTROL (3) LEC. 3. Pr. STAT 3610. Statistical process control and methods for quality improvement. Acceptance sampling for attributes and for variables.

INSY 4500 PROFESSIONAL PRACTICE (1) LEC. 1. Pr. P/C INSY 3700. Discussion and activities in current problems, the global context of, professional practice, professional opportunities and lifelong learning in Industrial and Systems Engineering. Senior standing in INSY.

INSY 4610 INTERNATIONAL ENGINEERING PROJECT (3) LEC. 3. This course provides students with a real-life work experience in solving engineering-business problems through teamwork in an international setting. At the course end, students present their project to faculty and industry sponsors. The course is Auburn University Faculty led in which students work in groups mentored by faculty from Auburn and foreign universities and company sponsors. Students will be involved in projects that expose them to theory and practice of problem solving techniques involving data collection, statistical analysis, computational modeling, and experimental design of problems related to the service and manufacturing industries.

INSY 4700 MANUFACTURING SYSTEMS II (3) LEC. 3. Pr. INSY 3010 and INSY 3400 and INSY 3410 and INSY 3420 and (INSY 3600 or INSY 3607) and INSY 3700 and INSY 3800. Continuation of the design, analysis, and operation of manufacturing systems, the second course in a required two-course sequence including Manufacturing Systems I.

INSY 4800 SENIOR DESIGN (3) LEC. 0. LAB. 3. Pr. INSY 3021 and (INSY 4500 or INSY 4503) and P/C INSY 4700. Capstone course in which undergraduate course-work principles are brought to bear upon a design problem in a cooperating industry or institution.

INSY 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Individual student endeavor under faculty supervision involving special problems in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 4970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-10) AAB. Departmental approval. Special topics in Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 10 credit hours.

INSY 5010 OCCUPATIONAL SAFETY ENGINEERING (3) LEC. 3. Pr. INSY 3020. Departmental approval. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design, and maintenance, and operation of effective safety programs. Credit will not be given for both INSY 5010 and INSY 6010/6016.

INSY 5050 INDUSTRIAL HYGIENE AND ENVIRONMENTAL HAZARDS (3) LEC. 3. Introduction to the basic concepts of industrial hygiene with emphasis on the industrial hygiene/safety interface and on the evaluation and control of chemical exposures, biological hazards, noise and heat stress for undergraduate engineers.

INSY 5080 HUMAN FACTORS ENGINEERING (3) LEC. 3. Human Factors Engineering is the science of designing products and systems for optimal human well-being and system performance. This course will focus on information processing and the cognitive aspects of ergonomics design. Students will gain insight into the effects of various environments (hot, cold, noise, information overload, etc.) on humans and human performance. Physical ergonomics will be addressed somewhat as well. Emphasis is on human information input, output, and control processes with the objective of optimizing the integration of the human into simple and complex systems.

INSY 5100 SYSTEMS ENGINEERING I (3) LEC. Processes and tools for engineering large-scale, complex systems: architecture, requirements, risk management, evaluation, concept exploration, decision-making, tradeoff studies, life cycle models, decomposition, system coupling, test, verification, validation, system modeling, business process re-engineering, sensitivity analysis, teamwork, process maturity, and documentation.

INSY 5110 SYSTEMS ENGINEERING 2: SYSTEM LIFECYCLE REQUIREMENTS (3) LEC. 3. Pr. INSY 5100. The System Lifecycle Requirements course focuses on developing, properly writing, and decomposing requirements for complex systems across the entire system life cycle. Well written requirements are a solid foundation for system design development and this course will identify design considerations at early concept identification, design maturation, implementation, production, operations & sustainment, and disposal phases. Students will exercise stakeholder needs elicitation, requirements writing and decomposition, and will apply life cycle considerations during requirements development and evolution.

INSY 5120 DIGITAL SYSTEMS ENGINEERING DESIGN (3) LEC. 3. The study and practice of digital system engineering design methods include both object-oriented and structured analysis-based techniques. Design description languages, such as SysML, are introduced and used to carry out complete system designs. This process encompasses stakeholder analysis, requirement definition, logical architecture, physical architecture, as well as system evaluation, validation, and verification.

INSY 5130 MODEL-BASED SYSTEMS ENGINEERING (3) LEC. 3. Pr. INSY 5120. Model-Based Systems Engineering (MBSE) offers a structured framework for applying modeling to facilitate the engineering of complex systems. This course is designed to explore and apply prominent methodologies in MBSE, elucidating its approaches in systems engineering and management. Emphasis is placed on advanced object-oriented systems engineering methodologies and model transformation techniques. Throughout the course, students will be introduced to software tools that play a pivotal role in supporting the design phase of systems engineering.

INSY 5240 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Pr. INSY 3700. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240/6246.

INSY 5250 PROJECT MANAGEMENT (3) LEC. 3. Introduction to project management for engineering, business and technology including; project management concepts, project life cycle, planning techniques, scheduling and network analysis, cost estimating and budgeting, risk management, execution and control, and evaluation and closeout.

INSY 5330 SIX SIGMA (3) LEC. 3. This course covers the six sigma engineering techniques. The content emphasizes the DMAIC (Define, Measure, Analyze, Improve, and Control) methodology combined with Lean management practices through analytical and quantitative tools.

INSY 5400 MULTI-PARADIGM MODELING AND SIMULATION (3) LEC. 2. LAB. 1. Pr. INSY 3420. Multi-paradigm simulation modeling procedures for analyzing real-world complex systems. Emphasis on model building, and construction of multi-paradigm computer simulation models using Agent Based Modeling, System Dynamics, and Discrete Event Simulation approaches.

INSY 5450 SIMULATION-BASED PLANNING AND SCHEDULING (3) LEC. 3. Pr. INSY 3420. A graduate/undergraduate course in simulation-based planning and scheduling. Topics include intermediate simulation modeling, dispatching and scheduling methods, and implementation of scheduling systems and supply chain planning systems using a commercial simulation software package.

INSY 5500 MODERN TOOLS FOR DATA ANALYTICS AND MODELING (3) LEC. 3. Pr. INSY 3010. Introduction to modern data science tools with applications in manufacturing and service industries and operations. Focus on the manipulation and use of small and large datasets. Tools include Jupyter, Python, R, and MySQL along with the related packages that support data modeling, visualization, and analysis.

INSY 5550 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Pr. INSY 3010. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550/6556.

INSY 5600 ENGINEERING ECONOMIC SYSTEMS (3) LEC. 3. Pr. INSY 3600. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600/6606.

INSY 5650 HEALTHCARE SYSTEMS, CULTURE, AND POLICY (3) LEC. 3. This course aims to introduce the basic structures and operations of the U.S. Healthcare (HC) delivery system and the resources that comprise it. The course introduces and describes the U.S. healthcare system, the major service components and complexities, and the history and basis of HC. Topics to be covered include professional roles and accreditation, data and data reporting in HC, including performance, quality, and outcome measures.

INSY 5660 HEALTHCARE OPERATIONS (3) LEC. 3. LAB. 0, LEC. 0. Strategies to apply traditional Industrial Engineering skills in a variety of healthcare contexts such as doctors offices, hospitals and pharmacies.

INSY 5670 HUMAN FACTORS IN HEALTHCARE (3) LEC. 3. LAB. 0, LEC. 0. The application of human factors engineering and ergonomics in healthcare.

INSY 5700 DIGITAL DRAWINGS, GEOMETRIC TOLERANCES, AND METROLOGY FOR INDUSTRY 4.0 (4) LEC. 3. LAB. 2.33. Digital manufacturing begins with accurate electronic drawings designed with precision measurement in mind. This course covers the design, dimensioning, tolerancing, and inspection for part and assembly manufacturing from the ASME Y14.5 (2018) Standard. Students will model parts in a CAD program, create manufacturing inspection drawings with applied GD&T concepts, and work with an industry grade Coordinate Measurement Machine (CMM) software to develop inspection plans. Basic Computer Aided Design (CAD) concepts are taught in Fusion 360. Department approval.

INSY 5710 BASIC CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. LAB. 0, LEC. 0. This is the first of a two-semester program detailing all the manufacturing processes available in the 21st Century. There is an emphasis on the interaction of shapes, materials and process in design and economic decision making. Students will review basic fundamentals of acceptance testing, material properties and characteristics as a foundation for all process decisions. Processes introduced in this course will include metal casting, rolling and forging. Departmental approval required.

INSY 5720 ADVANCED CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. LAB. 0, LEC. 0. This is the second of a two-semester program detailing all the manufacturing processes available in the 21st Century. There is emphasis on the interaction of shapes, materials and process in design and economic decision making. This course covers all the classic subtractive machining, modern subtractive methods and all the joining methods. The course concludes with automation of manufacturing processes, computer aided and integrated manufacturing along with the standards of Industry 4.0. Departmental approval required.

INSY 5730 CONCEPTS OF COMPUTER NUMERICAL CONTROLS (4) LEC. 3. LAB. 2.33, LEC/LLB. 0. Pr. INSY 5700. Departmental approval. This course will introduce key concepts involved in the use of Computer Aided Machining. Concepts include the construction of tools within CAM software, determining feeds and speeds from tool manufacturer specifications, basics of G-Code and M-Code, and various tool pathing operations. The course covers model-based CAM, conversational CAM, and basic 3D printing concepts. The model-based CAM portion will cover 3 axis and 5 axis mill work, lathe operations, and mill turn operations.

INSY 5740 CONCEPTS OF INDUSTRY 4.0 (3) LEC. 2. LAB. 2.33, LEC/LLB. 0. Pr. INSY 5700. Departmental approval. Students develop a firm understanding of the fundamentals of Mechatronics and learn how to utilize these new tools in conjunction with the Industrial Internet of Things (IIOT) via the MTConnect Standard. Topics include circuits, sensors, actuators, controls, communication protocols, Industry 4.0, and the MTConnect Standard. Labs will be held at the Interdisciplinary Center for Advanced Manufacturing Systems (ICAMS).

INSY 5800 LEAN SYSTEMS (3) LEC. 2. LAB. 2. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800/6806.

INSY 5830 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830/6836.

INSY 5840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia, and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840/6846.

INSY 5850 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850/6856.

INSY 5860 INNOVATIONS IN MANUFACTURING SYSTEMS (3) LEC. 3. This course reviews the history of manufacturing and discusses the contributions of the automotive manufacturing industry in developing most of the major manufacturing systems improvements over the decades. Issues associated with suppliers are presented related to processes, supply chain, product and process improvement, quality control, and costs. In addition, the issue of globalization and the digitalization of manufacturing is investigated. Finally, a discussion of future manufacturing technologies and impacts will be discussed. Credit will not be given for both INSY 5860 and INSY 6860/6866.

INSY 5870 INTERACTIVE SENSING SYSTEMS (3) LEC. 3. Pr. (INSY 3010). Interactive Sensing Systems is an advanced course designed to provide students with in-depth knowledge and hands-on experience in developing intelligent systems that integrate microcontrollers and sensors. The course emphasizes the practical application of sensor technologies and microcontroller programming to solve real-world problems.

INSY 6010 OCCUPATIONAL SAFETY ENGINEERING (3) LEC. 3. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design and maintenance, and operation of effective safety programs. Credit will not be given for both INSY 5010 and INSY 6010.

INSY 6050 INDUSTRIAL HYGIENE AND ENVIRONMENTAL HAZARDS (3) LEC. 3. Introduction to the basic concepts of industrial hygiene with emphasis on the industrial hygiene/safety interface and on the evaluation and control of chemical exposures, biological hazards, noise and heat stress for graduate engineers.

INSY 6080 HUMAN FACTORS ENGINEERING (3) LEC. 3. Human Factors Engineering is the science of designing products and systems for optimal human well-being and system performance. This course will focus on information processing and the cognitive aspects of ergonomics design. Students will gain insight into the effects of various environments (hot, cold, noise, information overload, etc.) on humans and human performance. Emphasis is on human information input, output, and control processes with the objective of optimizing the integration of the human into simple and complex systems.

INSY 6100 SYSTEMS ENGINEERING I (3) LEC. 3. Processes and tools for engineering large-scale, complex systems: architecture, requirements, risk management, evaluation, concept exploration, decision-making, tradeoff studies, life cycle models, decomposition, system coupling, test, verification, validation, system modeling, business process re-engineering, sensitivity analysis, teamwork, process maturity and documentation. Credit will not be given for both INSY 5100 and INSY 6100.

INSY 6110 SYSTEMS ENGINEERING 2: SYSTEM LIFECYCLE REQUIREMENTS (3) LEC. 3. All man-made systems have a life cycle. A life cycle is the series of stages (or phases) that a system passes through over time. This course is concerned with understanding the life cycle of systems and the development, definition, and management of requirements for systems or products with consideration to the life cycle.

INSY 6120 DIGITAL SYSTEMS ENGINEERING DESIGN (3) LEC. 3. The study and practice of digital system engineering design methods include both object-oriented and structured analysis-based techniques. Design description languages, such as SysML, are introduced and used to carry out complete system designs. This process encompasses stakeholder analysis, requirement definition, logical architecture, physical architecture, as well as system evaluation, validation, and verification.

INSY 6130 MODEL-BASED SYSTEMS ENGINEERING (3) LEC. 3. Model-Based Systems Engineering (MBSE) offers a structured framework for applying modeling to facilitate the engineering of complex systems. This course is designed to explore and apply prominent methodologies in MBSE, elucidating its approaches in systems engineering and management. Emphasis is placed on advanced object-oriented systems engineering methodologies and model transformation techniques. Throughout the course, students will be introduced to software tools that play a pivotal role in supporting the design phase of systems engineering.

INSY 6240 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240.

INSY 6250 PROJECT MANAGEMENT (3) LEC. 3. Introduction to project management for engineering, business and technology including; project management concepts, project life cycle, planning techniques, scheduling and network analysis, cost estimating and budgeting, risk management, execution and control, and evaluation and closeout.

INSY 6330 SIX SIGMA (3) LEC. 3. This course covers the six sigma engineering techniques. The content emphasizes the DMAIC (Define, Measure, Analyze, Improve, and Control) methodology combined with Lean management practices through analytical and quantitative tools.

INSY 6400 MULTI-PARADIGM MODELING AND SIMULATION (3) LLB. Pr. INSY 7400. Multi-paradigm simulation modeling procedures for analyzing real-world complex systems. Emphasis on model building, and construction of multi-paradigm computer simulation models using Agent Based Modeling, System Dynamics, and Discrete Event Simulation approaches. Students must have successfully passed a graduate level course in Probability and Statistics or an equivalent course, INSY 7400, or request instructor approval.

INSY 6450 SIMULATION-BASED PLANNING AND SCHEDULING (3) DSL/LEC. A graduate/undergraduate course in simulation-based planning and scheduling. Topics include intermediate simulation modeling, dispatching and scheduling methods, and implementation of scheduling systems and supply chain planning systems using a commercial simulation software package. Knowledge of simulation and basic understanding of Simio is required to enroll in course.

INSY 6500 MODERN TOOLS FOR DATA ANALYTICS AND MODELING (3) LEC. 3. Introduction to modern data science tools with applications in manufacturing and service industries and operations. Focus on the manipulation and use of small and large datasets. Tools include Jupyter, Python, R, and MySQL along with the related packages that support data modeling, visualization, and analysis.

INSY 6550 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550.

INSY 6600 ENGINEERING ECONOMIC SYSTEMS (3) LEC. 3. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600.

INSY 6650 HEALTHCARE SYSTEMS, CULTURE, AND POLICY (3) LEC. 3. LAB. 0, LEC. 0. This course aims to introduce the basic structures and operations of the U.S. Healthcare (HC) delivery system and the resources that comprise it. The course introduces and describes the U.S. healthcare system, the major service components and complexities, and the history and basis of HC. Topics to be covered include professional roles and accreditation, data and data reporting in HC, including performance, quality, and outcome measures.

INSY 6660 HEALTHCARE OPERATIONS (3) LEC. 3. LAB. 0, LEC. 0. Strategies to apply traditional Industrial Engineering skills in a variety of healthcare contexts such as doctors offices, hospitals and pharmacies.

INSY 6670 HUMAN FACTORS IN HEALTHCARE (3) LEC. 3. LAB. 0, LEC. 0. The application of human factors engineering and ergonomics in healthcare.

INSY 6700 DIGITAL DRAWINGS, GEOMETRIC TOLERANCES, AND METROLOGY FOR INDUSTRY 4.0 (4) LEC. 3. LAB. 2.33. Departmental approval. Digital manufacturing begins with accurate electronic drawings designed with precision measurement in mind. This course covers the design, dimensioning, tolerancing, and inspection for part and assembly manufacturing from the ASME Y14.5 (2018) Standard. Students will model parts in a CAD program, create manufacturing inspection drawings with applied GD&T concepts, and work with an industry grade Coordinate Measurement Machine (CMM) software to develop inspection plans. Basic Computer Aided Design (CAD) concepts are taught in Fusion 360.

INSY 6710 BASIC CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. Departmental approval. This is the first of a two-semester program detailing all the manufacturing concepts and processes available in the 21st Century. There is a heavy emphasis on the interaction of shapes, materials and process in design and economic decision making. Students will review basic fundamentals of acceptance testing, material properties and characteristics as a foundation for all process decisions. Processes introduced in this course will include metal casting, rolling, and extrusion.

INSY 6720 ADVANCED CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. Departmental approval. This is the second of a two-semester program detailing all the manufacturing concepts and processes available in the 21st Century. There is a heavy emphasis on the interaction of shapes, materials and process in design and economic decision making. This course covers all the classic and modern subtractive methods as well as the joining methods. Automation of manufacturing processes, computer aided and computer integrated manufacturing along with industry 4.0 are covered.

INSY 6730 CONCEPTS OF COMPUTER NUMERICAL CONTROLS (4) LEC. 3. LAB. 2.33. Pr. INSY 5700 or INSY 6700. Departmental approval. This course will introduce key concepts involved in the use of Computer Aided Machining. Concepts include the construction of tools within CAM software, determining feeds and speeds from tool manufacturer specifications, basics of G-Code and M-Code, and various tool pathing operations. The course covers model-based CAM, conversational CAM, and basic 3D printing concepts. The model-based CAM portion will cover 3 axis and 5 axis mill work, lathe operations, and mill turn operations.

INSY 6740 CONCEPTS OF INDUSTRY 4.0 (3) LEC. 2. LAB. 2.33. Pr. INSY 5700 or INSY 6700. Departmental approval. Students develop a firm understanding of the fundamentals of Mechatronics and learn how to utilize these new tools in conjunction with the Industrial Internet of Things (IIOT) via the MTConnect Standard. Topics include circuits, sensors, actuators, controls, communication protocols, Industry 4.0, and the MTConnect Standard. Labs will be held at the Interdisciplinary Center for Advanced Manufacturing Systems (ICAMS).

INSY 6800 LEAN SYSTEMS (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800.

INSY 6830 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830.

INSY 6840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840.

INSY 6850 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850.

INSY 6860 INNOVATIONS IN MANUFACTURING SYSTEMS (3) LEC. 3. This course reviews the history of manufacturing and discusses the contributions of the automotive manufacturing industry in developing most of the major manufacturing systems improvements over the decades. Issues associated with suppliers are presented related to processes, supply chain, product and process improvement, quality control, and costs. In addition, the issue of globalization and the digitalization of manufacturing is investigated. Finally, a discussion of future manufacturing technologies and impacts will be discussed. Credit will not be given for both INSY 5860 and INSY 6860.

INSY 6870 INTERACTIVE SENSING SYSTEMS (3) LEC/LLB. Interactive Sensing Systems is an advanced course designed to provide students with in-depth knowledge and hands-on experience in developing intelligent systems that integrate microcontrollers and sensors. The course emphasizes the practical application of sensor technologies and microcontroller programming to solve real-world problems.

INSY 7020 SYSTEM SAFETY ENGINEERING (3) LEC. 3. Systems safety analysis techniques including human error and reliability, fault trees, and cost benefit analysis.

INSY 7040 COGNITIVE ENGINEERING AND SYSTEM DESIGN (3) LEC. 3. Cognitive Engineering and System Design is an introduction into human capabilities and limitations in human-machine interaction, with a focus on human cognition, memory, attention, and error. The course emphasis is on cognitive engineering theory and its application to automated system design.

INSY 7060 FUNDAMENTALS OF ERGONOMICS (3) LEC. 3. Overview of the human body systems and evaluation of the physiological response of the human body to occupational activities with emphasis on task design.

INSY 7070 OCCUPATIONAL BIOMECHANICS (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Use of biomechanics in the evaluation and design of work activities. Emphasis is placed on biomechanical modeling, manual materials handling, tool design, and repetitive motion trauma.

INSY 7081 HUMAN FACTORS LABORATORY (1) LAB. 3. Coreq. INSY 7080. Laboratory experience in testing human factors principles and concepts covered in INSY 7080. Experience in proper writing of laboratory reports.

INSY 7100 ADAPTIVE OPTIMIZATION (3) LEC. 3. Departmental approval. Adaptive search methods inspired by nature for continuous and combinatorial optimization. Methods include simulated annealing, genetic algorithms, evolutionary strategies, tabu search and ant colony systems.

INSY 7120 DATA ANALYTICS FOR OPERATIONS (3) LEC. 3. or equivalent. This course covers the broad topics of predictive analytics, data visualization, and big data in the context of operations analysis. Focus will be on the application of modern computer tools with previously learned statistical and mathematical modeling tools, culminating in a semester project.

INSY 7130 DATA MINING TECHNIQUES AND APPLICATIONS FOR OPERATIONS (3) LEC. 3. or equivalent. This introductory course will cover the most common techniques for extracting useful information and models from numerical or categorical data. Techniques include clustering and classification, regression and spline models, kriging, and artificial neural networks. Also considered are data pre-processing, model building and model validation. Modeling and validation under conditions of sparse data will be addressed as well. Applications include those in finance, manufacturing, health care, and more.

INSY 7190 OCCUPATIONAL SAFETY AND HEALTH FORUM I (1) LEC. 1.

INSY 7290 OCCUPATIONAL SAFETY AND HEALTH PRACTICUM I (1) LEC. 1. Study of contemporary interdisciplinary issues in occupational safety and health. Investigation of real-world interdisciplinary OSH problems. Analysis and presentation of OSH concerns and solutions.

INSY 7300 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Advanced concepts of experimental design including blocked designs, analysis of variance regression approach, and fractional factorials in base-2 designs. Emphasis throughout is on developing and improving industrial products and processes. Credit will not be given for both INSY 7300 and STAT 7300.

INSY 7380 RELIABILITY ENGINEERING (3) LEC. 3. Departmental approval. Reliability Engineering is a sub-discipline of systems engineering that emphasizes the ability of a system or component to function without failure. This course covers concepts and methods to evaluate the reliability of engineering systems. The primary focus is on statistical reliability distributions, analysis of reliability data, prediction of failure and reliability modeling, accelerated life testing, reliability of complex systems, and design for reliability.

INSY 7390 OCCUPATIONAL SAFETY AND HEALTH FORUM II (1) LEC. 1. Pr. INSY 7190. Continuation of OSH Forum I (contemporary interdisciplinary issues in occupational safety and health). Emphasis is placed on leadership and mentoring of other OSH students (INSY 7190).

INSY 7400 APPLIED DISCRETE-EVENT SIMULATION MODELING (3) LEC. 3. Introductory graduate course in discrete event modeling and simulation. Course focus is on the application of modern simulation tools and techniques for solving design and analysis problems in manufacturing, service systems, and general operations.

INSY 7420 LINEAR PROGRAMMING AND NETWORK FLOWS (3) LEC. 3. Linear programming and network flows emphasizing algorithms and theory.

INSY 7430 INTEGER AND NONLINEAR PROGRAMMING (3) LEC. 3. Pr. INSY 7420 or INSY 7426. Departmental approval. Integer and non linear programming, emphasizing algorithms and theory.

INSY 7440 DYNAMIC PROGRAMMING (3) LEC. 3. Departmental approval. Aspects of sequential decision making with emphasis on formulation and solution using the dynamic programming algorithm. Approximation methods for problems involving large state spaces. Solution techniques for problems under uncertainty.

INSY 7450 STOCHASTIC OPTIMIZATION AND RISK (3) LEC. 3. Pr. INSY 7420. Stochastic Optimization and Risk is a course for graduate students in engineering, operations research, management science, etc. The objective of the course is to familiarize students with the challenges that uncertain or randomized data bring into the decision making/design process and introduce the general methods and approaches for dealing with such challenges. We will discuss various approaches to modeling of uncertainties and risk in optimization problems, properties of the resulting stochastic programming formulations, and several common techniques for solving stochastic programs.

INSY 7470 SEARCH METHODS FOR OPTIMIZATION (3) LEC. 3. Single and multivariate search techniques and strategies that are used in finding the optimum of discrete and continuous functions.

INSY 7490 OCCUPATIONAL SAFETY AND HEALTH PRACTICUM II (1) LEC. 1. Pr. INSY 7290. Investigation of real-world interdisciplinary OSH problems. Analysis and presentation of OSH concerns and solutions. Emphasis is placed on leadership and mentoring of other OSH students (INSY 7290).

INSY 7550 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Stochastic operations research models with emphasis on model formation, solution and interpretation of results. Emphasis on stochastic processes, queuing theory and their applications.

INSY 7710 SYSTEM LIFECYCLE REQUIREMENTS (3) LEC. 3. The System Lifecycle Requirements course focuses on developing and writing proper requirements for systems across the entire life cycle. Well written requirements are a solid foundation for system design development and this course will identify design considerations at early concept identification, design maturation, implementation, production, operations & sustainment, and disposal phases. Students will exercise stakeholder needs elicitation, requirements writing, requirements decomposition, and applying life cycle considerations during requirements development process during a semester long project.

INSY 7730 PRODUCT DESIGN, DEVELOPMENT, AND TEST (3) LEC. 3. This class teaches modern tools and methods for product design, development,and test of highly complex and large systems including technical specification, reliability, maintainability, manufacturability, testability, marketing, costs, etc. May count either INSY 7730 or INSY 7736.

INSY 7740 PRODUCT LAUNCH, MANUFACTURING, AND DELIVERY (3) LEC. 3. This course teaches students the issues, strategies, and approaches related to launching, manufacturing, and delivering new products or services including customer focus, marketing, manufacturing and launch strategies, delivery and related tools and techniques.

INSY 7750 INTELLECTUAL PROPERTY, LEGAL, AND VENTURE CAPITAL (3) LEC. 3. This course teaches students the US law of intellectual property with major emphasis on patents. Students also learn venture capital including stages of funding, funding presentations, various requirements of funding, types of partnership, exit plans, etc. May count either INSY 7750 or INSY 7756.

INSY 7760 ENGINEERING & TECHNOLOGY MANAGEMENT (3) LEC. 3. Engineering Management is the branch of management that focuses on leading technical personnel in the management of engineering driven enterprises. This course emphasizes the application of management principles to the engineering of large-scale systems and research efforts. It focuses on the planning, individual & team motivation, strategic /tactical management, change and risk management and decision-making necessary to manage a company’s technical portfolio.

INSY 7940 INDUSTRIAL AND SYSTEMS ENGINEERING PROBLEMS (1-5) DSL/IND. Departmental approval. Individual student endeavor under staff supervision involving special problems of an advanced undergraduate or graduate nature in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 7950 SEMINAR (1) LEC. 1. SU. Presentation and discussion of ISE research by graduate students, faculty and guests. Must be taken at least one term and cannot be used in the plan of study to apply towards the minimum number of hours for a degree.

INSY 7970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. 1. LAB. 1. Departmental approval. Special topics of a graduate nature pertinent to Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 7980 MASTER'S IN INDUSTRIAL AND SYSTEMS ENGINEERING PROJECT (1-5) DSL/IND. SU. Non-thesis master's project. Course may be repeated for a maximum of 5 credit hours.

INSY 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Individual masters research. May be repeated for credit. Course may be repeated with change in topics. No more than six hours may be counted toward meeting degree requirements. Must be an INSY major.

INSY 8010 ADVANCED SAFETY ENGINEERING (3) LEC. 3. Pr. INSY 7020 or INSY 7026. Topics of current interest in occupational safety research. Occupational safety research methodology and research priorities.

INSY 8020 RESEARCH METHODS IN OCCUPATIONAL SAFETY, ERGONOMICS, AND INJURY PREVENTION (3) LEC. 3. Pr. INSY 7300 or INSY 7306 or INSY 7060 or INSY 7066 or INSY 6010 or INSY 6016. To introduce students to contemporary and developmental research methods in occupational safety, ergonomics, and injury prevention with emphasis on the public health model as applied to occupational injury prevention and epidemiology. Instructor approval may be required.

INSY 8060 CONTEMPORARY ERGONOMICS (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Topics of current interest in occupational ergonomics and human factors research. Occupational ergonomics and human factors research methodology and research priorities.

INSY 8970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. Departmental approval. Special topics of an advanced graduate nature pertinent to industrial and systems engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Departmental approval. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics. Must be INSY major.

Materials Engineering Courses

MATL 2100 INTRODUCTION TO MATERIALS SCIENCE (3) LEC. 3. The science of solid materials and the relationship between this science and material properties.

MATL 2150 MATERIALS STRUCTURE, PROPERTIES, PROCESSING, AND PERFORMANCE (3) LEC. 2. LAB. 2, LLB. 0. Pr. (MATL 2100). Fundamental principles governing materials are explored, including how atomic structure, crystallography, and phase transformations impact material properties and performance. The structural origins of mechanical, electrical, thermal, and magnetic properties are reviewed. Material characterization and analysis techniques are explored.

MATL 2210 MATERIALS FOR SUSTAINABLE ENERGY PRODUCTION AND STORAGE (1) LEC. 1. Technologies for sustainable energy production and storage, renewable energy conversion, associated materials challenges.

MATL 2220 MATERIALS AND THE ENVIRONMENT (1) LEC. 1. Environmental impact of the production, use and disposal of materials.

MATL 2230 MINERAL RESOURCES: PROCESSING AND AVAILABILITY (1) LEC. 1. Mineral resources for engineering materials; processing and availability of mineral resources.

MATL 3100 ENGINEERING MATERIALS - METALS (3) LEC. 3. Pr. MATL 2100. The relationship among processing, microstructure, properties and engineering applications of metallic materials.

MATL 3101 METALLOGRAPHY LABORATORY (1) LAB. 3. Coreq. MATL 3100. The use of microstructural characterization to understand the relationship between microstructure and properties of metallic materials.

MATL 3200 ENGINEERING MATERIALS POLYMERS (3) LEC. 3. Pr. CHEM 1040. The synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3201 POLYMER AND COMPOSITES LABORATORY (1) LAB. 3. Coreq. MATL 3200. A hands-on lab course on the synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3300 ENGINEERING MATERIALS - CERAMICS (3) LEC. 3. Pr. MATL 2100. The engineering of ceramic materials. Structural property relationships of crystalline and glassy ceramics will be included.

MATL 4100 THERMODYNAMICS AND KINETICS OF MATERIALS (3) LEC. 3. Pr. CHEM 1040 and ENGR 2200. Laws of thermodynamics to describe phase equilibria and phase transformations in one-component and multi-component systems, mechanisms of diffusion, the interplay of thermodynamic driving forces and kinetics of mass transfer in materials systems

MATL 4500 MATERIALS PROPERTIES AND SELECTION (4) LEC. 3. LAB. 3. Pr. ENGR 2070 and MATL 3100 and MATL 3200. Methods for microstructure control. Design of processing sequences, statistical and economical analysis.

MATL 4930 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Areas of interest within Materials Engineering. Course may be repeated for a maximum of 6 credit hours.

MATL 4980 SENIOR DESIGN PROJECT (3) LEC. 1. LAB. 6. Students select, design, schedule, fabricate and perform an engineering design project related to Materials Engineering.

MATL 5100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Pr. CHEM 1040 and ENGR 2200. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface, and interface energy and transformations.

MATL 5200 MATERIALS CHARACTERIZATION (2) LEC. 2. Pr. PHYS 1610 or PHYS 1617. Principles of materials characterization including x-ray diffraction, optical and electron microscopy, and other advanced analytical methods for materials design.

MATL 5201 MATERIALS CHARACTERIZATION LABORATORY (1) LAB. 3. Coreq. MATL 5200. Laboratory on the use of x-ray diffraction, metallography, and optical/electron microscopy for materials characterization.

MATL 5300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Pr. MATH 2650 and ENGR 2200. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure and morphology.

MATL 5400 PHYSICS OF SOLIDS (3) LEC. 3. Pr. PHYS 1610 or PHYS 1617. Departmental approval. The physics of solid-state materials, including the electronic, optical and magnetic properties of materials.

MATL 5420 PLASMONICS AND NANOPHOTONICS (3) LEC. 3. Pr. PHYS 1600 or PHYS 1610. This course will cover both fundamental and application aspects, with an emphasis on basic principles in nanophotonics, nanophotonic devices for light manipulation, plasmonic energy transfer, biomedical treatment, plasmonics in emerging materials, etc.

MATL 5500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Pr. MATL 5100 and P/C MATL 5300. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.

MATL 5600 CORROSION (3) LEC. 3. Pr. CHEM 1040. Fundamentals of chemical degradation of materials. Types and methods for prevention and minimization of corrosion.

MATL 5700 BIOMATERIALS (3) LEC. 3. Departmental approval. Interactions between materials and proteins, cells, and tissue as related to medicine and biotechnology including tissue culture, cardiovascular, drug delivery, tissue engineering and other applications. Thermodynamics of protein adsorption. Cell biology of adhesion. Analytical methods, sterilization, and regulations.

MATL 5720 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Pr. P/C BIOL 1030 or P/C CHEM 2070. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 5750 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3. Pr. MATL 2100 and (ENGR 2070 or MECH 3130). Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 5970 INTERMEDIATE SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 6100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface and interface energy and transformations.

MATL 6200 MATERIALS CHARACTERIZATION (2) LEC. 2. Principles of materials characterization including x-ray diffraction, optical and electron microscopy, and other advanced analytical methods for materials design.

MATL 6201 MATERIALS CHARACTERIZATION LABORATORY (1) LAB. 3. Coreq. MATL 6200. Laboratory on the use of x-ray diffraction, metallography, and optical/electron microscopy for materials characterization.

MATL 6300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure, and morphology.

MATL 6400 PHYSICS OF SOLIDS (3) LEC. 3. Departmental approval. The physics of solid-state materials, including the electronic, optical, and magnetic properties of materials.

MATL 6420 PLASMONICS AND NANOPHOTONICS (3) LEC. 3. This course will cover both fundamental and application aspects, with an emphasis on basic principles in nanophotonics, nanophotonic devices for light manipulation, plasmonic energy transfer, biomedical treatment, plasmonics in emerging materials, etc.

MATL 6500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.

MATL 6600 CORROSION (3) LEC. 3. Pr. CHEM 1040. Fundamentals of chemical degradation of materials. Types and methods for prevention and minimization of corrosion.

MATL 6700 BIOMATERIALS (3) LEC. 3. Departmental approval. Interactions between materials and proteins, cells, and tissue as related to medicine and biotechnology including tissue culture, cardiovascular, drug delivery, tissue engineering and other applications. Thermodynamics of protein adsorption. Cell biology of adhesion. Analytical methods, sterilization and regulations.

MATL 6720 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 6970 INTERMEDIATE SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. 3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7050 DEFORMATION AND FAILURE OF ENGINEERING MATERIALS (3) LEC. 3. Departmental approval. Theoretical presentation of the fundamental principles of deformation and failure in materials systems.

MATL 7120 ADVANCED CERAMIC MATERIALS (3) LEC. 3. Departmental approval. Processing, structure-property relationships and applications of advanced ceramics. Structural and functional applications of ceramics.

MATL 7130 ADVANCED POLYMER SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Recent developments in both functional and structural polymers including approaches to synthesis, processing techniques, high-strength materials, electronic polymers, optic polymers, and medical polymers.

MATL 7320 THIN FILM SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Structure, properties, characterization, processing and application of thin films.

MATL 7330 MATERIALS FOR ENERGY STORAGE (3) LEC. 3. Introduction of various electrochemical energy storage devices (Batteries, Supercapacitor, etc) and discussion of advancement in development of materials for these devices. Instructor's consent required for prerequisites.

MATL 7420 SMART MATERIALS AND STRUCTURES (3) LEC. 3. Departmental approval. An introduction to the principles and applications of various sensor, actuator and functionality smart material systems and structures.

MATL 7430 DIELECTRIC MATERIALS AND DEVICES (3) LEC. 3. Pr. (MATL 6100 or MATL 6106) and (MATL 6400 or MATL 6406). Departmental approval. Processing, structure, properties, and application of dielectrics, including physics of dielectrics, material/ device design/fabrication processes, and application of dielectric materials in high-technological industry.

MATL 7610 ENGINEERING ASPECTS OF BIOLOGICAL AND CHEMICAL DETECTION (3) LEC. 3. Departmental approval. Biological and chemical scientific concepts related to biological and chemical threat agents. Existing and developing detection technologies, trends and needs for the future detection systems. Physical principles behind the detection technologies. Evaluation of detection device or system performance.

MATL 7630 NANOMATERIALS FOR BIOTECHNOLOGY (3) LEC. 3. Departmental approval. Basic understanding of nanobiotechnology and practical applications in the interdisciplinary fields of Materials Science and Engineering and biotechnology/ medicine including nanostructured biomolecules and bioarrays as well as biomolecular nanoelectronics.

MATL 7950 MATERIALS ENGINEERING SEMINAR (0) SEM. SU. Required during each semester of residency, but cannot be used toward minimum requirements for graduate degree in Materials Engineering. Content changes each semester and consists of off-campus speakers and presentations by graduate students and faculty.

MATL 7960 DIRECTED READINGS IN MATERIALS ENGINEERING (1-6) DSL/IND. SU. Departmental approval. May be taken more than one semester. Up to 6 hours may count toward the minimum degree requirements. Course may be repeated with change in topics.

MATL 7970 SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) DSL. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7980 MASTER MATERIALS ENGINEERING PROJECT (1-3) LEC. 3. SU. Special design project report directed by major faculty. Topics to be determined by the student's graduate committee. Course may be repeated for a maximum of 3 credit hours.

MATL 7990 RESEARCH AND THESIS (1-15) MST. Individual mater's thesis research. Course may be repeated with change in topics.

MATL 8990 RESEARCH AND DISSERTATION (1-15) DSL/DSR. Individual doctoral dissertation research. Course may be repeated with change in topics.

Mechanical Engineering Courses

MECH 2020 MANUFACTURING TECHNOLOGY LAB (2) LEC. 3. LAB. 1. Pr. PHYS 1600. Manufacturing technology lab for introduction of processes such as cutting, forming, machining, and joining of metals and other materials. Basic and applied machine shop and manufacturing floor safety.

MECH 2130 MECHANICAL ENGINEERING STATICS (3) LEC. 2.5. Pr. (MATH 1620 or MATH 1627) and (PHYS 1600 or PHYS 1607). Forces, vectors, moments and free body diagrams. Systems in mechanical equilibrium.

MECH 2140 KINEMATICS AND DYNAMICS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and MECH 2130. Kinematics and kinetics of particles and rigid bodies with an emphasis on mechanical engineering applications such as machines, mechanisms, cams, gears and vibrations. MECH 2130 with a grade of C or higher.

MECH 2220 COMPUTER-AIDED ENGINEERING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (COMP 1200 or COMP 1220 or COMP 1230) and P/C MATH 2650. The computer as a tool in mechanical engineering.

MECH 2AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Pr. MECH 2130 and MATH 2650 and PHYS 1610. Progress Assessment Examination in: multivariate calculus, differential equations, chemistry, physics, statics, dynamics. Course may be repeated with change in topics.

MECH 3020 THERMODYNAMICS II (3) LEC. 3. Pr. ENGR 2010. Gas and Vapor power cycles, Refrigeration cycles, Gas and gas-vapor mixtures, Chemical reactions, Chemical and phase equilibrium, Thermodynamic property relations. Pr. ENGR 2010 with a grade of C or higher.

MECH 3030 FLUID MECHANICS (3) LEC. Pr. MECH 2130 and ENGR 2010 and MATH 2650 and P/C MECH 3120. Fluid properties; fluid statics; mass conservation; momentum equation; external and internal flows; Euler and Bernoulli equations; dimensional analysis; viscous flows; boundary layers; compressible flow. Pr. MECH 2130 with a grade of C or higher, and ENGR 2010 with a grade of C or higher.

MECH 3040 HEAT TRANSFER (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Fundamentals of heat transfer by conduction, convection, and radiation. Introduction to heat exchangers.

MECH 3050 MEASUREMENT AND INSTRUMENTATION (3) LEC. 2. LAB. 3. Pr. MECH 3030 and P/C ELEC 3810. Theory and practice of modern sensors and computer-based data acquisition techniques, uncertainty analysis, results reporting, filtering and signal processing.

MECH 3120 MECHANICS OF MATERIALS (3) LEC. 3. Pr. MECH 2130 and MATL 2100 and MATH 2650 and MATH 2660. Stress and strain concepts, stress-strain relationships, applications, uniaxially loaded members, torsion, normal and shear stresses in beams, beam deflections, buckling, stress concentration, combined loading, failure theories (Grade of C or higher required in MECH 2130.)

MECH 3140 SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3. Pr. MECH 2140 and MATH 2650. System dynamics and automatic control theory.

MECH 3150 DYNAMICS LAB (1) LAB. 2.5. Pr. MECH 2140. Laboratory experiences designed to enhance student understanding of engineering mechanics, including statics, dynamics, and kinematics.

MECH 3160 MECHANICS LAB (1) LAB. 2.5. Pr. MECH 3120 and MECH 2220. Laboratory experiences designed to enhance student understanding of engineering mechanics including statics, stresses, & strains.

MECH 3200 CONCEPTS IN MECHANICAL DESIGN (2) LEC. 1. LAB. 1. Pr. MECH 2130 and (P/C MECH 2220 or P/C MECH 3220). Introduction to the mechanical design process including identification of needs and engineering requirements, concept generation and selection, and design development. Students will work in teams to perform a design project, and will also be exposed to project management and communication skills. MECH 2130 with a grade of C or higher.

MECH 3230 MACHINE DESIGN (3) LEC. 3. Pr. MECH 3120 and MECH 2020 and MECH 3200. Design of systems containing a variety of mechanical elements.

MECH 3AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr. MECH 2AA0 and MECH 2140 and MECH 3020 and MECH 3120. Progress Assessment Examination in: Statistics, linear algebra, mechanical design, thermo-fluid design, social impact, contemporary issues. Course may be repeated with change in topics.

MECH 4240 COMPREHENSIVE DESIGN I (2) LEC. 1. LAB. 3. Pr. (MECH 3AA0 and MECH 3150 and MECH 3160 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and MECH 3140) or (MECH 3AA0 and MECH 3150 and MECH 3160 and MECH 3230 and MECH 3040 and P/C MECH 3050 and P/C MECH 3140). Capstone engineering design course based on a design project similar to those encountered by the engineer in industry involving thermal and mechanical design.

MECH 4250 COMPREHENSIVE DESIGN II (2) LEC. 1. LAB. 3. Pr. (MECH 4240 and MECH 3040 and MECH 3050 and P/C MECH 3140 and P/C INSY 3600) or (MECH 4240 and MECH 3050 and MECH 3140 and P/C MECH 3040 and P/C INSY 3600) or (MECH 4240 and MECH 3140 and MECH 3040 and P/C MECH 3050 and P/C INSY 3600). Continuation of MECH 4240. Detailed design, fabrication, communication, and presentation of a prototype machine for an industrial sponsor.

MECH 4300 MECHANICAL EQUIPMENT ENGINEERING (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Operation, performance, maintenance, selection, design and optimization of mechanical equipment commonly found in industrial operations.

MECH 4310 HEATING, VENTILATING, AIR CONDITIONING AND REFRIGERATION (3) LEC. 3. Pr. MECH 3040. Theory and practice of modern heating, ventilation, air conditioning and refrigeration systems; concepts, equipment, and systems design.

MECH 4320 APPLIED CFD AND HEAT TRANSFER (3) LEC. 3. Pr. MECH 3040 and MATH 2660. Introduction to computational fluid dynamics and heat transfer techniques used to analyze thermal performance of devices and systems. Commercial software will be used.

MECH 4420 VEHICLE DYNAMICS (3) LEC. 3. Pr. MECH 3140. Ground vehicle resistance, propulsion, maneuvering, and control tires, suspensions, braking, aerodynamics, case studies.

MECH 4430 GROUND VEHICLE FUNDAMENTALS (3) LEC. 3. Pr. ENGR 2100 or ENGR 2350 or MECH 3120. Engineering fundamentals of ground vehicles and typical subsystems, including: power (engine and electrical); drivetrain; braking; steering; suspension; ergonomics; and structure.

MECH 4440 AUTOMOTIVE DESIGN EXPERIENCE I (2) LEC. 1. LAB. 3. Pr. MECH 3AA0 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and P/C MECH 3140. Departmental Approval. Team-based design of a ground vehicle, both whole-vehicle and subsystem; design evaluation and modification; oral and written communication.

MECH 4450 AUTOMOTIVE DESIGN EXPERIENCE II (2) LEC. 1. LAB. 3. Pr. MECH 4440. Departmental approval. Team-based fabrication, testing, modification and operation of a ground vehicle; oral and written communication; project management.

MECH 4700 INTEGRATED ENGINEERING THEORY AND PRACTICE (3) LEC. 3. Pr. MECH 3200 and MECH 2020. Real world engineering management decision making, case studies from industry.

MECH 4930 DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND/INT. Departmental approval. Individual or small group study of a specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 4970 SPECIAL TOPICS IN MECHANICAL ENGINEERING (3) LEC. Departmental approval. Regular course addressing a specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 9 credit hours.

MECH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student directed research and writing of an honors thesis. Course may be repeated for a maximum of 6 credit hours.

MECH 5010 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 5050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 3. Pr. ENGR 2010 or ENGR 2200. or permission of instructor. Overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles.

MECH 5120 COMBUSTION (3) LEC. 3. Pr. MECH 3040. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 5210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Pr. MECH 3040 and ELEC 3810. Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 5220 VIRTUAL PROTOTYPING (3) LEC. 3. Pr. MECH 2220 and MECH 3120. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 5230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Pr. MECH 3030 and MECH 3120. Theory and techniques for considering friction, wear and lubrication, in the design of machine components, and other surface interactions.

MECH 5240 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Pr. MECH 3030. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine comments in order to control friction and wear.

MECH 5250 MULTISCALE CONTACT MECHANICS (3) LEC. 3. Pr. MECH 3120. Theory and techniques for considering contact between solid bodies and the effect on friction, wear, the design of machine components, and other surface interactions.

MECH 5270 METALWORKING AND MANUFACTURING TRIBOLOGY (3) LEC. 3. Pr. MECH 2020. Theory and optimization techniques for tool life and surface finish considering friction, wear and lubrication in manufacturing processes including both metalworking fluids and hard/dry machining.

MECH 5300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Pr. MECH 3120. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problems, axisymmetric problems bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 5310 MECHANICS OF ELECTRONIC PACKAGING (3) LEC. 3. Pr. MECH 3120 and ELEC 3810. Stress and strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 5320 ENGINEERED FLEXIBLE STRUCTURES (3) LEC. 3. LAB. 0, LEC. 0. Pr. (MECH 3120 or AERO 3610 or CHEN 3090 or CIVL 3310 or MATL 3200). Fiber to fabric design, engineering, manufacturing, testing and applications. Principles of modern machinery and techniques for flexible material manufacturing.

MECH 5330 INTRODUCTION TO BIOMECHANICAL ENGINEERING (3) LEC. 3. Pr. MECH 2140 and MECH 3120 and MECH 2130. Introduction to the multidisciplinary field of study called Biomechanical Engineering – a mechanics and calculus-based examination of energy and forces within living systems and the physical effects produced by such energy and forces. Topics covered include 1) human musculoskeletal physiology and anatomy, 2) mechanics of biological materials, 3) biomechanically relevant rigid body dynamics, 4) engineering of technology and applications to biomechanical systems, 5) medical imaging technology, and 6) applications of biomechanical engineering study.

MECH 5390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 3. LAB. 0. Pr. MECH 3040 and MATH 2660 and MECH 3120. Introduction to the fundamentals of the finite element method.

MECH 5420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Pr. MECH 3140. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 5430 BASICS SENSOR APPLICATIONS (3) LEC. 3. Pr. MECH 3120. Basic concepts, fabrication and operation of micromachined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.

MECH 5450 NON-DESTRUCTIVE EVALUATION OF MATERIALS AND STRUCTURES (3) LEC. 3. Pr. MECH 3120. Non-destructive testing fundamentals. Ultrasonic, acoustic, vibration strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 5500 ENGINEERING IN THE ARTS (3) LEC. 3. This course will educate students on the engineering associated with multiple forms of art such as the playing of musical instruments, painting, Renaissance architecture, and dance. Students will also learn about key historical figures of the Renaissance that held major influence on the origins of Western engineering, architecture, and art.

MECH 5510 ENGINEERING ACOUSTICS (3) LEC. 3. Pr. MATH 2650. The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics and noise control will be emphasized.

MECH 5520 MANUFACTURING OF POLYMERIC STRUCTURES (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3120 or AERO 3610 or CHEN 3090 or CIVL 3310 or MATL 3200. Characteristics and flow properties of polymers; film and fiber extrusion, compression and injection molding technology, polymer material selection and processing.

MECH 5530 ADVANCED REFRIGERATION SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3020 and MECH 3040. Overview of thermodynamics, fluid mechanics, and heat transfer in advanced vapor compression systems. Methodology for the analysis of refrigeration systems and their components. Applications include advanced refrigeration systems, heat pump systems, buildings HVAC, industrial refrigeration systems, agricultural facilities climate control, energy storage, transport refrigeration, and cold food chain.

MECH 5610 MECHANICAL VIBRATION (3) LEC. 3. Pr. MECH 2140 and MATH 2650 and MATH 2660. Modeling of lumped dynamic systems, free and forced vibration of single degree freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 5630 FEEDBACK CONTROL OF DYNAMIC SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3140. Concepts in feedback control of dynamical systems including time and frequency domain, digital control, and modern state space control techniques.

MECH 5640 PRINCIPLES OF NAVIGATION AND GUIDANCE SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3140. Develop understanding of the principles associated with coordinate frames, pose estimation, and navigation with a focus on inertial navigation.

MECH 5650 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3140. Detailed analysis of the GPS system and receiver including signal acquisition, tracking, decoding, and Position, Velocity, and Timing (PVT) determination

MECH 5710 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Pr. MECH 3140. Basic concepts in robotics such as kinematic analysis, coordinate transformation, Lagrange and Newton Euler equations of motion.

MECH 5720 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Pr. MECH 3140. Application of various algorithms for robot manipulators.

MECH 5810 MECHATRONICS (3) LEC. 3. Pr. MECH 2140 and ELEC 3810. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines, and design of automatic machinery.

MECH 5830 ENGINES (3) LEC. 3. Pr. (ENGR 2010 and MECH 3030) or ENGR 2200. or (ENGR 2010 plus any one of (AERO 3110, CHEN 2610, CIVL 3110, MECH 3030)), Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics, thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 5840 APPLIED MECHATRONICS (3) LEC. 3. LAB. 0, LEC. 0. Pr. (P/C MECH 3140). Implementation basic circuits, power electronics, analog (continuous) and digital (discrete) control topics in multiple design projects.

MECH 5850 SOFTWARE FOR SENSORS AND SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 2220. Course Description: Develop C++ programs, use Linux terminal, manage source code using Git, implement robotics applications using the robot operating system (ROS).

MECH 5970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. 1-3. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 9 credit hours.

MECH 6010 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 6050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 3. An overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles.

MECH 6120 COMBUSTION (3) LEC. 3. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 6210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Thermal issues in electronics, review of heat transfer hermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 6220 VIRTUAL PROTOTYPING (3) LEC. 3. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 6230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Friction, wear, and lubrication in design of machine components and other surface interactions, with emphasis on optimizing tribological performance.

MECH 6240 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine comments in order to control friction and wear.

MECH 6250 MULTISCALE CONTACT MECHANICS (3) LEC. 3. Theory and techniques for considering contact between solid bodies and the effect on friction, wear, the design of machine components, and other surface interactions.

MECH 6300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problem, axisymmetric problems, bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 6310 MECHANICS OF ELECTRONIC PACKAGING (3) LEC. 3. Stress and strain analysis of Microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 6320 ENGINEERED FLEXIBLE STRUCTURES (3) LEC. 3. LAB. 0, DSL/LEC. 0. Fiber to fabric design, engineering, manufacturing, testing and applications. Principles of modern machinery and techniques for flexible material manufacturing.

MECH 6330 INTRODUCTION TO BIOMECHANICAL ENGINEERING (3) LEC. 3. Introduction to the multidisciplinary field of study called Biomechanics – the examination of energy and forces within living systems and the physical effects produced by such energy and forces. Topics covered include 1) human musculoskeletal physiology and anatomy, 2) properties of biological materials, 3) biomechanically relevant mechanics, 4) methods and practice of measuring biomechanical systems, and 5) applications of biomechanical study.

MECH 6390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 3. LAB. 0. Introduction to the fundamentals of the finite element method.

MECH 6420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 6430 BASICS OF SENSOR APPLICATIONS (3) LEC. 3. Basic concepts, fabrication and operation of micro machined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.

MECH 6450 NON-DESTRUCTIVE EVALUATION OF MATERIALS AND STRUCTURES (3) LEC. 3. Non-destructive testing fundamentals. Ultrasonic, acoustic, vibration, and eddy current techniques. Case studies.

MECH 6500 ENGINEERING IN THE ARTS (3) LEC. 3. This course will educate students on the engineering associated with multiple forms of art such as the playing of musical instruments, painting, Renaissance architecture, and dance. Students will also learn about key historical figures of the Renaissance that held major influence on the origins of Western engineering, architecture, and art. Sample lecture topics include 1) Science and Engineering in The Renaissance, 2) Leonardo da Vinci, 3) Musical Vibrations and Acoustics, and 4) Architecture and Biomimicry.

MECH 6520 MANUFACTURING OF POLYMERIC STRUCTURES (3) LEC. 3. LAB. 0, DSL/LEC. 0. Characteristics and flow properties of polymers; film and fiber extrusion, compression and injection molding technology, polymer material selection and processing.

MECH 6530 ADVANCED REFRIGERATION SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Overview of thermodynamics, fluid mechanics, and heat transfer in advanced vapor compression systems. Methodology for the analysis of refrigeration systems and their components. Applications include advanced refrigeration systems, heat pump systems, buildings HVAC, industrial refrigeration systems, agricultural facilities climate control, energy storage, transport refrigeration, and cold food chain.

MECH 6610 MECHANICAL VIBRATION (3) LEC. 3. Modeling of lumped dynamic systems, free and forced vibration of single degree of freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 6630 FEEDBACK CONTROL OF DYNAMIC SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Concepts in feedback control of dynamical systems including time and frequency domain, digital control, and modern state space control techniques.

MECH 6640 PRINCIPLES OF NAVIGATION AND GUIDANCE SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Develop understanding of the principles associated with coordinate frames, pose estimation, and navigation with a focus on inertial navigation.

MECH 6650 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 2.5. LAB. 0, LEC. 0. Detailed analysis of the GPS system and receiver including signal acquisition, tracking, decoding, and Position, Velocity, and Timing (PVT) determination

MECH 6710 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Basic concepts in robotics such as kinematics analysis, coordinate, Lagrange and Newton Euler equations of motion.

MECH 6720 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Application of various algorithms for robot manipulators.

MECH 6810 MECHATRONICS (3) LEC. 3. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines and design of automatic machinery.

MECH 6830 ENGINES (3) LEC. 3. Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 6840 APPLIED MECHATRONICS (3) LEC. 3. Implementation basic circuits, power electronics, analog (continuous) and digital (discrete) control topics in multiple design projects.

MECH 6850 SOFTWARE FOR SENSORS AND SYSTEMS (3) LEC. 2.5. Develop C++ programs, use Linux terminal, manage source code using Git, implement robotics applications using the robot operating system (ROS).

MECH 6930 INTERMEDIATE DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 6970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) AAB. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7010 ADVANCED THERMODYNAMICS (3) LEC. 3. Classical and statistical treatment of the laws and properties of thermodynamic systems; applications.

MECH 7110 ADVANCED FLUID MECHANICS I (3) LEC. 3. Mass Conservation, Linear and Angular Momentum Equations; Energy Equation for Fluid Systems; Foundations of Inviscid Flows.

MECH 7120 ADVANCED FLUID MECHANICS II (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Schwarz-Christoffel Transformation; Hodograph Method; Three-Dimensional Potential Flows; Interface Waves; Low Reynolds Number Solutions; Oseen Approximation; Stability of Laminar Flows.

MECH 7130 BOUNDARY LAYER THEORY (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Mass Conservation; Momentum Equation; Energy Equation; Dimensional Analysis; Fully-Developed Laminar Flows; Similarity Solutions; Boundary layer Approximation; Stability of Laminar Flows.

MECH 7140 TURBULENCE (3) LEC. 3. Pr. MECH 7130 or MECH 7136. Properties of Turbulence; Governing Conservation, Momentum and Energy Equations; Time-averaging, Vorticity Equatiion; Turbulence Models; Shear Flows; Jets, Wakes and Boundary Layers; Experimental Techniques.

MECH 7210 DIFFUSIVE TRANSPORT (3) LEC. 3. Formulations and analytical solutions of steady, periodic, and unsteady heat and mass diffusion problems in one, two, and three dimensions.

MECH 7220 CONVECTION HEAT TRANSFER (3) LEC. 3. Advanced topics in free and forced convection transport within the laminar, transitional and turbulent regimes; confined and external flows.

MECH 7230 THERMAL RADIATION (3) LEC. 3. Fundamentals of thermal radiation heat transfer including: absorption, emission, and reflection from solids; absorption, emission, and scattering by gases; combined mode and conjugate heat transfer; exact and approximate solution methodologies.

MECH 7240 NUMERICAL METHODS IN HEAT TRANSFER (3) LEC. 3. Advanced topics in finite element and finite difference methods; solution techniques, stability and convergence.

MECH 7250 BOILING AND CONDENSATION (3) LEC. 3. Hydrodynamics of vapor-liquid flow, pool boiling, forced convective boiling, condensation, instabilities in two-phase systems, augmentation of boiling and condensation.

MECH 7300 FRACTURE MECHANICS (3) LEC. 3. Stress and strain analysis of cracked bodies, energy release rate, Griffith problem, modes of fracture, crack tip fields, stress intensity factors, small scale crack tip yielding, the J-integral, HRR equations, experimental and numerical methods for fracture parameter estimation.

MECH 7310 SOLID MECHANICS (3) LEC. 3. Stress and strain analysis in 3-D, constitutive behavior of elastic solids, orthotropy and isotropy, stress compatibility equations, Navier's equation, stress functions, applications.

MECH 7320 CONTINUUM MECHANICS AND TENSOR ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Cartesian and curvilinear tensor analysis with applications to the mechanics of continuous media. Constitutive equations for solids and fluids.

MECH 7330 EXPERIMENTAL MECHANICS (3) LEC. 3. Experimental methods for measurement of stress, strain and displacement. Strain gauges, transducers and brittle coatings. Transmission photoelasticity and photoelastic coatings. Introduction to moire' and coherent optical techniques.

MECH 7340 INELASTIC STRESS ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Introduction to modeling material behavior of non-elastic materials. Theories of plasticity, linear and non-linear viscoelasticity, and viscoplasticity. Applications to modern engineering materials and simple structural members.

MECH 7360 MECHANICS OF COMPOSITE MATERIALS (3) LEC. 3. Properties and mechanical behavior of fiber-reinforced composite materials. Anisotropic stress-strain relations, orthotropic elasticity and laminated plate theories, failure criteria, applications.

MECH 7370 ANALYSIS OF PLATES AND SHELLS (3) LEC. 3. Theories for the bending and stretching of plate and shell structures. Transverse loading, buckling, vibration, and thermal stress problems. Introduction to energy methods, numerical techniques, and large deflection theories.

MECH 7390 VARIATIONAL MECHANICS (3) LEC. 3. Energy methods in solid mechanics. Virtual work, stationary potential energy, and variational calculus. Elastic strain energy. Applications to bars, trusses, beams, frames, and plates. Castigliano's Theorem and the Ritz Method.

MECH 7410 OPTICAL METHODS IN MECHANICS (3) LEC. 3. Measurement of stresses, strains, and deformations using optical methods; optical interference; Fourier optics; optical spatial filtering, white light methods; coherent optical methods.

MECH 7430 OPTICAL PROPERTIES OF ADVANCED MATERIALS (3) LEC. 3. Pr. MECH 6430 or MECH 6436 or PHYS 7200. Linear and nonlinear optical properties, correlation with material-structure, electro-optic effects, lasers, frequency conversion, fiber-optics, technological applications.

MECH 7500 STATE VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.

MECH 7520 PRINCIPLES AND APPLICATION OF OPTIMAL ESTIMATION (3) LEC. 2.5. LAB. 0, LEC. 0. Pr. (MECH 7500 or ELEC 7500 or MECH 5720 or MECH 6720 or MECH 4420). Statistical processes, Bayesian estimation including linear and non-linear batch and sequential filters such as least squares and Kalman filtering.

MECH 7610 ADVANCED DYNAMICS (3) LEC. 3. Dynamics of particles and systems of particles applied to engineering problems. Work-energy and impulse-momentum principles. Lagrange's equations and Hamilton's Principle.

MECH 7620 NONLINEAR SYSTEMS (3) LEC. 3. Introduction, geometrical concepts, analytical methods, Poincare' maps, strange attractors, bifurcation, normal forms, center manifold theory, Liapunov stability, Liapunov exponents, linearization about periodic orbits, Floquet theory, bifurcation analysis.

MECH 7630 MECHANICAL IMPACT (3) LEC. 3. Departmental approval. Investigation of the fundamental concepts used to solve collision problems with friction.

MECH 7710 CONTROL SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. Topics from control theory are introduced in the context of control systems analysis and design, including state variable feedback, modal control, optimal control and adaptive control for both continuous and discrete systems.

MECH 7930 ADVANCED DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Topics may vary. Will not fulfill degree requirements. Course may be repeated with change in topics.

MECH 7970 ADVANCED SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) DSL. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7990 RESEARCH & THESIS (1-12) MST. Individual Master's thesis research. May be repeated for credit. Course may be repeated with change in topics.

MECH 8990 RESEARCH & DISSERTATION (1-12) DSR. Individual Doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

MECH TECH MECHANICAL TECHNICAL ELECTIVE (3) LEC. 3.

Polymer Fiber Engineering Courses

PFEN 2270 INTRODUCTION TO ENGINEERED FIBROUS MATERIALS (4) LEC. 4. Pr. ENGR 1110 or ENGR 1113. The fundamentals of chemistry and engineering applied to fibrous assemblies illustrated using the properties required by end-use. Topics will include biomedical materials, architectural applications cables, ropes, and tethers, composite materials, filtration fabrics, ballistic protection, and health-care products.

PFEN 3100 FUNDAMENTALS OF POLYMERS (3) LEC. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Fundamentals of polymers: terminology, synthesis, structure, molecular weight, transitions of state, structure and uses.

PFEN 3400 FUNDAMENTALS OF COLORATION (4) LEC. 3. LAB. 3. Pr. PFEN 3100. Fundamentals of aqueous chemistry, interfacial processes, interactions of chemicals and fibrous/polymeric materials, color perception and coloration of fiber/polymers.

PFEN 3500 STRUCTURE AND PROPERTIES OF POLYMERS AND FIBERS (3) LEC. 3. Pr. PFEN 3100. Exploration of the relationships between the chemical structure, properties and uses of polymers and fibers. Emphasis on the importance of judicious material selection for particular end use applications. Spring.

PFEN 4100 POLYMER CHARACTERIZATION (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (CHEM 2080 or CHEM 2087) and PFEN 3500. Study of the major techniques for the physical characterization of polymers. Topics to be covered include molecular weight determination, spectroscopy (light, vibrational, nuclear magnetic resonance, electron spin resonance), X-ray diffraction, microscopy (light, electron), optical methods, and thermal analysis.

PFEN 4300 ENGINEERED FIBROUS STRUCTURES (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Design and applications of high performance industrial fibrous structures for civil engineering, architecture and construction, filtration, medical, military and defense, pulp and paper industry, safety and protection, sports and recreation, transportation, agriculture and other industries. Fall.

PFEN 4400 MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and PFEN 2270. Analysis of mechanical behavior and physical properties of flexible structures such as fibers, yarns and fabrics.

PFEN 4500 FIBER REINFORCED MATERIALS (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and MATH 2660 and PFEN 2270. Material properties and manufacture of fiber reinforced materials; perform structures such as weaves and braids, analysis, design methodology and applications. Spring.

PFEN 4810 POLYMER AND FIBER ENGINEERING DESIGN I (3) LEC. 3, IND/LEC. 2. Pr. PFEN 3500. Departmental approval. Tools and skills needed to conduct an engineering design project.

PFEN 4820 POLYMER AND FIBER ENGINEERING DESIGN II (3) IND. 3. Undergraduate senior design project, second semester.

PFEN 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Reading course with varying emphasis to give opportunity for overview in specific areas of engineering and technology. Course may be repeated for a maximum of 12 credit hours.

PFEN 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Honors Thesis is a project-based course and may be presented in form of a written report or a conference-style presentation. Course may be repeated for a maximum of 6 credit hours.

PFEN 5200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and PFEN 6200.

PFEN 5300 RHEOLOGY (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and ENGR 2200 or MECH 3030. Departmental approval. Covers the most important aspects of elementary modern rheology, including elastic solids, viscoelastic behavior of polymeric systems, composite systems, concentrated solutions and suspension rheology.

PFEN 5510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, polymer characterizations, polymer classes, solubility and swelling, and structure/property relationships.

PFEN 6200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Departmental approval. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and FPFEN 6200.

PFEN 6250 ADVANCED ENGINEERING FIBROUS STRUCTURES (3) LEC. 3. Pr. PFEN 4300. Departmental approval. Application of advanced technology to the design, development and analysis of high performance industrial textiles.

PFEN 6510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, characterizations, classes, solubility and swelling, and structure/property relationships.

PFEN 7310 STRUCTURE AND PROPERTIES OF POLYMERS (4) LEC. 3. LAB. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. The inter-relationships between chemical structure of a polymer, polymer properties and uses. Plastics, elastomers and fibers-synthesis and property requirements.

PFEN 7620 ADVANCED MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. PFEN 4400. Recent advances in modeling and analysis of mechanical behavior of flexible structures. Spring.

PFEN 7700 ADVANCED METHODS IN POLYMER CHARACTERIZATION (4) LEC. 4. LAB. 3. Pr. PFEN 6510. Departmental approval. Important aspects and methods in polymer characterization.

PFEN 7770 INTRODUCTION TO CONDUCTING POLYMERS (3) LEC. 3. Pr. PFEN 6510. This "Introduction of Conducting Polymers" course covers the most up to date research and applications in the areas of conducting polymers. This course provides extensive background on: mechanism of electrical conductivity of conducting polymers, classification of conducting polymers, potential applications of conducting polymers, and recent advance of the researches in the fields of conducting polymers. For example, organic solar cells, and organic light emitting diodes.

PFEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Presentation of departmental research; practicing written and oral communication skills. Course may be repeated with change in topic. Fall.

PFEN 7960 SPECIAL PROBLEMS AND FIBER ENGINEERING (1-3) IND. Specialized project research with varying emphasis in particular areas of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7970 SPECIAL TOPICS (3) LEC. 3. Analysis of current issues in the area of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7980 GRADUATE PROJECT (1-3) IND. In-depth work in a particular project in polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Required of all students seeking an advanced degree in the department. Course may be repeated with change in topics.

PFEN 8990 RESEARCH AND DISSERTATION (1-10) DSR. PhD Research and Dissertation. Course may be repeated with change in topics.

Space Systems Courses

SPCE 6000 INTRODUCTION TO SPACE STUDIES (3) LEC. 3. An introduction to the space environment, operating in space, satellite design, and applying satellite technology to provide services and capabilities to a variety of user groups.

SPCE 6100 SPACE SYSTEMS OPERATIONS (3) LEC. 3. Pr. (SPCE 6000). An overview of space systems operations, operational orbits, orbital maneuver, station keeping, different stakeholders' mission operations, avoiding on-orbit crisis, and satellite/constellation end of life.

SPCE 6200 SPACECRAFT AND SATELLITE ARCHITECTURE DESIGN AND INTEGRATION (3) LEC. 3. Pr. (SPCE 6100). An overview of spacecraft and satellite architecture design followed by a practicum to apply lessons learned to create a space mission design that provides services and capabilities to a specific user group.

Department of Aerospace Engineering

Aerospace engineers are concerned with the application of scientific principles and engineering concepts and practices to design, build, test and operate aerospace systems. The curriculum is intended to provide students with a broad understanding of fundamental scientific and technological principles, and to develop the ability to use these principles in developing solutions to engineering problems.

The objectives of the aerospace engineering program are: (1) to help students develop written and oral communication skills and to acquire a knowledge of history, literature and society; (2) to provide students a solid foundation in and a sound working knowledge of basic engineering principles; (3) to help students obtain an understanding of the engineering principles and skills specifically needed in the aeronautical and astronautical disciplines; and (4) to assist and encourage each student to develop an enhanced ability to learn and think creatively.

Required courses cover aeronautical and astronautical subjects. Students may also choose to emphasize either aeronautical or astronautical systems. Technical electives allow concentration in such areas as aerodynamics, astronautics, flight dynamics and control, propulsion, structures, and structural dynamics. The design of aerospace components and systems is considered to be an integral part of the education of aerospace engineers. Hence, design is included throughout the curriculum, beginning with a sophomore course in aerospace fundamentals and culminating in the senior design course sequence. Students are required to apply their theoretical knowledge of aerodynamics, dynamics, structures and propulsion to solve open-ended problems and to produce portions of preliminary designs.

Majors

- Aerospace Engineering (p. 630)

Aerospace Engineering Courses

AERO 2200 AEROSPACE FUNDAMENTALS (2) LEC. 1. LAB. 3. Pr. ENGR 1110 and (PHYS 1600 or PHYS 1607). C or better in PHYS 1600 and ENGR 1110. Introduction to the fundamental physical concepts required for the successful design of aircraft and spacecraft.

AERO 3110 AERODYNAMICS I (3) LEC. 3. Pr. MATH 2650 and AERO 2200. C or better in AERO 2200 and MATH 2650. Properties of fluids, fluid statics, conservation of mass and momentum, atmospheric properties, two dimensional airfoils, three dimensional wings, drag, and flight performance.

AERO 3120 AERODYNAMICS II (3) LEC. 3. Pr. ENGR 2010 and MATH 2650 and AERO 2200. C or better in AERO 2200, MATH 2650, and ENGR 2010. Principles of compressible flow including flows with area changes, friction and heat transfer. Fundamental analysis of aerodynamics and potential flow theory. Correlation of potential flow theory with experimental data.

AERO 3130 AERODYNAMICS LABORATORY (2) LEC. 1. LAB. 3. Pr. P/C AERO 2200. C or better in AERO 2200. Application of fundamental aerodynamic principles to subsonic and supersonic wind tunnel experiments.

AERO 3220 AEROSPACE SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650 and (MATH 2660 or MATH 2667). C or better in ENGR 2350, MATH 2650, and MATH 2660. Modeling of system elements, classical feedback control techniques used in the analysis of linear systems, analysis of systems undergoing various motions connected with flight.

AERO 3230 FLIGHT DYNAMICS (4) LEC. 3. LAB. 2. Pr. AERO 3110 and ENGR 2350 and MATH 2650 and AERO 3220. C or better in MATH 2650 and ENGR 2350. Airplane performance and stability and control including analytical prediction of performance characteristics, experimental determination of static stability parameters, and analytical prediction of dynamic stability characteristics.

AERO 3310 ORBITAL MECHANICS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650. C or better in ENGR 2350 and MATH 2650. Geometry of the solar system and orbital motion, mathematical integrals of motion, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories.

AERO 3610 AEROSPACE STRUCTURES I (2) LEC. 1. LAB. 3. Pr. ENGR 2070 or ENGR 2077. C or better in ENGR 2070. Fundamental concepts employed in the mechanical testing of engineering materials and structures. Load, stress, and strain measurement techniques are utilized to determine material properties and structural response.

AERO 3970 SPECIAL TOPICS (1-3) AAB. SU. Departmental approval. Investigation of various topics in Aerospace Engineering. Course may be repeated for a maximum of 6 credit hours.

AERO 4140 AERODYNAMICS III (3) LEC. 3. Pr. AERO 3110. Theoretical background essential to a fundamental understanding of laminar and turbulent boundary layers and their relations to skin friction and heat transfer.

AERO 4510 AEROSPACE PROPULSION (4) LEC. 3. LAB. 3. Pr. AERO 3120. Fundamental analysis of airbreathing jet propulsion. Introduction to chemical rocket propulsion.

AERO 4620 AEROSPACE STRUCTURES II (4) LEC. 3. LAB. 3. Pr. AERO 3610 and (MATH 2660 or MATH 2667). C or better in MATH 2660. Aircraft and space vehicle structures. An introduction to the finite element method and its application to structural analysis. The laboratory will utilize state-of-the-art software numerical solution of aerospace structural systems.

AERO 4630 AEROSPACE STRUCTURAL DYNAMICS (4) LEC. 3. LAB. 3. Pr. AERO 4620 and MATH 2650. C or better in MATH 2650. Free, forced and damped vibration of single and multiple degree-of-freedom systems. The laboratory will utilize state-of-the-art software for the analysis of the vibration and dynamic response of structural systems.

AERO 4710 AEROSPACE DESIGN I: AIRCRAFT DESIGN (3) LEC. 2. LAB. 3. Pr. AERO 3120 and AERO 3110 and AERO 3610 and P/C AERO 3230. Introduction to the principles required to design aerospace vehicles.

AERO 4720 AEROSPACE DESIGN II: AIRCRAFT DESIGN (3) LEC. 2. LAB. 3. Pr. AERO 4710. This course is continuation of AERO 4710.

AERO 4730 AEROSPACE DESIGN I: SPACE MISSION (3) LEC. 2. LAB. 3. Pr. AERO 3120 and AERO 3610 and P/C AERO 3310. Introduction to the design of space systems including the identification of launch requirements, spacecraft system components, satellite tracking and orbital analysis to achieve a stated scientific objective.

AERO 4740 AEROSPACE DESIGN II: SPACE MISSION (3) LEC. 2. LAB. 3. Pr. AERO 4730. A continuation of AERO 4730, Space Mission Design I.

AERO 4750 AEROSPACE DESIGN I: LAUNCH VEHICLE (3) LEC. 2. LAB. 3. Pr. AERO 3120 and AERO 3610 and AERO 3310. Introduction to the principles required to design aerospace vehicles.

AERO 4760 AEROSPACE DESIGN II: LAUNCH VEHICLE (3) LEC. 2. LAB. 3. Pr. AERO 4750. This course is continuation of AERO 4750.

AERO 4970 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) AAB. Departmental approval. Investigation of current state-of-the-art technologies in aerospace engineering. Course may be repeated for a maximum of 9 credit hours.

AERO 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Membership in the Honors College and departmental approval required; Directed research and writing of an honors thesis. Course may be repeated for a maximum of 3 credit hours.

AERO 4AA0 PROGRAM ASSESSMENT (0) LAB. SU. Pr. P/C AERO 4710 or P/C AERO 4730 or P/C AERO 4750. Academic program assessment covering the areas of aerodynamics, aerospace structures, orbital mechanics, propulsion and vehicle design.

AERO 5110 MISSILE AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 5120 ROTARY WING AERODYNAMICS (3) LEC. 3. Pr. AERO 3110. Aerodynamics and flight characteristics of rotary-wing aircraft.

AERO 5140 COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. Pr. AERO 3110. An introduction to finite-difference and finite-volume methods for solving partial differential equations of interest in fluid dynamics.

AERO 5210 FLIGHT SIMULATION (3) LEC. 3. Pr. AERO 3230. Time domain simulation of nonlinear, six-degree-of-freedom motion of flight vehicles. Development of modular digital simulations including vehicle models for aerodynamics and propulsion, control, guidance subsystems.

AERO 5330 APPLIED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 3310. Introduction to general and special perturbations; N-body and restricted three-body problems; C-W equations, targeting and rendezvous; satellite constellations.

AERO 5410 AEROACOUSTICS (3) LEC. 3. Pr. AERO 3120 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410 or AERO 6410.

AERO 5460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2650. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 5520 ROCKET PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 5530 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.

AERO 5630 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 6110 MISSILE AERODYNAMICS (3) LEC. 3. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 6120 ROTARY WING AERODYNAMICS (3) LEC. 3. Aerodynamics and flight characteristics of rotary-wing aircraft.

AERO 6140 COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. An introduction to finite-difference and finite-volume methods for solving partial differential equations of interest in fluid dynamics.

AERO 6210 FLIGHT SIMULATION (3) LEC. 3. Time domain simulation of nonlinear, six-degree-of-freedom motion of flight vehicles. Development of modular digital simulations including vehicle models for aerodynamics and propulsion, control, guidance subsystems.

AERO 6330 APPLIED ORBITAL MECHANICS (3) LEC. 3. Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 6410 AEROACOUSTICS (3) LEC. 3. Pr. AERO 4140 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410/5413 or AERO 6410/6416.

AERO 6460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2650. Departmental approval. Analytical solutions of nonlinear problems, ODES, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 6520 ROCKET PROPULSION (3) LEC. 3. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 6530 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.

AERO 6630 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 6640 ADVANCED VISCOELASTICITY (3) DSL/LEC. An introduction to polymers and the theory of viscoelasticity. Topics include (1) a review of stress and strain analysis and measurement; (2) characteristics, applications, and properties of polymers; (3) polymerization and classification; (4) differential constitutive equations; (5) time and temperature behavior of polymers; (6) viscoelastic stress analysis; and (7) rate and time-dependent failure.

AERO 7100 ADVANCED SUPERSONIC AERODYNAMICS (3) LEC. 3. Pr. AERO 4140. A rigorous development of linearized and nonlinear fluid flow theories and application. Lifting surfaces, lifting bodies, duct flow, boundary layer effects, shock and expansion waves and method of characteristics.

AERO 7120 DYNAMICS OF VISCOUS FLUIDS I (3) LEC. 3. Pr. AERO 7100 or AERO 7106. Exact solutions to the Navier Stokes equations. Exact and approximate solutions of the laminar boundary layer equations. Incompressible and compressible boundary layers in theory and experiment.

AERO 7130 DYNAMICS OF VISCOUS FLUIDS II (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Turbulent flows, the Reynolds stresses and turbulence modeling. Computation of incompressible and compressible turbulent boundary layers. Stability theory and transition.

AERO 7140 ADVANCED COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. Pr. AERO 5140 or AERO 6140. Advanced methods for solving problems in computational fluid dynamics. Topics include: discretization approaches, implicit solution techniques, curvilinear coordinate systems, and upwind schemes.

AERO 7150 COMPRESSIBLE FLUID DYNAMICS (3) LEC. 3. Pr. AERO 4140. Departmental approval. An introduction to the fundamental of compressible fluid dynamics. Application of conservation of mass, momentum and energy for compressible flows. May count either AERO 7150 or AERO 7156.

AERO 7160 PHYSICAL FOUNDATIONS OF TURBULENCE (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to turbulence using classical descriptions with a focus on the physics of turbulence phenomena. May count either AERO 7160 or AERO 7166.

AERO 7170 FUNDAMENTALS OF FLUIDS (3) LEC. 3. Introduction to principal concepts and methods of fluid dynamics; similarity and dimensional analysis; conservation of mass, momentum, and energy for flows in continuum; circulation and vorticity theorems; potential flow theory; introduction to some exact solutions based on simplifying assumptions for inviscid, viscous, unsteady, and compressible flow problems.

AERO 7200 DYNAMICS OF FLIGHT (3) LEC. 3. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of flight vehicle motion. Stability concepts and analysis of the stability of flight vehicle motions. Effects of variable mass and flexibility.

AERO 7210 FLIGHT DYNAMICS OF HYPERVELOCITY VEHICLES (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of hypersonic flight vehicle motion. Stability concepts and analysis of the stability of steady-state motions of very high speed flight vehicles.

AERO 7220 SPACECRAFT ATTITUDE DYNAMICS AND CONTROL (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Development of specialized concepts and methods in dynamics applicable to the modeling of spacecraft rotational motion. Methods for controlling spacecraft attitude. Analysis of the attitude stability and controllability of spacecraft attitude motion. Department approval.

AERO 7330 ORBIT DETERMINATION (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of orbit determination; least squares, minimum norm, minimum variance solutions; batch, sequential and extended sequential filters.

AERO 7340 ADVANCED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of time measurements, earth orientation/coordinate system; f and g series; Lambert's Problem; linear orbit theory and circumlunar trajectories.

AERO 7350 OPTIMAL CONTROL OF AEROSPACE VEHICLES (3) LEC. 3. Principles of optimization; Pontryagin's principle; Linear quadratic regulator; Observers, state estimation, LQG problem. Optimal output feedback; Synthesis of flight control systems. AERO 3220 or equivalent.

AERO 7360 ADVANCED TRAJECTORY OPTIMIZATION (3) LEC. 3. Departmental approval. This course reviews single- and multi-variable optimization techniques of deterministic continuous systems. A review of the necessary (KKT) and sufficient conditions for optimality is given. We will review principles of dynamic programming and the Hamilton-Jacobi-Bellman (HJB) equation. We will also review Linear Programming (LP) problems and Quadratic Programming (QP) problems. Application of the QP problems for minimum-snap trajectory optimization for path planning of quad-rotors is demonstrated. We will also introduce basic concepts of convex optimization, which uses many of the concepts introduced in the LP and QP problems. The final project is to solve a trajectory optimization problem using successive linearization, which is a widely used technique for converting non-convex problems to convex ones.

AERO 7410 LIGHT-FIELD IMAGING (3) LEC. 3. Pr. AERO 7160 or AERO 7166. Departmental approval. An introduction to light-field imaging. Topics include light parameterization, light field cameras, computational photography and Fourier slice photography theorem. May count either AERO 7410 or AERO 7416.

AERO 7420 PARTICE IMAGE VELOCIMETRY (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to particle image velocimetry and it variations including conventional planar PIV, stereo PIV, stereo-PIV and torno-PIV. May count either AERO 7420 or AERO 7426.

AERO 7450 AEROSPACE ENGINEERING ANALYSIS (3) LEC. 3. Analysis and techniques for solving ordinary and partial differential equations common in Aerospace applications.

AERO 7460 ADVANCED PERTURBATION METHODS (3) LEC. 3. Departmental approval. Solutions of nonlinear problems and integrals using WKB, Rayleigh-Janzen, Generalized Scales, Latta, van der Pol, Watson, Laplace, Adomian, homotopy, Pade, Liouville-Green and Burmann transformations. May count either AERO 7460/7466 or MATH 7460/7466.

AERO 7510 THRUST GENERATION (3) LEC. 3. Pr. AERO 4510. Aerothermodynamics of propulsion. Selected topics in gas dynamics, thermodynamics, and heat transfer as applied to airbreathing and space propulsion.

AERO 7520 ADVANCED AIR-BREATHING PROPULSION (3) LEC. 3. Topics emphasizing interaction between external aerodynamics and performance of airbreathing jet engines. Performance optimization of ramjet, turbojet, and turbofan engines. Component matching.

AERO 7530 AEROTHERMCHEM OF PROPULSION (3) LEC. 3. Aerothermodynamics of compressible flow, chemical propellant characteristics, heat transfer in fluid flow, statistical gas dynamics, kinetic theory of gases.

AERO 7600 AEROSPACE SOLID MECHANICS (3) LEC. 3. An introduction to solid mechanics concepts with aerospace engineering applications. The course develops equations of motions from conservation laws and introduces constitutive equations from linearized continuum mechanics perspective for aerospace related applications. Topics include elastostatic solutions, elastodynamic solutions and plasticity.

AERO 7620 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STATIC STRUCTURES (3) LEC. 3. Pr. AERO 4620. Departmental approval. Advanced techniques for the numerical solution of static elastic and plastic problems, including two and three dimensional solutions.

AERO 7630 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STRUCTURAL DYNAMICS (3) LEC. 3. Pr. AERO 4630. Departmental approval. Advanced techniques for the numerical solution to problems in structural dynamics, including steady state and transient response of two-and three-dimensional structures.

AERO 7950 SEMINAR (0) SEM. 0. SU. Weekly lectures on current developments in aerospace sciences by staff members, graduate students, and visiting scientists and engineers. Course may be repeated for a maximum of 1 credit hours.

AERO 7970 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) DSL. Course may be repeated for a maximum of 9 credit hours.

AERO 7980 AEROSPACE ENGINEERING PROJECT (3) LEC. 3. SU. Departmental approval. Intended for students in the MAE program. On or off-campus project. The nature of the project is to be determined by the student's major professor. Approval of the project and its final written report by the student's advisory committee is required. Course may be repeated with change in topic.

AERO 7990 RESEARCH AND THESIS (1-10) DSL/MST. Credit hours to be arranged. Course may be repeated with change in topics.

AERO 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

Space Systems Courses

SPCE 6000 INTRODUCTION TO SPACE STUDIES (3) LEC. 3. An introduction to the space environment, operating in space, satellite design, and applying satellite technology to provide services and capabilities to a variety of user groups.

SPCE 6100 SPACE SYSTEMS OPERATIONS (3) LEC. 3. Pr. (SPCE 6000). An overview of space systems operations, operational orbits, orbital maneuver, station keeping, different stakeholders' mission operations, avoiding on-orbit crisis, and satellite/constellation end of life.

SPCE 6200 SPACECRAFT AND SATELLITE ARCHITECTURE DESIGN AND INTEGRATION (3) LEC. 3. Pr. (SPCE 6100). An overview of spacecraft and satellite architecture design followed by a practicum to apply lessons learned to create a space mission design that provides services and capabilities to a specific user group.

Aerospace Engineering (AERO)

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	ENGL 1120 English Composition II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	PHYS 1600 Engineering Physics I	4
ENGL 1100 English Composition I	3	MATH 1620 Calculus II	4
MATH 1610 Calculus I	4	Core Social Science[1]	3
Core History[1]	3	ENGR 1110 Introduction to Engineering	2
ENGR 1100 Engineering Orientation	0		
COMP 1230 Introduction to Computing with MATLAB	2		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
MATH 2630 Calculus III	4	MATH 2660 Topics in Linear Algebra	3
MATH 2650 Linear Differential Equations	3	ENGR 2070 Mechanics of Materials	3
PHYS 1610 Engineering Physics II	4	ENGR 2010 Thermodynamics	3
ENGR 2050 Statics	3	ENGR 2350 Dynamics	3
AERO 2200 Aerospace Fundamentals	**2**	Core Humanities[1]	3
	16		**15**

Junior

Fall	Hours	Spring	Hours
MATH 5630 Introduction to Numerical Analysis I	3	**AERO 3120 Aerodynamics II**	**3**
ELEC 3810 Fundamentals of Electrical Engineering	3	**AERO 3230 Flight Dynamics**	**4**
Core Literature [1]	3	**AERO 3310 Orbital Mechanics**	**3**
AERO 3110 Aerodynamics I	**3**	**AERO 3610 Aerospace Structures I**	**2**
AERO 3130 Aerodynamics Laboratory	**2**	Core Fine Arts	3
AERO 3220 Aerospace System Dynamics and Controls	**3**		
	17		**15**

Senior				
Fall	**Hours**		**Spring**	**Hours**
AERO 4140 Aerodynamics III		**3**	**AERO 4630 Aerospace Structural Dynamics**	**4**
AERO 4510 Aerospace Propulsion		**4**	**AERO 4720 Aerospace Design II: Aircraft Design, 4740 Aerospace Design II: Space Mission, *or* 4760 Aerospace Design II: Launch Vehicle**	**3**
AERO 4620 Aerospace Structures II		**4**	Aero/Astro Elective[2]	6
AERO 4710 Aerospace Design I: Aircraft Design, 4730 Aerospace Design I: Space Mission, *or* 4750 Aerospace Design I: Launch Vehicle		**3**	**AERO 4AA0 Program Assessment**	**0**
			Core Social Science[1]	3
			UNIV 4AA0 Achieve the Creed	0
		14		**16**

Total Hours: 125

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History.

2 Advisor approval required

Department of Biosystems Engineering

Biosystems engineers ensure that we have the necessities of life: healthy food to eat, clean water to drink, renewable fuel and energy sources, and a healthy environment in which to live. The mission of the Department of Biosystems Engineering at Auburn University is to develop and disseminate engineering knowledge to solve problems in biological systems, natural resources, and the environment. It meets the resident instruction portion of that mission through the offering of a degree program which leads to a Bachelor of Biosystems Engineering, and another degree that leads to Bachelor of Science in Biological and Agricultural Technology Management. The four pathways to the BSEN degree program (biosystems engineering pathway, bioprocess engineering option, ecological engineering option, and forest engineering option), and the biological and agricultural technology management degree program are described below:

Biosystems Engineering

The Department of Biosystems Engineering offers the only accredited degree in biosystems engineering in Alabama. It is committed to preparing students for productive professional careers in the biosystems industries and related natural resource and environmental systems sectors.

The biosystems engineering program curriculum pathway is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the pre-biosystems engineering program.

Bioprocess Engineering Option

The focus of the bioprocess engineering option is to produce engineers that seamlessly combine engineering and natural sciences to designing and developing systems, processes and equipment that convert biological and agricultural materials to value-added products such as food, nutraceuticals, polymers and pharmaceuticals. Bioprocess engineers provide a bridge between the research lab and the economic, large-scale implementation of technologies used to convert these biological materials to value-added products. The bioprocess engineering option is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the bioprocess engineering option portion of the pre-biosystems engineering program.

Ecological Engineering Option

The Department of Biosystems Engineering offers an option in ecological engineering as part of the Bachelor of Biosystems Engineering degree. This option prepares students to solve environmental problems by applying engineering knowledge to natural ecological and biological systems. Ecological engineering combines basic and applied science from engineering, ecology, economics, and natural sciences to design, construct, and manage sustainable ecosystems that have value to both humans and the natural

environment. The ecological engineering option is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the ecological engineering option portion of the pre-biosystems engineering program.

Forest Engineering Option

The Department of Biosystems Engineering (in conjunction with the Samuel Ginn College of Engineering and College of Forestry, Wildlife and Environment) offers an option in forest engineering as part of the Bachelor of Biosystems Engineering degree.

This forest engineering option involves preparing graduates to be able to apply of engineering principles and techniques for sustainable management and maintenance of trees, soil, water and other natural resources with the forest ecosystem. Forest engineering is therefore a hybrid of engineering, forest and management that is focused on efficient, cost-effective and environmentally friendly utilization of these resources. Therefore, this option prepares students for productive professional careers in the forest products industry and related natural resource and environmental systems sector.

The forest engineering option is coordinated by the Samuel Ginn College of Engineering and the College of Forestry, Wildlife and Environment, and is administered by the Department of Biosystems Engineering. Students can become registered foresters upon completion of a minor in forest resources. Beginning students should apply to the Samuel Ginn College of Engineering and complete the forest engineering option portion of the pre-biosystems engineering program. Students pursuing the forest engineering option must meet College of Forestry, Wildlife and Environment requirements for admission to the Forestry Summer Field Practicum.

Biological and Agricultural Technology Management

Students enrolled in the biological and agricultural technology management (BATM) major take a variety of courses in technology, science and management that will enable them to be practical problem solvers and be able to manage and develop solutions to the technological challenges of the increasingly complex agricultural and biological systems of the 21st century. The curriculum is also designed such that students can simultaneously obtain a minor in an area that is of interest to the student such as minor in agronomy and soils, stewardship-based agriculture, agribusiness, poultry science, information systems management, business analytics, technical and professional communication, or sustainability. The BATM curriculum is coordinated by the College of Agriculture.

Majors

- Biosystems Engineering (p. 640)
- Biosystems Engineering — Bioprocess Engineering Option (p. 637)
- Biosystems Engineering — Ecological Engineering Option (p. 642)
- Biosystems Engineering — Forest Engineering Option (p. 639)
- Biological and Agricultural Technology Management (p. 242)

Bio Ag Technology Management Courses

BATM 1110 INTRODUCTION TO TECHNOLOGY DESIGN (3) LEC. 2. LAB. 3. Introduction to the design process, 2D and 3D parametric solid modeling, and both manual and automated fabrication processes.

BATM 2110 DIGITAL ANALYTICS IN AGRICULTURE AND TECHNOLOGY (3) LEC. 2. LAB. 1. Pr. BATM 1110 or BIOP 2120. An introduction to creative and analytical methods to solve technological problems. Define the problem, explore strategies, select and implement solutions, and evaluate results.

BATM 3100 COMPUTER AIDED DESIGN TECHNOLOGY (3) LEC. 2. LAB. 1. Introductory course in computer aided design (CAD) and land mapping. Students gain competence in CAD operations used to fabricate parts and to develop field- and watershed-scale maps. Class and project topics include drawing for mechanical part fabrication and scale mapping for construction site development and agricultural field management. Must be in Junior standing Course may be repeated for a maximum of 6 credit hours.

BATM 3110 AG TECHNOLOGY GEOSPATIAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 1110 and (PHYS 1500 or PHYS 1600). Geospatial applications for agricultural land resource management. Course introduces equipment and practices used in conventional land surveying and geospatial mapping as they interface with global positioning systems (GPS), geographic information systems (GIS), and computer-aided design (CAD).

BATM 3500 NATURAL RESOURCE SYSTEMS CONSERVATION (3) LLB. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680) and (PHYS 1500 or PHYS 1600). Natural resource conservation technologies including rainfall-runoff relationships, sediment transport capacity, runoff control structures, water supply development, surveying techniques including GPS methods.

BATM 3510 AGRICULTURAL POWER AND MACHINERY FUNDAMENTALS (3) LLB. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680) and (PHYS 1500 or PHYS 1600). Power unit fundamentals with emphasis on diesel and small gasoline engines; mechanics of operation, safety, use, and adjustment of machines used for horticultural and agronomic crop production; and precision agriculturr principles and technology.

BATM 3530 AGRICULTURAL PRODUCTION AND PROCESSING FACILITY TECHNOLOGY (3) LEC. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680. Fundamental requirements for the design and operation of agricultural production and processing facilities.

BATM 3560 TURF SYSTEMS IRRIGATION DESIGN (3) LEC. 3. Pr. MATH 1120 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680. Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.

BATM 4100 PROFESSIONAL PRACTICE IN TECHNOLOGY MANAGEMENT (2) LEC. 1. LAB. 3. Pr. BATM 5110. First in the two-course capstone experience. This course focuses on professional topics that prepare students for technical careers; teamwork, communication, standards and codes, economics, project and time management. Teams initiate the capstone design project.

BATM 4110 TECHNOLOGY CAPSTONE (3) LEC. 1. LAB. 6. Pr. BATM 4100. Development and evaluation of a team-based capstone project using tools from the technology curriculum; emphasizing communication, critical thinking, and technical and economic analyses.

BATM 4960 SPECIAL PROBLEMS IN AGRICULTURAL TECHNOLOGY MANAGEMENT (3-6) IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biological and agricultural technology management. May be repeated with change in problem. Course may be repeated for a maximum of 6 credit hours.

BATM 4970 SPECIAL TOPICS IN AGRICULTURAL TECHNOLOGY MANAGEMENT (3) LLB. Departmental approval. Investigation of current issues in biological and agricultural technology management. Course may be repeated for a maximum of 6 credit hours.

BATM 4980 UNDERGRADUATE RESEARCH (3) LLB. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BATM 5110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 2110 and (PHYS 1500 or PHYS 1600). An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 5120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 5110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 5130 PRECISION AG TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. BATM 3510. An overview of the principles of precision agriculture with focus on prescriptive agriculture and the ability to effectively execute input management plans using today's technologies. Course material and discussions will include how technologies such as GPS, agricultural GIS, sensors for qualitative and quantitative measurement of soil and plant variables, variable-rate technology are being implement with data informing sub-field level management and subsequent farm business decisions.

BATM 5140 COMMERCIAL POULTRY & LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. Pr. STAT 2510. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BATM 5150 DRONE TECHNOLOGIES IN AGRICULTURAL AND BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 and PHYS 1500. Drone or Unmanned Aerial Vehicles (UAV) technologies and the data generated from these systems are being utilized in agricultural, biological and natural resource systems. Topics will include UAV types, sensors and application systems for drones, sensor resolution and calibration, flight and mission planning techniques. Image and date collection techniques, analysis, interpretation and decision making, generation of prescriptive maps, and other emerging drone technologies.

BATM 5550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1000 or PHYS 1003 or PHYS 1007 or PHYS 1500 or PHYS 1600 or PHYS 1607). Engineering concepts and unit operations used in processing food products. Fall.

BATM 6110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Departmental approval. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 6120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 6110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 6130 PRECISION AG TECHNOLOGY (3) LEC. 2. LAB. 3. An overview of the principles of precision agriculture with focus on prescriptive agriculture and the ability to effectively execute input management plans using today's technologies. Course material and discussions will include how technologies such as GPS, agricultural GIS, sensors for qualitative and quantitative measurement of soil and plant variables, variable-rate technology are being implement with data informing sub-field level management and subsequent farm business decisions.

BATM 6140 COMMERCIAL POULTRY AND LIVESTOCK HOUSING (3) LEC. 2. LAB. 1. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BATM 6150 DRONE TECHNOLOGIES IN AGRICULTURAL AND BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Drone or Unmanned Aerial Vehicles (UAV) technologies and the data generated from these systems are being utilized in agricultural, biological and natural resource systems. Topics will include UAV types, sensors and application systems for drones, sensor resolution and calibration, flight and mission planning techniques. Image and date collection techniques, analysis, interpretation and decision making, generation of prescriptive maps, and other emerging drone technologies.

BATM 6550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133) and (PHYS 1000 or PHYS 1003 or PHYS 1007). Engineering concepts and unit operations used in processing food products. Fall.

Biosystems Engineering Courses

BSEN 2210 ENGINEERING METHODS FOR BIOLOGICAL SYSTEMS (2) LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607) or Departmental approval. Introduction to experimental design methodology, basic engineering design and problem solving methodology for Biological Engineering. Visualization skills, computer-aided 3-D solid modeling of parts, 3-D assembly of solid part geometries, computation of mass properties, 2-D engineering drawings, engineering design process, safety, tools and fabrication processes and design, and hands-on shop fabrication of semester project.

BSEN 2240 BIOLOGICAL AND BIOENVIRONMENTAL HEAT AND MASS TRANSFER (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1600 or PHYS 1607) and P/C ENGR 2010. Basic principles of heat and mass transfer with special applications to biological and environmental systems. Introduction to steady state and transient heat conduction. Convection, radiation, diffusion, simultaneous heat and mass transfer, and generation and depletion of heat and mass in biological systems.

BSEN 3210 MECHANICAL POWER FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. ENGR 2010 and MATH 2650 and P/C ENGR 2350. Basic engineering analysis, synthesis, and design concepts applied to power sources, mobile equipment, and machinery applications for agricultural, forestry, and natural resource systems.

BSEN 3230 NATURAL RESOURCE CONSERVATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Engineering analysis applied to natural resource systems. Design principles and practices in rainfall-runoff relationships, soil erosion and its prediction and control, hydraulic structures, and open channel hydraulics.

BSEN 3240 PROCESS ENGINEERING IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. Theory and application of process operations in biological, food and agricultural systems. Heat transfer, fluid flow, thermal processing, evaporation, psychrometrics, refrigeration, drying freezing.

BSEN 3260 ENGINEERING FOR PRECISION AGRICULTURE AND FORESTRY (3) LEC. 2. LAB. 3. Pr. BSEN 3610 and MATH 2650. Departmental approval. Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site specific applications. Fall.

BSEN 3310 HYDRAULIC TRANSPORT IN BIOLOGICAL SYSTEMS (4) LEC. 3. LAB. 3. Pr. (ENGR 2050 or ENGR 2053) and MATH 2650 or Departmental approval. Fluid properties, Non-Newtonian fluids and biological systems, Fluid statics, Energy equation, mass and momentum balance, pipe flow for Newtonian and Non-Newtonian fluids, dimensional analysis, compressible flows.

BSEN 3610 INSTRUMENTATION AND CONTROLS FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and BSEN 2210. Departmental approval. Understanding of fundamentals of electrical circuits, sensing and sensors, simple digital electronics, analog measurement circuits, introductory digital signal processing, computer data acquisition.

BSEN 4200 POLYMERS FROM RENEWABLE RESOURCES (2) LEC. 2. Fundamental aspects of natural, biodegradable polymers, including fibers, adhesives, films and coatings, their synthesis, their structure/properties relationships, and the microbiology of their degradation.

BSEN 4210 IRRIGATION SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. Theory and design of irrigation systems for the application of water and wastewater including surveying techniques for system design. Systems include solid-set, traveler, center-pivot, and trickle. Fall.

BSEN 4250 HYDRAULIC CONTROL SYSTEMS DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3310 or Departmental approval. Principles of energy transfer by means of fluid power. Design of hydraulic control systems using prime movers, valves, actuators, and accessories. Spring.

BSEN 4300 PROFESSIONAL PRACTICE IN BIOSYSTEMS ENGINEERING (2) LEC. 1. LAB. 3. Pr. ENGR 2070 and (BSEN 4240 or BSEN 3230). This course focuses on issues related to the professional practice of biological engineering including preparing students for transition to careers as professional engineers.

BSEN 4310 ENGINEERING DESIGN FOR BIOSYSTEMS (3) LEC. 1. LAB. 6. Pr. BSEN 4300. Departmental approval. Capstone design course in biosystems engineering emphasizing teamwork, communication, safety engineering, and economic analysis to complete an engineering design project. Spring.

BSEN 4960 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) AAB/IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biosystems engineering. May be repeated with change in problem. Course may be repeated with change in topics.

BSEN 4970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) DSL. Departmental approval. Individual or small group study of a specialized area in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

BSEN 5220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 5230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. (CHEM 1040 or CHEM 1120) and BIOL 3200 and (BSEN 3230 or BSEN 4240). Introduction to animal waste management problems of confined production systems, and characterization of animal waste types. Design of biological treatment and processing systems. Departmental approval. May count either BSEN 5230 or BSEN 6230.

BSEN 5240 BULK BIOLOGICAL SOLIDS BEHAVIOR, HANDLING AND PROCESSING (3) LEC. 3. Pr. BSEN 3310 or CIVL 3310. Understanding of the properties of bulk solids and how these properties influence the behavior, handling and processability of biological solids.

BSEN 5250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. LAB. 2. Pr. MATH 2650. Modeling of biosystems, methods to deal with complexity, and validation tools.

BSEN 5260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Application and use of renewable energy in biological, food, forest and agricultural systems including bioenergy, solar energy, wind power and geothermal. Departmental approval. May count either BSEN 5260 or BSEN 6260.

BSEN 5270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Pr. BIOL 3200 and (CHEM 1040 or CHEM 1120). Or with the consent of the instructor. Introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries.

BSEN 5280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 1. Pr. BSEN 2240 and BSEN 3310. Introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 5510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities. Departmental approval. May count either BSEN 5510 or BSEN 6510.

BSEN 5520 WATERSHED MODELING (3) LEC. 3. Pr. BSEN 3230. Modeling of non-point source pollution at watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants. Departmental approval. May count either BSEN 5520 or BSEN 6520.

BSEN 5540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 1040 or CHEM 1120) and MATH 2650 and BSEN 3310. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 5560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230 or (CIVL 3110 and CIVL 3010). Development of student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts. Departmental approval. May count either BSEN 5560 or BSEN 6560.

BSEN 5570 COASTAL ECOLOGICAL ENGINEERING (3) LEC. 1. LAB. 4. Pr. BSEN 3310. Fundamentals of coastal processes and engineering and also provide an introduction to modeling the flow of water in coastal systems

BSEN 6220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 6230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Coreq. BSEN 3230. Introduction to the animal waste management problems of confined production systems and characterization of animal waste types. Design of biological treatment and processing systems.

BSEN 6240 BULK BIOLOGICAL SOLIDS BEHAVIOR, HANDLING AND PROCESSING (3) LEC. 3. Understanding of the properties of bulk solids and how these properties influence the behavior, handling and processing ability of biological bulk solids.

BSEN 6250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Modeling of biosystems, methods to deal with complexity, and validation tools.

BSEN 6260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Application and use of renewable energy in biological, food forest and agricultural systems including biomass and bioenergy, solar energy, wind power and geothermal.

BSEN 6270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Department/instructor approval. An introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries. May count either BSEN 5270 or BSE 6270.

BSEN 6280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. This course introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 6510 ECOLOGICAL ENGINEERING (3) LEC. 3. Departmental approval. The course introduces students to ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities.

BSEN 6520 WATERSHED MODELING (3) LEC. 3. Departmental approval. The course covers modeling of non-point source pollution at the watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants.

BSEN 6540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 6560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. The course is designed to develop student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts.

BSEN 6570 COASTAL ECOLOGICAL ENGINEERING (3) LEC. 1. LAB. 4. Fundamentals of coastal processes and engineering. Introduction to modeling the flow of water in coastal systems.

BSEN 7110 FUNDAMENTALS OF INSTRUMENTATION FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Students will gain an understanding of the fundamentals of sensing and sensors, simple digital electronics and measurement circuits, introductory digital signal processing, and computer data acquisition. They will be required to build and test instrumentation to collect data on biological systems that might include fluid flow, pressure, force, or other transducers.

BSEN 7140 ALGAE SYSTEMS ENGINEERING (3) LEC. 2. LAB. 1. This course is a study of engineered systems for cultivating algae for various uses in society. To develop an understanding of engineering principles applied to growing, cultivating, and producing algal biomass for a number of applications, study into the biology, physiology, and ecology of algae and similar species will be a major part of the course. Departmental Approval.

BSEN 7510 INTRODUCTION TO LAND AND WATER ENGINEERING (3) LEC. 3. This course aims at equipping students with the engineering tools and knowledge needed for advanced courses in land and water engineering.

BSEN 7520 INTRODUCTION TO FLUVIAL GEOMORPHOLOGY (3) LEC. 3. Pr. BSEN 3230. This course provides an overview of stream geomorphology as it relates to natural stream physical processes.

BSEN 7900 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in biosystems engineering at the graduate level. Pr., Course may be repeated with change in topics.

BSEN 7950 SEMINAR (1) SEM. SU. Reviews and discussions of research techniques, current scientific literature, and recent developments in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 7970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) AAB. Departmental approval. Individual or small group study of an advanced specialized area in biosystems engineering at the graduate level. Course may be repeated with change in topics.

BSEN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BSEN 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Biosystems Engineering — Bioprocess Engineering Option (BPEN)

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	ENGL 1120 English Composition II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	PHYS 1600 Engineering Physics I	4
COMP 1220 Introduction to Computing with Python ***or*** 1230 Introduction to Computing with MATLAB	2	ENGR 1110 Introduction to Engineering	2
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
HIST 1210 Technology and Civilization I ***or*** 1010 World History I	3	HIST 1220 Technology And Civilization II ***or*** 1020 World History II	3
ENGL 1100 English Composition I	3		
ENGR 1100 Engineering Orientation	0		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
BSEN 2210 Engineering Methods for Biological Systems	2	BSEN 2240 Biological and Bioenvironmental Heat and Mass Transfer	3
ENGR 2010 Thermodynamics	3	ENGR 2070 Mechanics of Materials	3
ENGR 2050 Statics	3	CHEM 1040 Fundamental Chemistry II	3
MATH 2630 Calculus III	4	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	3	MATH 2650 Linear Differential Equations	3
BIOL 1021 Principles of Biology Laboratory	1	Social Science Core[2]	3
	16		**16**

Junior

Fall	Hours	Spring	Hours
BSEN 3310 Hydraulic Transport in Biological Systems	4	BSEN 3240 Process Engineering in Biosystems	3
CHEM 2070 Organic Chemistry I	3	BSEN 3610 Instrumentation and Controls for Biological Systems	3
CHEM 2071 Organic Chemistry I Laboratory	1	BIOL 3200 General Microbiology	3
STAT 3010 Statistics for Engineers and Scientists ***or*** 2510 Statistics for Biological and Health Sciences	3	BIOL 3201 General Microbiology Laboratory	1
BIOL 1030 Organismal Biology	3	BSEN 5240 Bulk Biological Solids Behavior, Handling and Processing	3
BIOL 1031 Organismal Biology Laboratory	1	BCHE 3200 Principles of Biochemistry	3
	15		**16**

Senior

Fall	Hours	Spring	Hours
BSEN 5280 Life-Cycle Assessment for Biological Systems	3	BSEN 4310 Engineering Design for Biosystems	3
BSEN 5540 Biomass and Biofuels Engineering	3	BSEN 5230 Waste Management and Utilization for Biosystems	3
BSEN 4300 Professional Practice in Biosystems Engineering	2	Literature Core[1]	3
PHIL 1020 Introduction to Ethics ***or*** 1040 Business Ethics	3	Fine Arts Core	3
Bioprocess Engineering Elective 1	3	Bioprocess Engineering Elective 2	3
BSEN 5220 Geospatial Technologies in Biosystems	3	UNIV 4AA0 Achieve the Creed	0
	17		**15**

Total Hours: 127

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Biosystems Engineering should complete the World History or Technology and Civilization Course sequence to ensure that all SLOs are met by students by the time of gradution.

2 ECON 2020 preferred.

Bioprocess Engineering Electives: See Advisor for Approved Course Listing.

Biosystem Engineering — Forest Engineering Option (FOEN)

The Department of Biosystems Engineering (in conjunction with the Samuel Ginn College of Engineering and College of Forestry, Wildlife and Environment) offers an option in forest engineering as part of the Bachelor of Biosystems Engineering degree.

The Forest Engineering Option involves preparing graduates to apply engineering principles and techniques for the sustainable management and maintenance of trees, soil, water, and other natural resources within the forest ecosystem. Forest engineering is therefore a hybrid of engineering and forest management that is focused on the efficient, cost-effective, and environmentally friendly utilization of these resources. Therefore, this option prepares students for productive professional careers in the forest products industry and related natural resource and environmental systems sector.

Students are admitted to the professional Biosystems Engineering with Forest Engineering Option curriculum (FOEN) upon successful completion of the Pre-Forest Engineering (PFOE) program in the Samuel Ginn College of Engineering. Additional details on the Forest Engineering Option are available on the Samuel Ginn College of Engineering Biosystem (https://bulletin.auburn.edu/undergraduate/samuelginncollegeofengineering/departmentofbiosystemsengineering/) page. Students pursuing the Forest Engineering Option must meet College of Forestry, Wildlife and Environment requirements for admission to the Forestry Summer Field Practicum and must attend the Forestry Practicum. This summer hands-on experience is scheduled for the summer term preceding the junior year and is held at the Solon Dixon Forestry Education Center near Andalusia, Alabama. Students should contact the College of Forestry, Wildlife and Environment Student Services Office at 334-844-1050 to notify your intent to apply to the Forestry Practicum.

Freshman

Fall	Hours	Spring	Hours
COMP 1220 Introduction to Computing with Python ***or*** 1230 Introduction to Computing with MATLAB	2	MATH 1620 Calculus II	4
MATH 1610 Calculus I	4	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	PHYS 1600 Engineering Physics I	4
ENGR 1100 Engineering Orientation	0	HIST 1220 Technology And Civilization II ***or*** 1020 World History II	3
CHEM 1030 Fundamentals Chemistry I	3	ENGR 1110 Introduction to Engineering	2
CHEM 1031 Fundamental Chemistry I Laboratory	1		
HIST 1210 Technology and Civilization I ***or*** 1010 World History I[1]	3		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours	Summer	Hours
ENGR 2010 Thermodynamics	3	MATH 2650 Linear Differential Equations	3	FORY 3020 Forest Biology	3
ENGR 2050 Statics	3	ENGR 2350 Dynamics	3	**FOEN 3040 Forest Surveying**	**2**
MATH 2630 Calculus III	4	STAT 3010 Statistics for Engineers and Scientists ***or*** 2510 Statistics for Biological and Health Sciences	3	FORY 3050 Field Mensuration	4
BSEN 2210 Engineering Methods for Biological Systems	**2**	ENGR 2070 Mechanics of Materials	3	FORY 3060 Introduction to Forest Management Strategies	1

BIOL 1020 Principles of Biology	3	CHEM 1040 Fundamental Chemistry II	3
BIOL 1021 Principles of Biology Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
	16		**16**

Junior

Fall	Hours	Spring	Hours
BSEN 3210 Mechanical Power for Biosystems	**3**	**BSEN 3230 Natural Resource Conservation Engineering**	**3**
FORY 3180 Forest Resource Sampling	3	**CIVL 3310 Geotechnical Engineering I *or* 3230 Environmental Engineering**	**4**
FORY 3100 Dendrology	3	Fine Arts Core	3
BSEN 3310 Hydraulic Transport in Biological Systems	**4**	Social Science Core[2]	3
	13		**13**

Senior

Fall	Hours	Spring	Hours
BSEN 5220 Geospatial Technologies in Biosystems	**3**	**BSEN 4310 Engineering Design for Biosystems**	**3**
BSEN 5560 Site Design for Biosystems	**3**	**Forest Engineering Elective**	**3**
FOEN 5710 Systems Analysis for Forestry and Biological Operations	**3**	PHIL 1040 Business Ethics ***or*** 1020 Introduction to Ethics	3
FORY 5230 Silviculture	**4**	Literature Core	3
BSEN 4300 Professional Practice in Biosystems Engineering	**2**	UNIV 4AA0 Achieve the Creed	0
	15		**12**

Total Hours: 127

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Biosystems Engineering should complete the World History or Technology and Civilization course sequence to ensure that all SLOs are met by students by the time of graduation.

2 ECON 2020 preferred.
Forest Engineering Elective: See adviser for approved course listing.

Biosystems Engineering (BSEN)

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	PHYS 1600 Engineering Physics I	4
CHEM 1031 Fundamental Chemistry I Laboratory	1	ENGL 1120 English Composition II	3
ENGR 1100 Engineering Orientation	0	ENGR 1110 Introduction to Engineering	2
MATH 1610 Calculus I	4	HIST 1220 Technology And Civilization II ***or*** 1020 World History II[1]	3

HIST 1210 Technology and Civilization I ***or*** 1010 World History I[1]	3	MATH 1620 Calculus II	4
ENGL 1100 English Composition I	3		
COMP 1220 Introduction to Computing with Python ***or*** 1230 Introduction to Computing with MATLAB	2		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
ENGR 2010 Thermodynamics	3	ENGR 2070 Mechanics of Materials	3
ENGR 2050 Statics	3	ENGR 2350 Dynamics	3
MATH 2630 Calculus III	4	MATH 2650 Linear Differential Equations	3
BSEN 2210 Engineering Methods for Biological Systems	**2**	**BSEN 2240 Biological and Bioenvironmental Heat and Mass Transfer**	**3**
	16		**16**

Junior

Fall	Hours	Spring	Hours
CSES 2040 Basic Soil Science	4	Social Science Core[2]	3
CHEM 1040 Fundamental Chemistry II	3	STAT 3010 Statistics for Engineers and Scientists ***or*** 2510 Statistics for Biological and Health Sciences	3
BSEN 3310 Hydraulic Transport in Biological Systems	**4**	**BSEN 3230 Natural Resource Conservation Engineering**	**3**
BIOL 3200 General Microbiology	3	**BSEN 3240 Process Engineering in Biosystems**	**3**
BIOL 3201 General Microbiology Laboratory	1	**BSEN 3610 Instrumentation and Controls for Biological Systems**	**3**
	15		**15**

Senior

Fall	Hours	Spring	Hours
BSEN 3210 Mechanical Power for Biosystems	**3**	Literature Core[1]	3
BSEN 4210 Irrigation System Design	**3**	Fine Arts Core	3
BSEN 4300 Professional Practice in Biosystems Engineering	**2**	**BSEN 4310 Engineering Design for Biosystems**	**3**
PHIL 1040 Business Ethics ***or*** 1020 Introduction to Ethics	3	**BSEN 5230 Waste Management and Utilization for Biosystems**	**3**
BSEN 5220 Geospatial Technologies in Biosystems	**3**	**Biosystems Engr Elective**	**3**
Biosystems Engr Elective	**3**	UNIV 4AA0 Achieve the Creed	0
	17		**15**

Total Hours: 126

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Biosystems Engineering should complete the World History or Technology and Civilization Course sequence to ensure that all SLOs are met by students by the time of graduation.

2 ECON 2020 preferred.

Biosystems Electives: See adviser for approved course listing.

Biosystems Engineering — Ecological Engineering Option (ECEN)

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	ENGL 1120 English Composition II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	PHYS 1600 Engineering Physics I	4
HIST 1210 Technology and Civilization I ***or*** 1010 World History I[1]	3	ENGR 1110 Introduction to Engineering	2
ENGR 1100 Engineering Orientation	0	MATH 1620 Calculus II	4
COMP 1220 Introduction to Computing with Python ***or*** 1230 Introduction to Computing with MATLAB	2	HIST 1220 Technology And Civilization II ***or*** 1020 World History II[1]	3
ENGL 1100 English Composition I	3		
MATH 1610 Calculus I	4		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
BIOL 1020 Principles of Biology	3	Fine Arts Core	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1030 Organismal Biology	3
ENGR 2010 Thermodynamics	3	BIOL 1031 Organismal Biology Laboratory	1
ENGR 2050 Statics	3	ENGR 2070 Mechanics of Materials	3
MATH 2630 Calculus III	4	MATH 2650 Linear Differential Equations	3
BSEN 2210 Engineering Methods for Biological Systems	**2**	**BSEN 2240 Biological and Bioenvironmental Heat and Mass Transfer**	**3**
	16		**16**

Junior

Fall	Hours	Spring	Hours
CSES 2040 Basic Soil Science	4	Social Science Core[2]	3
BSEN 3310 Hydraulic Transport in Biological Systems	**4**	CIVL 3230 Environmental Engineering	4
BIOL 3200 General Microbiology	3	STAT 3010 Statistics for Engineers and Scientists ***or*** 2510 Statistics for Biological and Health Sciences	3
BIOL 3201 General Microbiology Laboratory	1	**BSEN 3230 Natural Resource Conservation Engineering**	**3**
CHEM 1040 Fundamental Chemistry II	3	**BSEN 3610 Instrumentation and Controls for Biological Systems**	**3**
	15		**16**

Senior

Fall	Hours	Spring	Hours
BSEN 4300 Professional Practice in Biosystems Engineering	**2**	Literature Core[1]	3
BSEN 5220 Geospatial Technologies in Biosystems	**3**	PHIL 1020 Introduction to Ethics ***or*** 1040 Business Ethics	3

BSEN 5510 Ecological Engineering	**3**	**BSEN 4310 Engineering Design for Biosystems**	**3**
BSEN 5560 Site Design for Biosystems	**3**	**BSEN 5230 Waste Management and Utilization for Biosystems**	**3**
Ecological Engineering Elective	**3**	**BSEN 5520 Watershed Modeling**	**3**
Ecology Elective	3	UNIV 4AA0 Achieve the Creed	0
	17		**15**

Total Hours: 127

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Biosystems Engineering should complete the World History or Technology and Civilization course sequence to ensure that all SLOs are met by students by the time of graduation.

2 ECON 2020 preferred.
Biosystems Electives: See adviser for approved course listing.

Department of Chemical Engineering

Chemical engineers contribute to society through the useful application of knowledge and understanding of chemistry, physics, biology, and mathematics. Chemical engineers traditionally have participated in many decisions crucial to the preservation and improvement of society, including energy, fuel, commodity chemical and food production, resource management, and the design of necessary pollution control measures. Emerging new areas such as biotechnology, space technology, nanofabrication technology, semiconductor devices and modern construction materials also utilize the unique capabilities of the chemical engineer. Many technologies to improve public health depend significantly on chemical engineering such as biomaterials, biomedical devices, medical diagnostics, the chemical design and synthesis of drugs, the genetic engineering of therapeutic materials, drug delivery systems and medical imaging technology. Finally, chemical engineering plays an essential role in important environmental technologies such as atmospheric chemistry, product life cycle analysis, bioremediation, environmental risk and impact analysis, environmentally friendly manufacturing technology and products, separation and conversion technologies for waste reduction and the cleanup of contaminated sites.

The instructional mission of the department is to provide its chemical engineering graduates with the tools, skills and competencies necessary to understand and apply today’s technologies and, through life-long learning, successfully develop and employ tomorrow’s technologies.

The Program Educational Objectives and Student Outcomes can be found at the following URL: https://eng.auburn.edu/chen/academics/undergraduate/educational-outcomes.html

Because of their broad training and education, chemical engineers contribute to society in many functions, such as pure research, development, environmental protection, process design, plant operation and manufacturing, marketing, sales, and corporate or government administration.

The program is specially designed to assure all students have demonstrated capabilities in the core chemical engineering topics including material and energy balances, thermodynamics, chemical equilibria, heat, mass and momentum transfer, chemical reaction engineering, continuous and stagewise separation operations, process dynamics, statistics and control. The design experience is interwoven throughout the curriculum from elementary design principles in material and energy balances to the capstone senior process design and process control sequence employing advanced computer process and control simulators and experimental control systems.

The curriculum is specifically designed to enable graduates to model and design chemical and physical processes, design and conduct experiments, analyze and interpret chemical engineering data, and to determine capital and operating costs for chemical and physical processes. The curriculum prepares graduates to understand the need for professional integrity and ethical decision making in the practice of chemical engineering as well as providing an understanding of contemporary issues including business practices, environmental, health, and safety and other public interests. Students are also prepared for graduate study in chemical engineering, medicine, business and law.

Because of the breadth of chemical engineering opportunities, the department offers a number of specially designed program specializations that provide unique training and course selection to those students who wish to concentrate in a particular area or

technology. The current program specializations are biochemical engineering, biomedical engineering, computer-aided chemical engineering, environmental chemical engineering, pre-medicine specialization and pulp, paper and bio-resource engineering.

Biochemical Engineering Specialization

Chemical engineers trained in biochemical engineering and biotechnology are the key to successful commercialization of new biologically based processes ranging from high value pharmaceuticals to new food processes. This program specialization provides a strong biology and chemistry fundamental background for graduate work in biochemical engineering and a plan of study to meet these objectives.

Students in this specialization take CHEN 5800 and Biochemical Engineering Technical Electives (9 hours). These courses replace Technical Electives I-IV.

Biomedical Engineering Specialization

This specialization provides the necessary preparation for students wanting to do graduate work in biomedical engineering or work in a career with an emphasis of medical applications of chemical engineering.

Students in this specialization take:

Code	Title	Hours
PHIL 1030	Ethics And The Health Sciences	3
CHEN 5810	Biomedical Engineering	3
or CHEN 5970	Adv Special Tops In Chem Engr	
Biomedical Engineering Technical Electives		9

In the table above CHEN 5970 is listed as Advanced Special Topics in Chemical Engineering, which is the generic title for CHEN 5970. Students in this specialization are required to take either CHEN 5810 Biomedical Engineering or CHEN 5970 with the specific title Cell & Tissue Engineering. These courses replace Technical Electives I-IV and PHIL 1040.

Computer-Aided Chemical Engineering Specialization

Chemical engineers with expertise in the application of advanced computer-aided tools in areas like process systems engineering, process control, and advanced process technology are highly sought after by all process industries. The program specialization provides appropriate courses for an individual with interests in advanced use of computers for solving chemical and biological engineering problems.

Students in this specialization take Computer-Aided Chemical Engineering Technical Electives (12 hours). These courses replace Technical Electives I-IV.

Environmental Chemical Engineering Specialization

The environmental specialization in chemical engineering prepares students for careers in the expanding environmental arena. Students specializing in this area learn about the chemical processes and reactions that affect the environment, pollution prevention, the latest standards for air, water and land quality, as well as hazardous materials management. This specialization prepares students for environmental positions in a broad range of manufacturing and service industries all of which must comply with increasingly complex environmental standards, and in various state and federal agencies.

Students in this specialization take Environmental Chemical Engineering Technical Electives (12 hours). These courses replace Technical Electives I-IV.

Pre-Medicine Specialization

This specialization provides the necessary preparation for students wanting to go to medical school. A Pre-Med series of courses, when completed, provides a chemical engineering degree while simultaneously meeting medical school requirements.

Students in this specialization take:

Code	Title	Hours
PHIL 1030	Ethics And The Health Sciences	3
CHEM 2081	Organic Chemistry II Lab	1
BCHE 5180	Biochemistry I	3
CHEN 5810	Biomedical Engineering	3

or CHEN 5970	Adv Special Tops In Chem Engr	
Pre-Medicine Technical Electives		5

In the table above CHEN 5970 is listed as Advanced Special Topics in Chemical Engineering, which is the generic title for CHEN 5970. Students in this specialization are required to take either CHEN 5810 Biomedical Engineering or CHEN 5970 with the specific title Cell & Tissue Engineering. These courses replace Technical Electives I-IV and PHIL 1040. Students in this program specialization who are interested in medical school must also work with the director for Pre-Health Professions in the College of Science and Mathematics.

Pulp, Paper and Bio-Resource Engineering Specialization

This specialization prepares students for challenging and rewarding careers in the pulp, paper and bio-resource industries. These industries are unique in being capable of sustainable development with a renewable raw material base, recyclable products, and processing technology able to achieve energy self-sufficiency and environmental compatibility. This specialization prepares students for a broad range of career paths in process engineering, product development, biotechnology and sustainable engineering.

Students in this specialization take:

Code	Title	Hours
CHEM 2081	Organic Chemistry II Lab	1
CHEN 4100	Pulp And Paper Processing Lab	2
CHEN 5090	Pulp and Paper Technology	3
CHEN 5110	Pulp And Paper Engineering	3
CHEN 5800	Biochemical Engineering	3

These courses replace Technical Electives I-IV.

Majors

- Chemical Engineering (p. 649)

Undergraduate Certificates

- Pulp, Paper, and Bio-Resources Engineering (p. 649)

Courses

CHEN 1000 CONCEPTS OF CHEMICAL ENGINEERING: THE DESIGN OF COFFEE (3) LEC. 2. LAB. 2. This course is an introduction to chemical engineering concepts and approaches to innovation and problem solving. Qualitative overviews are presented for principles and practices of engineering analysis and design, with corresponding hands-on laboratories applying the concepts to processes for roasting and brewing coffee. The course is intended as a free elective for all majors.

CHEN 1007 HONORS CONCEPTS OF CHEMICAL ENGINEERING: THE DESIGN OF COFFEE (3) LEC. 2. LAB. 2. Pr. Honors College. This course is an introduction to chemical engineering concepts and approaches to innovation and problem solving. Qualitative overviews are presented for principles and practices of engineering analysis and design, with corresponding hands-on laboratories applying the concepts to processes for roasting and brewing coffee. The course is intended as a free elective for all majors.

CHEN 2100 PRINCIPLES OF CHEMICAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. (CHEM 1110 or CHEM 1117 or CHEM 1030 or CHEM 1033) and (MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1600 or PHYS 1607) and (P/C CHEM 1120 or P/C CHEM 1127 or P/C CHEM 1040 or P/C CHEM 1043). Application of multicomponent material and energy balances to chemical processes involving phase changes and chemical reactions.

CHEN 2110 CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3. Pr. CHEN 2100 and (P/C PHYS 1600 or P/C PHYS 1607) and (P/C MATH 2630 or P/C MATH 2633 or P/C MATH 2637) and (P/C CHEN 2650). This course is intended to comprehensively introduce the thermodynamics of single- and multi-phase, pure systems, including the first and second laws of thermodynamics, equations of state, simple processes and cycles, and their applications in chemical engineering. CHEN 2100 requires a grade of C or better.

CHEN 2610 TRANSPORT I (3) LEC. 3. Pr. (PHYS 1600 or PHYS 1607) and CHEN 2100 and P/C MATH 2650 and P/C CHEN 2110. CHEN 2100 requires a grade of C or better. Introduction to fluid statics and dynamics; dimensional analysis; compressible and incompressible flows; design of flow systems, introduction to fluid solids transport including fluidization, flow through process media and multiphase flows.

CHEN 2650 CHEMICAL ENGINEERING APPLICATIONS OF MATHEMATICAL TECHNIQUES (3) LEC. 3. Pr. CHEN 2100 and (P/C MATH 2630 or P/C MATH 2637) and P/C MATH 2650 and (COMP 1200 or COMP 1220 or COMP 1230). CHEN 2100 requires a grade of C or better. CHEN 2610 and MATH 2650 are Prerequisites with Concurrency. Application of a broad range of mathematical techniques to chemical engineering problems. Emphasis on engineering significance and interpretation of mathematical operations.

CHEN 2AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Pr. CHEN 2100. Progress assessment examination in basic science, general chemistry, physics, basic math principles (geometry, algebra), multivariable calculus, chemical engineering process principles (mass and energy balances). CHEN 2100 requires a grade of C or better. Course may be repeated with change in topics.

CHEN 3370 PHASE AND REACTION EQUILIBRIA (3) LEC. 3. Pr. (MATH 2630 or MATH 2633 or MATH 2637) and CHEN 2110 and CHEN 2100 and CHEN 2650. Molecular thermodynamics of phase and chemical reaction equilibria including non-ideal thermodynamics and multicomponent applications. ((ENGR 2010 or CHEN 2110) and CHEN 2100 require a grade of C or better.)

CHEN 3600 COMPUTER-AIDED CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. (COMP 1200 or COMP 1220 or COMP 1230) and MATH 2650 and CHEN 2610 and P/C CHEN 2650 and (MATH 2630 or MATH 2637) and CHEN 2110 and CHEN 2100. CHEN 2650 is prerequisite with concurrency. General and structured programming concepts, numerical methods, and introductory probability and statistics concepts. Application to chemical engineering problems involving material and energy balances and transport process, data validation, and analysis. (CHEN 2100 and (CHEN 2110 or ENGR 2010) and CHEN 2610 all require a grade of C or better.)

CHEN 3620 TRANSPORT II (3) LEC. 3. Pr. CHEN 2110 and CHEN 2610 and MATH 2650 and P/C CHEN 2650. Fundamentals and applications of heat and mass transfer in chemical processes including conduction, convection, and radiation, heat exchange, evaporation, chemical reaction gas absorption, drying and humidification. ((ENGR 2010 or CHEN 2110) and CHEN 2610 require a grade of C or better.)

CHEN 3650 CHEMICAL ENGINEERING ANALYSIS (3) LEC. 2. LAB. 3. Pr. CHEN 2650 and CHEN 3600 and CHEN 3620 and CHEN 2AA0 and MATH 2650 and P/C CHEN 3700. CHEN 2650, CHEN 3600 and CHEN 3620 all require a grade of C or better. Mathematical modeling, analytical, numerical and statistical analysis of chemical processes.

CHEN 3660 CHEMICAL ENGINEERING SEPARATIONS (3) LEC. 3. Pr. CHEN 2100 and CHEN 3370 and CHEN 3620. Separations processes including distillation, extraction, membrane separation, and other separation operations. (CHEN 3370, CHEN 3600, and CHEN 3620 all require a grade of C or better.)

CHEN 3700 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. MATH 2650 and CHEN 2610 and CHEN 2110 and P/C CHEN 3620 and P/C CHEN 3600. Design of chemical reactors with homogeneous reaction systems. CHEN 2610 and (ENGR 2010 or CHEN 2110) require a grade of C or better.

CHEN 3820 CHEMICAL ENGINEERING LABORATORY I (2) LEC. 1. LAB. 3. Pr. CHEN 3600 and CHEN 3620 and MATH 2650. Experimental study of chemical thermodynamics, heat and momentum transfer with analytical, numerical, and statistical analysis. CHEN 3600 and CHEN 3620 require a grade of C or better.

CHEN 3AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr. CHEN 2AA0 and P/C CHEN 3370 and P/C CHEN 3650 and P/C CHEN 3700 and P/C CHEN 3660 and CHEN 2650. Progress assessment examination in thermodynamics, linear differential equations, organic chemistry, transport phenomena (fluid mechanics, heat, mass transfer), phase and reaction equilibria, reaction engineering, design and conduction of experiments, analysis and interpretation of data, professional, ethical, societal and contemporary issues. CHEN 2650 requires a grade of C or better. Course may be repeated with change in topics.

CHEN 4100 PULP AND PAPER PROCESSING LABORATORY (2) LAB. 6. Pr. CHEN 5090 or Departmental approval. Experimental study of pulping and papermaking operations.

CHEN 4170 DIGITAL PROCESS CONTROL (3) LEC. 3. Pr. (CHEN 3650 or CHEN 3653) and CHEN 3600 and CHEN 3660. Introduction of basic concepts and principles for control system. Analysis of open loop and closed-loop processes using transfer functions. CHEN 3600, CHEN 3650, and CHEN 3660 all require a grade of C or better.

CHEN 4450 PROCESS ECONOMICS AND SAFETY (3) LEC. 2. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and (CHEN 3650 or CHEN 3653) and CHEN 3660 and CHEN 3700 and CHEN 3600. Fundamentals and applications of process economics and design, computer-aided cost estimation, profitability analysis and process improvement. Application of chemical process safety, risk assessment and management, hazard and operability analysis, chemical engineering principles for risk reduction. (CHEN 3370, CHEN 3600, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4460 PROCESS SIMULATION SYNTHESIS AND OPTIMIZATION (2) LEC. 1. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and CHEN 3650 and CHEN 3660 and CHEN 3700 and CHEN 3600. Fundamentals of computer-aided simulation and synthesis. Process integration and optimization principles including their applications in design, retrofitting and operation of chemical processes. (CHEN 3370, CHEN 3600, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4470 PROCESS DESIGN PRACTICE (3) LEC. 2. LAB. 3. Pr. CHEN 3AA0 and CHEN 4450 and CHEN 4460 and CHEN 3650 and CHEN 3660 and CHEN 3700 and PHYS 1610. Flow sheet simulation and techno-economic analysis applied to complex, open-ended chemical processes. Screening of alternatives and economic optimizations. Capstone design course. CHEN 3650, CHEN 3660, and CHEN 3700 all require a grade of C or better.

CHEN 4860 CHEMICAL ENGINEERING LABORATORY II (2) LEC. 1. LAB. 3. Pr. CHEN 3660 and CHEN 3820 and P/C CHEN 3700 and CHEN 3650 and P/C CHEN 4170 and PHYS 1610. Experimental study of mass transfer, separations and reaction engineering. Emphasis is on open-ended laboratory projects with electronic instrumentation; experimental design with numerical and statistical analysis of data. CHEN 3650 requires a grade of C or better.

CHEN 4970 SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-10) AAB. Departmental approval. Topical courses in special areas. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 10 credit hours.

CHEN 4980 UNDERGRADUATE RESEARCH (1-3) IND. Pr. 3.00 GPA. Departmental approval. GPA of 3.0 or higher and junior standing. Individual and small group projects. Topic must be arranged with instructor during preregistration. Research Report. Course may be repeated for a maximum of 3 credit hours.

CHEN 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

CHEN 5090 PULP AND PAPER TECHNOLOGY (3) LEC. 3. Pr. (ENGR 2010 or CHEN 2110) and (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and MATH 2650. An introductory course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.

CHEN 5110 PULP AND PAPER ENGINEERING (3) LEC. 3. Pr. CHEN 3620 and CHEN 3700 and P/C CHEN 4450. Chemical and engineering principles in the manufacturing of pulp and paper. (CHEN 3620 and CHEN 3700 require a grade of C or better.)

CHEN 5120 SURFACE AND COLLOID SCIENCE (3) LEC. 3. Pr. CHEN 3620 and CHEN 4100. Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits. (CHEN 3620 and CHEN 4100 require a grade of C or better).

CHEN 5130 INTEGRATED BIOREFINERIES (3) LEC. 3. Pr. CHEN 5090 or CHEN 6090. Departmental approval. Chemical and engineering principles in biomass conversion processes with emphasis on producing value-added materials and chemicals. By the end of the semester students should understand the principles and reasoning behind emerging biorefinery processes integrated to the pulp and paper manufacturing.

CHEN 5410 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reputation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers. (CHEN 3370 requires a grade of C or better.)

CHEN 5420 POLYMER CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 2070 or CHEM 2077) and CHEN 3620 and CHEN 5410. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing. (CHEN 3620 and CHEN 5410 require a grade of C or better).

CHEN 5430 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3. Pr., Departmental Approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.

CHEN 5660 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Departmental approval. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials.

CHEN 5800 BIOCHEMICAL ENGINEERING (3) LEC. 3. Pr. P/C CHEN 3700. Bioreactor design. Analysis of enzyme and microbial processes. (CHEN 3700 requires a grade of C or better).

CHEN 5810 BIOMEDICAL ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and P/C CHEN 3620. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 5970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 6090 PULP AND PAPER TECHNOLOGY (3) LEC. 3. An introductory graduate level course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.CHEN Department Approval and Alabama Center for Paper and Bioresource Engineering Director approval.

CHEN 6110 PULP AND PAPER ENGINEERING (3) LEC. 3. Chemical and engineering principles in the manufacturing of pulp and paper.

CHEN 6130 INTEGRATED BIOREFINERIES (3) LEC. 3. Pr. CHEN 5090 or CHEN 6090. Departmental approval. Chemical and engineering principles in biomass conversion processes with emphasis on producing value-added materials and chemicals. By the end of the semester students should understand the principles and reasoning behind emerging biorefinery processes integrated to the pulp and paper manufacturing.

CHEN 6410 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reptation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers.

CHEN 6660 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials. Or departmental approval. May count either CHEN 6660 or CHEN 6666.

CHEN 6800 BIOCHEMICAL ENGINEERING (3) LEC. 3. Bioreactor design. Analysis of enzyme and microbial processes.

CHEN 6810 BIOMEDICAL ENGINEERING (3) LEC. 3. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy, and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 6970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) DSL. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 7100 TRANSPORT PHENOMENA (3) LEC. 3. Principles of heat, mass and momentum transport in application of intermediate complexity. Mathematical analysis of transport problems.

CHEN 7110 CHEMICAL ENGINEERING ANALYSIS AND ADVANCED TRANSPORT PHENOMENA (3) LEC. 3. Pr. CHEN 7100 or CHEN 7106. Analytical solutions of ordinary and partial differential equations pertaining to transport phenomena and other areas of chemical engineering.

CHEN 7200 CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3. Chemical reaction and phase equilibrium applied to chemical engineering problems. Properties of multicomponent real gases, liquids, and solids and property relationships. Criteria for thermodynamic equilibrium and stability, molecular thermodynamics.

CHEN 7250 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. P/C CHEN 7100 or P/C CHEN 7106. Analysis and design of homogeneous and heterogeneous chemical reactors. Physicochemical factors and analysis of non-ideal chemical reactor behavior.

CHEN 7900 INDEPENDENT STUDY (1-10) DSL/IND. SU. Departmental approval. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 20 credit hours.

CHEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Seminar. Course may be repeated for a maximum of 12 credit hours.

CHEN 7970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) DSL. Departmental approval. Topical courses for graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 12 credit hours.

CHEN 7990 RESEARCH AND THESIS (1-20) MST. Credit hours to be arranged. Course may be repeated with change in topics.

CHEN 8990 RESEARCH AND DISSERTATION (1-20) DSR. Credit hours to be arranged. Course may be repeated with change in topics.

Certificate in Pulp, Paper, and Bio-Resources Engineering

Code	Title	Hours
Required Courses: 9 Hours		
CHEM 2081	Organic Chemistry II Laboratory *	1
CHEN 4100	Pulp and Paper Processing Laboratory	2
CHEN 5090	Pulp and Paper Technology	3
CHEN 5110	Pulp and Paper Engineering	3
Choose one of the following: 3 Hours		
CHEN 5130	Integrated Biorefineries	3
CHEN 5800	Biochemical Engineering	3
Total Hours		**12**

* CHEM 2070, CHEM 2071, & CHEM 2080 are required to take CHEM 2081.

Chemical Engineering (CHEN)

Freshman

Fall	Hours	Spring	Hours
CHEM 1110 General Chemistry I	3	CHEM 1120 General Chemistry for Scientists and Engineers II	3
CHEM 1111 General Chemistry I Laboratory	1	CHEM 1121 General Chemistry II Laboratory	1
ENGL 1100 English Composition I	3	COMP 1230 Introduction to Computing with MATLAB	2
ENGR 1110 Introduction to Engineering	2	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	ENGR 1100 Engineering Orientation	0
Core History [1]	3	MATH 1620 Calculus II	4
		PHYS 1600 Engineering Physics I	4
	16		**17**

Sophomore

Fall	Hours	Spring	Hours
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory	4	CHEM 2070 Organic Chemistry I	3
CHEN 2100 Principles of Chemical Engineering	**4**	CHEM 2071 Organic Chemistry I Laboratory	1
MATH 2630 Calculus III	4	**CHEN 2AA0 Chemical Engineering Progress Assessment I**	**0**
PHYS 1610 Engineering Physics II	4	**CHEN 2610 Transport I**	**3**
		CHEN 2650 Chemical Engineering Applications of Mathematical Techniques	**3**

		MATH 2650 Linear Differential Equations	3
		CHEN 2110 Chemical Engineering Thermodynamics	**3**
	16		**16**

Junior

Fall	Hours	Spring	Hours
CHEM 2080 Organic Chemistry II	3	**CHEN 3AA0 Chemical Engineering Progress Assessment II**	**0**
CHEN 3370 Phase and Reaction Equilibria	**3**	**CHEN 3650 Chemical Engineering Analysis**	**3**
CHEN 3600 Computer-Aided Chemical Engineering	**3**	**CHEN 3660 Chemical Engineering Separations**	**3**
CHEN 3620 Transport II	**3**	**CHEN 3700 Chemical Reaction Engineering**	**3**
Core Social Science [1]	3	**CHEN 3820 Chemical Engineering Laboratory I**	**2**
		CHEN Technical Elective I	**3**
		PHIL 1040 Business Ethics	3
	15		**17**

Senior

Fall	Hours	Spring	Hours
CHEN 4170 Digital Process Control	**3**	**CHEN 4470 Process Design Practice**	**3**
CHEN 4450 Process Economics and Safety	**3**	**CHEN Technical Elective 3 or ROTC**	**3**
CHEN 4460 Process Simulation Synthesis and Optimization	**2**	**CHEN Technical Elective 4 or ROTC**	**3**
CHEN 4860 Chemical Engineering Laboratory II	**2**	Core Fine Arts	3
CHEN Technical Elective II	**3**	Core Social Science[1]	3
Core Literature	3	UNIV 4AA0 Achieve the Creed	0
	16		**15**

Total Hours: 128

[1] The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the disciple specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

Electives, Technical Electives: See adviser for approved course listing. At least three (3) hours of Technical Electives must be coursework considered as Engineering Topics.

CHEM 1110, 1111, 1120 and 1121 are preferred, but CHEM 1030, 1031, 1040 and 1041 are acceptable substitutes. Honors sections of all courses will be accepted for this curriculum.

Department of Civil and Environmental Engineering

- Functioned as efficient, reliable team members in the evaluation, planning and design, construction, or operation and maintenance of civil infrastructure systems,
- Demonstrated their belief in lifelong education by expanding their body of knowledge, maturing professionally, and progressing toward licensure as professional engineers,
- Assumed leadership roles in their workplace by exercising initiative and responsible stewardship, and
- Employed the human touch in engaged involvement in their professions and communities.

Civil Engineering Specializations

Civil engineering is a broad field of study. All students that pursue the *Bachelor of Civil Engineering* degree are required to take introductory courses in surveying, construction engineering, geotechnical engineering, environmental engineering, hydraulics, structural analysis, transportation engineering, and civil engineering materials. Beyond these courses, students satisfy curriculum requirements by selecting elective courses to broaden their civil engineering knowledge while strengthening their understanding in specific areas.

Students may choose to focus on one of the following specializations:

- Construction Engineering
- Environmental Engineering
- Geotechnical Engineering
- Pavements and Materials Engineering
- Site Engineering and Land Development
- Structural Engineering
- Transportation Engineering
- Water Resources Engineering

Construction Engineering Specialization

Construction engineers plan, oversee, and manage the construction efforts associated with building new or rehabilitating existing buildings, bridges, roads, and other facilities. The *Construction Engineering* specialization provides future construction engineers and managers with the ability to manage construction projects. It also develops the ability to collaborate with other civil engineering professionals to solve problems associated with projects and understand the engineering science to effectively implement the solutions. This specialization provides a strong fundamental background for graduate study in construction engineering and project management.

Students in this specialization take:

Code	Title	Hours
CIVL 4420	Project Management	3
CIVL Breadth Elective (see list below)		3
CIVL Breadth Elective (see list below)		3
CIVL 4490	Design-Build Project	3
Construction Engineering Elective I (see list below)		3
Construction Engineering Elective II (see list below)		3

These six courses serve as Breadth Electives I–III, the Senior Design Project, and Technical Electives I–II in the *Bachelor of Civil Engineering* curriculum requirements.

CIVL Breadth Electives for Construction Engineering (select two)

Code	Title	Hours
CIVL 4310	Geotechnical Engineering II	3
CIVL 4600	Reinforced Concrete Design	3
CIVL 5810	Pavement Des And Construction	3

Construction Engineering Electives I (select one)

Code	Title	Hours
CIVL 5430	Construction Safety	3
CIVL 5440	Const Equipment And Methods	3
CIVL 5460	Project Estimating	3

Construction Engineering Electives II (select one)

Code	Title	Hours
CIVL 5420	Const Proj Scheduling & Contro	3
CIVL 5430	Construction Safety	3
CIVL 5440	Const Equipment And Methods	3
CIVL 5450	Erosion & Sediment Control	3

CIVL 5460	Project Estimating	3
CIVL 5480	Legal Aspects of CE Practice	3
CIVL 5690	Timber Design	3

Environmental Engineering Specialization

Environmental engineers apply scientific and engineering principles to assess, manage, and design sustainable environmental systems for the protection of human and ecological health. The *Environmental Engineering* specialization prepares students for entry-level positions in this area, including water and wastewater treatment, and provides a fundamental background for graduate study.

Students in this specialization take:

Code	Title	Hours
CIVL 4210	Water and Wastewater	3
CIVL 5120	Hydrologic Analyis & Modeling	3
CIVL Breadth Elective (see list below)		3
CIVL 4220	Enviro Engineering Design	3
Environmental Engineering Elective I (see list below)		3
Environmental Engineering Elective II		3

These six courses serve as Breadth Electives I–III, the Senior Design Project, and Technical Electives I–II in the *Bachelor of Civil Engineering* curriculum requirements.

CIVL Breadth Electives for Environmental Engineering (select one)

Code	Title	Hours
CIVL 4310	Geotechnical Engineering II	3
CIVL 4420	Project Management	3
CIVL 5810	Pavement Des And Construction	3
CIVL 4600	Reinforced Concrete Design	3
CIVL 4650	Structural Steel Design	3
CIVL 4530	Geometric Design	3

Environmental Engineering Electives (select two)

Code	Title	Hours
CIVL 4230	Urban Hydraulic System Design	3
CIVL 5110	Open Channel Hydraulics	3
CIVL 5130	Hydr Design Press Systems	3
CIVL 5150	Groundwater Hydraulics	3
CIVL 5160	Stormwater Mngmt & Modeling	3
CIVL 5170	Num. Sol. Hydro-Env. Applic.	3
CIVL 5210	Chemical Prin Of Enviro Engr	3
CIVL 5230	Enviro Health Engineering	3
CIVL 5240	Air Pollution	3
CIVL 5250	Bio Prin Of Enviro Engr	3
CIVL 5260	Surface Water Quality Modeling	3
CIVL 5330	Landfills	3
CIVL 5410	Gis In Civil Engineering	3

Geotechnical Engineering Specialization

Geotechnical engineers deal with the analysis, design, and construction of earth and earth-supported structures. Geotechnical engineers work on foundations, dams, levees, landfills, landslides, and roadways. The *Geotechnical Engineering* specialization provides a strong fundamental background for graduate study in geotechnical engineering while preparing students for entry-level positions in this area. Geotechnical engineers may also work in the area of geoenvironmental engineering, which focuses on application

of geotechnical and geological principles to problems related to the protection of human health and the environment. Students interested in geoenvironmental engineering should consult with a geotechnical faculty member to identify appropriate courses.

Students in this specialization take:

Code	Title	Hours
CIVL 4310	Geotechnical Engineering II	3
CIVL 5810	Pavement Des And Construction	3
CIVL 4600	Reinforced Concrete Design	3
CIVL 4690	Structural Design Project	3
Geotechnical Engineering Elective I (see list below)		3
Geotechnical Engineering Elective II		3

These six courses serve as Breadth Electives I–III, the Senior Design Project, and Technical Electives I–II in the *Bachelor of Civil Engineering* curriculum requirements.

Geotechnical Engineering Electives (select two)

Code	Title	Hours
CIVL 5150	Groundwater Hydraulics	3
CIVL 5330	Landfills	3
CIVL 5340	Geosynthetics & Soil Improveme	3
CIVL 5350	Earth Retaining Structures	3

Pavements & Materials Engineering Specialization

Pavements and materials engineers design, build, and maintain pavement infrastructure for highways, airports, parking lots, and port facilities. This includes design and characterization of the constituent materials, pavement construction, integration and application of materials in engineered pavement structures, and management of pavement infrastructure. The *Pavements & Materials* specialization prepares students for entry-level positions in this area and provides a strong fundamental background for graduate study in pavements and materials.

Students in this specialization take:

Code	Title	Hours
CIVL 4310	Geotechnical Engineering II	3
CIVL 4530	Geometric Design	3
CIVL 5810	Pavement Des And Construction	3
CIVL 4590	Transportation Design Project	3
Pavements & Materials Elective I (see list below)		3
Pavements & Materials Elective II		3

These six courses serve as Breadth Electives I–III, the Senior Design Project, and Technical Electives I–II in the *Bachelor of Civil Engineering* curriculum requirements.

Pavements & Materials Engineering Electives (select two)

Code	Title	Hours
CIVL 4420	Project Management	3
CIVL 5340	Geosynthetics & Soil Improveme	3
CIVL 5630	Advanced Concrete Materials	3
CIVL 5820	Design of Asphalt Paving	3

Site Engineering and Land Development Specialization

This specialization addresses site planning and land development for a variety of settings: commercial, industrial, municipal, recreational, and residential. Site design engineers apply geometric, hydraulic, hydrologic, materials, and transportation principles to address roadways, parking, stormwater management, sanitary sewage, grading/earthwork, utilities, and erosion and sediment control when developing land for client/public use. The *Site Engineering and Land Development* specialization prepares students for entry-level positions in this area while providing a foundation for graduate study.

Students in this specialization take:

Code	Title	Hours
CIVL 4230	Urban Hydraulic System Design	3
CIVL 4530	Geometric Design	3
CIVL 4420	Project Management	3
CIVL 4590	Transportation Design Project	3
BSEN 5560	Site Design for Biosystems	3
Site Engineering and Land Development Elective (see list below)		3

These six courses serve as Breadth Electives I–III, the Senior Design Project, and Technical Electives I–II in the *Bachelor of Civil Engineering* curriculum requirements.

Site Engineering and Land Development Electives

Code	Title	Hours
CIVL 5120	Hydrologic Analyis & Modeling	3
CIVL 5130	Hydr Design Press Systems	3
CIVL 5150	Groundwater Hydraulics	3
CIVL 5160	Stormwater Mngmt & Modeling	3
CIVL 5410	Gis In Civil Engineering	3
CIVL 5450	Erosion & Sediment Control	3
CIVL 5460	Project Estimating	3
CIVL 5480	Legal Aspects of CE Practice	3
CIVL 5810	Pavement Des And Construction	3

Structural Engineering Specialization

Structural engineers design new structures—such as buildings, bridges, and stadiums—to withstand loads and natural hazards. They also evaluate and improve the capabilities of existing structures. The *Structural Engineering* specialization provides a strong fundamental background for graduate study in structural engineering while preparing students for entry-level positions in this area.

Students in this specialization take:

Code	Title	Hours
CIVL 4600	Reinforced Concrete Design	3
CIVL 4310	Geotechnical Engineering II	3
CIVL 4420	Project Management	3
CIVL 4690	Structural Design Project	3
CIVL 4650	Structural Steel Design	3
Structural Engineering Elective		3

These six courses serve as Breadth Electives I–III, the Senior Design Project, and Technical Electives I–II in the *Bachelor of Civil Engineering* curriculum requirements.

Structural Engineering Electives

Code	Title	Hours
CIVL 5600	Adv Reinforced Concrete Design	3
CIVL 5620	Prestressed Concrete Design	3
CIVL 5630	Advanced Concrete Materials	3
CIVL 5640	Structural Masonry Design	3
CIVL 5650	Advanced Steel Design	3
CIVL 5660	Bridge Engineering	3
CIVL 5670	Advanced Structural Analysis	3
CIVL 5690	Timber Design	3
CIVL 5700	Design For Lateral Loads	3

CIVL 5710	Structural Repair	3
CIVL 5720	Reliability of Structures	3

Transportation Engineering Specialization

Transportation engineers forecast, design, analyze, and manage transportation systems to support the safe, efficient, and environmentally-friendly movement of people and materials. The *Transportation Engineering* specialization incorporates mathematical and scientific principles that allow graduates to pursue careers in general transportation network design and planning, facilities planning, site evaluation, transportation management systems, needs projections and analysis, and analysis of costs. This specialization provides a strong fundamental background for graduate study in transportation engineering.

Students in this specialization take:

Code	Title	Hours
CIVL 4530	Geometric Design	3
CIVL 4420	Project Management	3
CIVL 5810	Pavement Des And Construction	3
CIVL 4590	Transportation Design Project	3
Transportation Engineering Elective I (see list below)		3
Transportation Engineering Elective II		3

These six courses serve as Breadth Electives I–III, the Senior Design Project, and Technical Electives I–II in the *Bachelor of Civil Engineering* curriculum requirements.

Transportation Engineering Electives (select two)

Code	Title	Hours
CIVL 4500	Traffic Engr Fundamentals	3
CIVL 4520	Airport Design	3
CIVL 5410	Gis In Civil Engineering	3
CIVL 5500	Traffic Engineering Analysis	3
CIVL 5560	Multimodal Transport Planning	3
CIVL 5580	Intelligent Transport Sys	3
CIVL 5420	Const Proj Scheduling & Contro	3

Water Resources Engineering Specialization

Water resources engineers design, evaluate, maintain, and operate the water systems in natural and built environments. Applying mathematical and scientific principles, water resources engineers conceive and design new water infrastructure for collecting, storing, moving, conserving, and controlling surface water, pressurized water, and groundwater. This includes water quality control, water cycle management, management of human and industrial water requirements, water delivery, and flood control. The Water Resources Engineering specialization provides a strong fundamental background for graduate study in water resources engineering while preparing students for entry-level positions in this area.

Students in this specialization take:

Code	Title	Hours
CIVL 5110	Open Channel Hydraulics	3
CIVL 4230	Urban Hydraulic System Design	3
CIVL Breadth Elective		3
CIVL 4220	Enviro Engineering Design	3
Water Resources Engineering Elective I (see list below)		3
Water Resources Engineering Elective II		3

These six courses serve as Breadth Electives I–III, the Senior Design Project, and Technical Electives I–II in the *Bachelor of Civil Engineering* curriculum requirements.

CIVL Breadth Electives for Water Resources Engineering (select one)

Code	Title	Hours
CIVL 4310	Geotechnical Engineering II	3
CIVL 4420	Project Management	3
CIVL 5810	Pavement Des And Construction	3
CIVL 4600	Reinforced Concrete Design	3
CIVL 4650	Structural Steel Design	3
CIVL 4530	Geometric Design	3

Water Resources Engineering Electives (select two)

Code	Title	Hours
CIVL 5120	Hydrologic Analyis & Modeling (preferred)	3
CIVL 5150	Groundwater Hydraulics (preferred)	3
or GEOL 5100	Hydrogeology	
CIVL 5130	Hydr Design Press Systems	3
CIVL 5160	Stormwater Mngmt & Modeling	3
CIVL 5170	Num. Sol. Hydro-Env. Applic.	3
CIVL 5260	Surface Water Quality Modeling	3
CIVL 5410	Gis In Civil Engineering	3
CIVL 5450	Erosion & Sediment Control	3

Majors

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Courses

CIVL 2010 SURVEYING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 1610 or MATH 1613 or MATH 1617) and (COMP 1200 or COMP 1220 or COMP 1230). Civil engineering surveying theory and practice including history of land surveys and U.S. datums; field measurements, office calculations and graphical/digital presentation of spatial data.

CIVL 3010 CIVIL ENGINEERING ANALYSIS (4) LEC. 3. LAB. 3. Pr. MATH 2650 and (COMP 1200 or COMP 1220 or COMP 1230) and (ENGR 2050 or ENGR 2053) and STAT 3010. Applications of calculus and ordinary differential equations, numerical methods, vector algebra, and linear algebraic expressions to practical civil engineering problems. Heavy emphasis on computerized techniques and civil engineering software.

CIVL 3110 HYDRAULICS (4) LEC. 3. LAB. 3. Pr. (ENGR 2010 or ENGR 2200) and MATH 2650 and P/C ENGR 2350 and P/C CIVL 3010. Pr. ENGR 2010 is only allowed for students who transfer into Civil Engineering. Students already enrolled in Civil Engineering should take ENGR 2200. Introduction to fluid mechanics, fluid properties, hydrostatics, kinematics, dynamics, energy equation, ideal flow and energy losses. Applications of fluid mechanics, pipe flow, fluid measurements, pumps, open channel flow, dimensional analysis and theory of modeling.

CIVL 3220 WATER AND WASTE TREATMENT (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and BIOL 3200. Fundamentals of potable water treatment and wastewater treatment and disposal. Treatment systems; operation/ process physics, chemistry, and biology; operation and maintenance issues; regulatory requirements. Credit will not be given to students majoring in Civil Engineering.

CIVL 3230 ENVIRONMENTAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. BSEN 3310 or CIVL 3010 or ENGR 2200 and CHEM 1040 or CHEM 1043. Fundamental principles of environmental engineering, including basic environmental chemistry and microbiology; materials and energy balances; diffusion; chemical equilibrium; kinetics; and chemical reaction engineering.

CIVL 3310 GEOTECHNICAL ENGINEERING I (4) LEC. 3. LAB. 3. Pr. (CHEM 1040 or CHEM 1043) and (ENGR 2070 or ENGR 2077). Soil-forming processes, physical properties of soils, subsurface investigations, clay mineralogy, soil classification, permeability, effective stress, consolidation theory, time-settlement analysis, compaction, shear strength, geosynthetics.

CIVL 3410 CONSTRUCTION ENGINEERING (3) LEC. 3. Pr. CIVL 2010 and P/C CIVL 3010. Basic concepts of the construction industry, contractual methods, estimating and scheduling.

CIVL 3510 TRANSPORTATION ENGINEERING (4) LEC. 4. Pr. CIVL 2010 and STAT 3010. Introduction to transportation engineering practice with emphasis on highway facility design, traffic operations, and life-cycle costing.

CIVL 3610 STRUCTURAL ANALYSIS (4) LEC. 3. LAB. 3. Pr. (ENGR 2070 or ENGR 2077) and P/C CIVL 3010. Basic structural analysis of determinate and indeterminate structures, deflections by moment-area and virtual work, influence lines, force method and moment-distribution methods of analysis.

CIVL 3820 CIVIL ENGINEERING MATERIALS (3) LEC. 2. LAB. 3. Pr. P/C CIVL 3310. Introduction to common materials used in construction of civil facilities including highways; aggregate, concrete, asphalt, and steel.

CIVL 4210 WATER AND WASTEWATER TREATMENT AND DESIGN (3) LEC. 3. Pr. CIVL 3230. Departmental approval. The fundamentals of theory, design, and operation of water and wastewater treatment systems are covered.

CIVL 4211 WATER AND WASTEWATER LABORATORY (1) LAB. 3. Pr. CHEM 1040 and BIOL 3200. Coreq. CIVL 4210. Introduction to analytical techniques used to assess water quality. Credit will not be given to students majoring in Civil Engineering.

CIVL 4220 ENVIRONMENTAL ENGINEERING DESIGN (3) LEC. 3. Pr. CIVL 4210 or CIVL 4230. Process design of environmental engineering systems.

CIVL 4230 URBAN HYDRAULIC SYSTEM DESIGN (3) LEC. 3. Pr. CIVL 3230 and CIVL 3110. Engineering approaches to designing and managing urban water supply, sanitary sewer, storm water collection systems and flood control works.

CIVL 4310 GEOTECHNICAL ENGINEERING II (3) LEC. 3. Pr. CIVL 3310. Analysis and design in geotechnical engineering based on principles of soil mechanics and soil behavior. Problems of slope stability, earth pressure and design of earth retaining structures, foundation bearing capacity and settlement.

CIVL 4420 PROJECT MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Planning and management of construction/engineering projects and organizations, project management techniques, skills, and applications.

CIVL 4490 DESIGN-BUILD PROJECT (3) LEC. 3. Pr. CIVL 4420. Develop a design-build proposal for a civil engineering improvement including engineering study, consideration of alternative designs, and formal written and oral presentation.

CIVL 4500 TRAFFIC ENGINEERING FUNDAMENTALS (3) LEC. 3. Pr. CIVL 3510. The fundamental elements of traffic engineering including traffic operations and traffic control devices.

CIVL 4520 AIRPORT DESIGN (3) LEC. 3. Pr. CIVL 3510. Departmental approval. An analysis of the elements affecting the design of airports including forecasting, runway configuration, capacity analyses, geometric design of runways and taxiways, pavement design and airfield drainage.

CIVL 4530 GEOMETRIC DESIGN (3) LEC. 3. Pr. CIVL 3510. An analysis of the elements affecting the location and design of rural highways, urban highways and arterial streets including design controls and criteria.

CIVL 4590 TRANSPORTATION DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4530. Individual senior design project requiring the development of plans for a roadway over a large land segment: horizontal and vertical curves in accord with State and AASHTO standards; topographic terrain features; historical preservation area; minimum elevation; intersection design; earthwork balance.

CIVL 4600 REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 3610. Concrete and reinforcing steel properties; analysis and design of reinforced concrete beams, one-way slabs, columns and footings; anchorage of reinforcement.

CIVL 4650 STRUCTURAL STEEL DESIGN (3) LEC. 3. Pr. CIVL 3610. Steel properties. Design and analysis of structural steel members in tension, compression, shear, flexure and combined compression and flexure. Bolted and welded connections.

CIVL 4690 STRUCTURAL DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4600. Execution of a comprehensive design of a major structure. Emphasis on the design process, creative thinking, analysis, synthesis, teamwork and communications.

CIVL 4960 SPECIAL PROBLEMS (1-3) LEC. Departmental approval. Individual student endeavor under staff supervision involving advanced special problems in civil engineering. Course may be repeated for a maximum of 6 credit hours.

CIVL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

CIVL 5110 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/ CIVL 6116.

CIVL 5120 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3010. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications. Departmental approval. May count either CIVL 5120 or CIVL 6120.

CIVL 5130 HYDRAULIC DESIGN OF PRESSURIZED SYSTEMS (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 5150 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport. Credit will not be given for both CIVL 5150 and CIVL 6150/CIVL 6156.

CIVL 5160 STORMWATER MANAGEMENT AND MODELING (3) LEC. 3. Pr. CIVL 3110. Introduction of current stormwater management practices (e.g., lower impact development and green infrastructures) and polices, rainfall analysis with different inter-event dry period, flood analysis, stormwater runoff hydrograph modeling (rainfall loss, overland flow hydrograph, unit hydrograph theory, and hydrograph routing), stormwater quality modeling (pollutant buildup, washoff, and transport), peak discharge control using detention ponds, and various best management practices for stormwater volume and quality control. May count either CIVL 5160, CIVL 6160, or CIVL 6166.

CIVL 5170 NUMERICAL SOLUTIONS FOR HYDRO-ENVIRONMENTAL APPLICATIONS (3) LEC. 3. Pr. CIVL 3110 and CIVL 3230. Theoretical and numerical solutions of various problems in water resources and environmental engineering using computational tools. Development of simple codes and spreadsheet-based tools for the description and prediction of flows, contaminant spreading, and other relevant processes in natural and built systems. May count either CIVL 5170 or CIVL 6170/6176.

CIVL 5210 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 5230 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 5240 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling, theory and design of control devices; legal/ administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 5250 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 5260 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment.

CIVL 5330 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 5340 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 5350 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining structures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 5410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.

CIVL 5420 CONSTRUCTION PROJECT SCHEDULING AND CONTROL (3) LEC. 3. Pr. CIVL 3410 and CIVL 4420. Principles related to planning, scheduling and control of civil engineering projects. Deterministic and probabilistic methods of scheduling, resource usage optimization. May count either CIVL 5420 or CIVL 6420.

CIVL 5430 CONSTRUCTION SAFETY AND HEALTH MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies for preventing worksite injuries and illness are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 5440 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 5450 EROSION AND SEDIMENT CONTROL TECHNOLOGIES IN CONSTRUCTION (3) LEC. 3. Pr. CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 5460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 5480 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 5500 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 5510 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants; hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 5560 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations.

CIVL 5580 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Departmental approval. Introduction to intelligent transportation systems, covering applications of information and communication technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Credit will not be given for both CIVL 5580 and CIVL 6580/CIVL 6586.

CIVL 5600 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 5620 PRESTRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable lay-out, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 5630 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials; chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 5640 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 5650 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 5660 BRIDGE ENGINEERING (3) LEC. 3. Pr. CIVL 4600 and CIVL 4650. The modern approach to design, evaluation, and rehabilitation of bridges, including design of abutments, piers, concrete deck slabs, non-composite and composite steel girders, and prestressed concrete girders.

CIVL 5670 ADVANCED STRUCTURAL ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Analysis of continuous beams and frames by slope-deflection method. Analysis of beams, trusses, grids, and frames by direct stiffness method. Buckling of planar frames. Use of structural analysis software. May count either CIVL 5670 or CIVL 6670/CIVL 6676.

CIVL 5690 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 5700 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 5710 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/CIVL 6716.

CIVL 5720 RELIABILITY OF STRUCTURES (3) LEC. 3. Pr. CIVL 4600 or CIVL 4650. Reliability-based methods of structural analysis including review of probability and statistics, reliability analysis methods, development of design codes, load and resistance models, system reliability, and practical applications. May count either CIVL 5720 or CIVL 6720/6726.

CIVL 5810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction, quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 5820 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820 or CIVL 6820.

CIVL 5970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.

CIVL 6110 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/CIVL 6116.

CIVL 6120 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3110. Departmental approval. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications.

CIVL 6130 HYDRAULIC DESIGN OF PRESSURIZED SYSTEMS (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 6150 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport. May count either CIVL 5150 or CIVL 6150/CIVL 6156.

CIVL 6160 STORMWATER MANAGEMENT AND MODELING (3) LEC. 3. Introduction of current stormwater management practices (e.g., lower impact development and green infrastructures) and polices, rainfall analysis with different inter-event dry period, flood analysis, stormwater runoff hydrograph modeling (rainfall loss, overland flow hydrograph, unit hydrograph theory, and hydrograph routing), stormwater quality modeling (pollutant buildup, washoff, and transport), peak discharge control using detention ponds, and various best management practices for stormwater volume and quality control. Approval by the instructor (e.g., undergraduate hydraulics).

CIVL 6170 NUMERICAL SOLUTIONS FOR HYDRO-ENVIRONMENTAL APPLICATIONS (3) LEC. 3. Pr. CIVL 3110 and CIVL 3230. Theoretical and numerical solutions of various problems in water resources and environmental engineering using computational tools. Development of simple codes and spreadsheet-based tools for the description and prediction of flows, contaminant spreading, and other relevant processes in natural and built systems. May count either CIVL 5170 or CIVL 6170/6176.

CIVL 6210 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/ base equibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 6230 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 6240 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling theory and design of control devices; legal/administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 6250 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 6260 SURFACE WATER QUALITY MODELING (3) LEC. 3. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment

CIVL 6330 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 6340 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 6350 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining strictures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 6410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.

CIVL 6420 CONSTRUCTION PROJECT SCHEDULING AND CONTROL (3) LEC. 3. Pr. CIVL 3410 and CIVL 4420. Principles related to planning, scheduling and control of civil engineering projects. Deterministic and probabilistic methods of scheduling, resource usage optimization. May count either CIVL 5420 or CIVL 6420.

CIVL 6430 CONSTRUCTION SAFETY (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies preventing worksite injuries and illnesses are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 6440 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 6450 EROSION AND SEDIMENT CONTROL TECHNOLOGIES IN CONSTRUCTION (3) LEC. 3. Pr. CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 6460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 6480 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 6500 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 6510 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants: hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 6560 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations. Departmental approval. May count either CIVL 5560.

CIVL 6580 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Introduction to intelligent transportation systems, covering applications of information and communications technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Departmental approval. May count either CIVL 5580 or CIVL 6580/CIVL 6586.

CIVL 6600 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 6620 PRESTRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable layout, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 6630 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials, chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 6640 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 6650 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 6660 BRIDGE ENGINEERING (3) LEC. 3. Pr. CIVL 4600 and CIVL 4650. The modern approach to design, evaluation, and rehabilitation of bridges, including design of abutments, piers, concrete deck slabs, non-composite and composite steel girders, and prestressed concrete girders. May count either CIVL 5660 or CIVL 6660/6666

CIVL 6670 ADVANCED STRUCTURAL ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Analysis of continuous beams and frames by slope-deflection method. Analysis of beams, trusses, grids, and frames by direct stiffness method. Buckling of planar frames. Use of structural analysis software. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 6690 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 6700 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 6710 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/CIVL 6716.

CIVL 6720 RELIABILITY OF STRUCTURES (3) LEC. 3. Pr. CIVL 4600 or CIVL 4650. Reliability-based methods of structural analysis including review of probability and statistics, reliability analysis methods, development of design codes, load and resistance models, system reliability, and practical applications. May count either CIVL 5720 or CIVL 6720/6726.

CIVL 6810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 6820 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820, CIVL 6820 or CIVL 6826.

CIVL 6970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Departmental approval. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.

CIVL 7120 HYDROLOGIC MODELING (3) LEC. 3. Pr. (CIVL 6110 or CIVL 6116). Principles and practice of hydrologic modeling, introduction to hydrologic information systems, computer modeling of storm run-off, floodplain hydraulics and bridge hydraulics. Computer applications.

CIVL 7130 SOCIAL-ECOLOGICAL-ENGINEERED SYSTEMS (3) LEC. 3. This course explores foundational scholarship on the Social-Ecological Systems (SES) approach to understanding complex environmental problems with emphasis on the role of engineering in human interactions with natural systems. Students are expected to apply SES concepts and theories to analyses in their own areas of research. Note: This class is intended to be cross-listed with ESSI 7300.

CIVL 7140 ECOHYDROLOGY (3) LEC. 3. Pr. P/C CIVL 6120 or P/C CIVL 6126 or P/C GEOL 6100 or P/C FORY 7550. This course covers current theory, methods, and issues in ecohydrology. Topics include the soil-plant-atmosphere continuum; stochastic modeling of soil moisture; vadose zone hydrology; theory, measurement, and modeling of evapotranspiration; ecological competition in water-limited systems; and current issues and research topics.

CIVL 7170 NUMERICAL METHODS IN HYDRAULICS AND HYDROLOGY (3) LEC. 3. Pr. CIVL 3230. Numerical approximations of ordinary and partial differential equations representing problems common to civil engineering including groundwater flow, soil consolidation, and mass transport. The formulation and computational solution of diffusion and equilibrium problems are emphasized. Computer programming is required.

CIVL 7220 WATER AND WASTEWATER OPERATIONS AND PROCESSES I (3) LEC. 3. Pr. CIVL 3230. Departmental approval. Coreq. CIVL 6210. Physical and chemical principles applied to water and wastewater treatment. Advanced mathematical and modeling concepts.

CIVL 7230 WATER AND WASTEWATER OPERATIONS AND PROCESSES II (3) LEC. 3. Pr. CIVL 7220 or CIVL 7226. Departmental approval. Rigorous analysis of unit operations and processes used in modern water and wastewater treatment systems. Mixing, coagulation, sedimentation, filtration, and chemical precipitation.

CIVL 7250 BIOLOGICAL WASTEWATER TREATMENT (3) LEC. 3. Pr. CIVL 6250 or CIVL 6256. Departmental approval. Development and application of the theories of biological waste treatment.

CIVL 7270 ADVANCED NUMERICAL METHODS FOR SOLVING ENVIRONMENTAL ENGINEERING PROBLEMS (3) LEC. 3. Pr. CIVL 3010. Departmental approval. Basic concepts of finite element (FE) analysis. Development of FE computer codes for solving environmental engineering problems. FE grid generation and visualization methods.

CIVL 7280 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Departmental approval. Physical, chemical, biological and hydrological considerations relating to the degradation and self-purification of streams, lakes, and estuaries. Water uses and water quality goals, objectives and criteria. Principles of water quality modeling and waste load allocation.

CIVL 7310 FOUNDATION ENGINEERING (3) LEC. 3. Pr. CIVL 3310 and CIVL 4600. Analysis, design and construction of shallow and deep foundation systems.

CIVL 7330 SOIL PROPERTIES (3) LEC. 3. Pr. CIVL 3310. Soil behavior, shear strength, compressibility, hydraulic conductivity, and measurement of soil properties.

CIVL 7340 SOIL DYNAMICS (3) LEC. 3. Pr. CIVL 3310. Soil behavior during dynamic loads, wave propagation, dynamically loaded foundations, geotechnical earthquake engineering.

CIVL 7360 EARTH SLOPES AND DAMS (3) LEC. 3. Pr. CIVL 3310. Departmental approval. Engineering design of earth slopes, slope stability, cut slopes, embankments, settlement. Dam siting, stability, flownets, seepage analysis.

CIVL 7390 IN SITU TESTING OF SOILS (3) LEC. 3. Pr. CIVL 4310. In situ tests used in geotechnical engineering: test procedures, interpretation of results, and designing from in situ geotechnical data.

CIVL 7420 CONSTRUCTION ENGINEERING PROJECT PLANNING AND CONTROL (3) LEC. 3. Pr. CIVL 4420. Departmental approval. This course covers the processes needed to develop and use project plans and budgets for construction projects. These tools will be used to create different schedules needed for construction planning and monitoring and be able to adjust a project's projection to maximize performance throughout the project lifecycle. This will include the scheduling methods to predict desired outcomes and performance measures to actively gauge project performance.

CIVL 7440 CONSTRUCTION EQUIPMENT PRODUCTIVITY AND ENGINEERING ECONOMICS (3) LEC. 3. Pr. CIVL 4420. Departmental approval. This course will encompass the methods needed to select, use, and manage the proper construction equipment to accomplish different project tasks. This will include using engineering fundamentals to understand the production and efficiency capabilities of equipment and the economic and scheduling impact this will have on the construction project.

CIVL 7460 PRECONSTRUCTION ENGINEERING PROJECT PLANNING (3) LEC. 3. Pr. CIVL 4420. Departmental approval. Construction success starts with the planning process known commonly as Preconstruction. During this phase potential construction projects are considered, studied, planned, designed, scheduled, and budgeted. Project owners often rely on consultants such as construction managers to help evaluated a project idea, the factors associated with the idea becoming a reality, and overseeing the steps from project idea to project construction. The proposed course provides students with the tools needed to be able to oversee project planning and owner assistance to usher the project to completion.

CIVL 7470 ADVANCED ENGINEERING PROJECT MANAGEMENT (3) LEC. 3. Pr. CIVL 4420. Departmental approval. Construction management requires cutting edge methods to coordinate project activities from project inception through project closeout to meet project needs and maintain competitive balance. Project oversight from pre-construction planning, scheduling, and estimating management require constant management and control while sound decision methods are used for best management methods. The proposed course provides students with the tools needed to be able to meet project requirements and result in successful project completion.

CIVL 7540 TRANSPORTATION SAFETY (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Transportation safety problems and the engineer's role in developing and administering safety programs. Topics include hazardous location identification; analysis of accident data; development and evaluation of accident countermeasures and safety programs.

CIVL 7610 STRUCTURAL DYNAMICS I (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Single-degree-of-freedom systems, numerical solution techniques, response spectrum, multi-degree-of-freedom systems, eigenproblem solution, mode superposition analysis.

CIVL 7630 ADVANCED STRESS ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Hooke's 1-D, 2-D, 3-D stress-strain relations and applications, stress and strain transformations and Mohr's circle, material properties and failure theories, biaxial bending, unsymmetrical bending, composite material members, shear center, torsional stress, stress concentrations, beams on elastic foundations.

CIVL 7640 STABILITY OF STRUCTURES (3) LEC. 3. Coreq. CIVL 6670. Introduction to stability and failure of compression members, rigid bar buckling, elastic and inelastic buckling of columns, approximate methods of buckling analysis, beam-columns, buckling of frames, torsional buckling, lateral torsional buckling of beams.

CIVL 7660 FINITE ELEMENT METHODS IN STRUCTURAL MECHANICS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Introduction to finite element analysis; variational principles. 1D, 2D and 3D element formulation; nonlinear (geometric and constitutive) formulations and solutions; eigenvalue problems.

CIVL 7670 NUMERICAL TECHNIQUES IN STRUCTURAL ANALYSIS (3) LEC. 3. Basic concepts of non-linear analyses, formulation of the continuum mechanics incremental equations, total and updated Lagrangian formulations, finite elements for non-linear analyses, non-linear solution strategies.

CIVL 7680 FATIGUE AND FRACTURE MECHANICS (3) LEC. 3. Pr. CIVL 4650. Departmental approval. Linear-elastic and elastic-plastic fracture mechanics, fatigue, yield criteria, applications to highway structures.

CIVL 7720 EARTHQUAKE ENGINEERING (3) LEC. 3. Pr. (CIVL 7610 or CIVL 7616) and (CIVL 5670 or CIVL 6670 or CIVL 6676). Principles of earthquakes and earthquake engineering; Analysis and design of steel and reinforced concrete buildings for earthquakes. May count either CIVL 7720 or CIVL 7726.

CIVL 7820 ADVANCED PAVEMENT DESIGN AND REHABILITATION (3) LEC. 3. Pr. CIVL 7810 or CIVL 7816. Pavement management concepts, life cycle costs analysis, design and rehabilitation alternatives, serviceability concepts, empirical thickness selection models, reliability.

CIVL 7840 PAVEMENT MANAGEMENT AND REHABILITATION (3) LEC. 3. Pr. CIVL 3820. Departmental approval. Topics include: network and project level management, pavement distress surveys, non-destructive testing for condition measurements, flexible and rigid pavement maintenance and rehabilitation practices.

CIVL 7860 PAVEMENT CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820. Operation, quality control and specifications of component construction processes for asphalt and concrete paving; and overview of major rehabilitation strategies.

CIVL 7870 ADVANCED CHARACTERIZATION OF PAVEMENT MATERIALS (3) LEC. 2. LAB. 3. Pr. CIVL 3820. This course introduces theories and procedures for determining fundamental properties of asphalt materials for advanced material evaluation and pavement design.

CIVL 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CIVL 7970 SPECIAL TOPICS IN CIVIL ENGINEERING (1-3) DSL. Individual student or group endeavor under direct faculty supervision involving special topics of an advanced nature in civil engineering. Course may be repeated for a maximum of 9 credit hours.

CIVL 7980 ENGINEERING PROJECT (1-10) LEC. 1-10. Directed study on an engineering project or research supervised by an individual graduate faculty member. Course may be repeated for a maximum of 10 credit hours.

CIVL 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Credit to be arranged. Course may be repeated for a maximum of 10 credit hours.

CIVL 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Departmental approval. Credit to be arranged. Course may be repeated with change in topics.

Civil Engineering (CIVL)

Freshman

Fall	Hours	Spring	Hours
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
CHEM 1030 Fundamentals Chemistry I	3	PHYS 1600 Engineering Physics I	4
CHEM 1031 Fundamental Chemistry I Laboratory	1	COMP 1220 Introduction to Computing with Python	2
ENGR 1100 Engineering Orientation	0	ENGL 1120 English Composition II	3
ENGR 1110 Introduction to Engineering	2	POLI 1090 American Government in Multicultural World	3
ENGL 1100 English Composition I	3		
HIST 1010 World History I ***or*** 1210 Technology and Civilization I (or HIST 1020 or 1220)[1]	3		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
MATH 2630 Calculus III	4	MATH 2650 Linear Differential Equations	3
PHYS 1610 Engineering Physics II	4	CHEM 1040 Fundamental Chemistry II	3
ENGR 2050 Statics	3	ENGR 2070 Mechanics of Materials	3

CIVL 2010 Surveying		**3**	ENGR 2200 Introduction To Thermodynamics, Fluids And Heat Transfer	3
STAT 3010 Statistics for Engineers and Scientists		3	ENGR 2350 Dynamics	3
			Core Literature[1]	3
		17		**18**

Junior

Fall	**Hours**		**Spring**	**Hours**	
CIVL 3010 Civil Engineering Analysis		**4**	**CIVL 3110 Hydraulics**		**4**
CIVL 3310 Geotechnical Engineering I		**4**	**CIVL 3230 Environmental Engineering**		**4**
CIVL 3410 Construction Engineering		**3**	**CIVL 3510 Transportation Engineering**		**4**
CIVL 3610 Structural Analysis		**4**	**CIVL 3820 Civil Engineering Materials**		**3**
		15			**15**

Senior

Fall	**Hours**		**Spring**	**Hours**	
PHIL 1040 Business Ethics ***or*** 1110 Ethical and Conceptual Foundations of Science		3	Core Fine Arts		3
Science Elective[2]		4	Core History/Social Science[1]		3
Breadth Elective I[2]		**3**	**Breadth Elective III[2]**		**3**
Breadth Elective II[2]		**3**	**Technical Elective II[2]**		**3**
Technical Elective I[2]		**3**	**Senior Design Project[2]**		**3**
			UNIV 4AA0 Achieve the Creed		0
		16			**15**

Total Hours: 128

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline-specific requirements for the Humanities courses, it is recommended that a History sequence be completed.

2 Breadth electives, technical electives, the science elective, and the senior design project must be selected from lists of approved courses available from the Department of Civil and Environmental Engineering. Each student must take a breadth elective in at least three of seven specialty areas: construction, environmental, geotechnical, pavements and materials, structural, transportation, and water resources engineering.

Department of Computer Science and Software Engineering

Software Engineering

The focus of the software engineering curriculum, which leads to the Bachelor of Software Engineering, is on software design and construction, requirements analysis, security, verification, and validation, as well as software engineering processes and tools appropriate for the development of complex software systems. The degree program prepares students for professional careers and graduate study with a balance of computer science theory and practical application of software engineering methodology. The curriculum is based on a strong core of computing topics and also enriches each student's general education with a range of courses from science, mathematics, the humanities and the social sciences. Through advanced elective courses, the curriculum allows students to specialize in core areas of computer science and software engineering. Engineering design theory and methodology, as they apply to software systems, form an integral part of the curriculum, beginning with the first course in computing and culminating with a comprehensive senior design project, which gives students the opportunity to work in one or more significant application domains. The curriculum also emphasizes oral and written communication skills, the importance of ethical behavior, and the need for continual, life-long learning. The overall educational objectives of the Software Engineering program are for graduates of the program to attain success in their chosen profession and/or post-undergraduate studies.

The undergraduate Software Engineering program is accredited by the Engineering Accreditation Commission of ABET (https://www.abet.org/).

Computer Science

The computer science curriculum, which leads to the bachelor of science in computer science degree, provides an excellent preparation for students seeking careers as software professionals and in computing-related fields, as well for those planning to pursue graduate study. The curriculum builds on a strong foundation in science, mathematics, social sciences, humanities and computer science with advanced course work in theoretical computer science, database systems, and computer networks. Course work ensures that students receive hands-on exposure to a variety of computer systems, tools and techniques. Elective courses allow students to specialize in areas of computer science such as cybersecurity, and artificial intelligence. The curriculum also emphasizes oral and written communication skills, the importance of ethical behavior, and the need for continual, lifelong learning. The overall educational objectives of the Computer Science program are for graduates of the program to attain success in their chosen profession and/or post-undergraduate studies.

The undergraduate Computer Science program is accredited by the Computing Accreditation Commission of ABET (https://www.abet.org/).

Computer Science (online)

The Bachelor of Computer Science (CPSC) program prepares students for careers as software professionals and in computing-related fields via an entirely online distance-education-based curriculum. The curriculum builds on a foundation of science, mathematics, social science, and humanities. It provides basic coursework in computer software development and theoretical foundations of computer science. This is followed by advanced coursework in computer systems, software engineering, and applications development, including web software design, database, and mobile applications development (such as smartphone and tablet software). The curriculum is rounded out by advanced electives in areas such as wireless and mobile networks, parallel computing, computer architecture, and formal languages.

The program can be completed in two ways: (1) as a second bachelor's degree, requiring only the 60 hours of **CPSC content** outlined in the curriculum model, or (2) as a first bachelor's degree, by completing the **other requirements** outlined in the curriculum model in addition to the CPSC content. These other requirements can be completed either by transfer credit or by completing the relevant Auburn University courses either online (if available) or on-campus. Courses from the CPSC curriculum cannot be transferred to any other graduate or undergraduate program in the Samuel Ginn College of Engineering. Likewise, courses from the on-campus Computer Science and Software Engineering department programs, such as Computer Science (CSCI) or Software Engineering (SENG), cannot be given transfer credit in the CPSC program. Students in the CPSC program do not have to take the pre-engineering required courses.

The CPSC content is delivered online in the form of recorded presentations, multimedia content, websites, programming exercises, quizzes and examinations, online discussions, and any other electronic means the instructor finds appropriate. The courses are offered in eight-week terms, with five terms per year. The start dates of the five terms are roughly: start of fall semester, middle of fall semester, start of spring semester, middle of spring semester, and during summer semester. Each 8-week course is worth 3 semester credit hours. Thus, taking two courses per 8-week term would correspond in workload to taking four courses on-campus during a regular semester. An 8-week online 3-credit-hour CPSC course will have the same academic workload as an on-campus 3-credit-hour course (roughly twice as many hours per week as a fall or spring semester course). Whereas an on-campus student is expected to complete an average of 3-3.5 hours of academic work per week over the length of a 15-week semester, a student in the CPSC degree program will be expected to complete an average of 6-7 hours of academic work per week over the length of an 8 week semester. Students are expected to watch all recorded content in a timely fashion, interact with the instructor and teaching assistants as needed via electronic means, and complete and submit all assignments electronically. A student must have access to a computer on which they can access the internet to view content, complete programming assignments, download and install needed software, and access remote resources such as virtual machines necessary to complete some programming projects and lab assignments.

Taking two courses per term, the CPSC content can be completed in ten 8-week terms, or two years. The coursework consists of eighteen required courses and two electives.

Majors

- Software Engineering (p. 679)
- Computer Science (p. 677)
- Computer Science Online Degree Completer Program (p. 675)

Minors

- Computer Science (p. 678)
- Information Technology (p. 679)

Undergraduate Certificates

- Artificial Intelligence Engineering (p. 676)
- Cyber Defense (p. 677)

Computer Sci Software En Courses

COMP 1000 PERSONAL COMPUTER APPLICATIONS (2) LEC. 2. Introduction to personal computers and software applications, including word processing, spreadsheets, databases, and presentation graphics; generation and retrieval of information with the Internet; integration of data among applications.

COMP 1100 THE POWER OF AI: FUNDAMENTALS TO APPLICATIONS (3) LEC. 3. A comprehensive introduction to artificial intelligence accessible to students across all disciplines. Addresses fundamental principles of AI, key concepts like knowledge representation, reasoning, machine learning, natural language processing, and neural networks. Topics such as AI's impact across various fields, critical analyses of the benefits and limitations of the state of the art, ethical considerations, and hands-on experience in leveraging AI technologies will be covered.

COMP 1200 INTRODUCTION TO COMPUTING FOR ENGINEERS AND SCIENTISTS (2) LEC. 2. Computer programming in a high-level language, with emphasis on use of the computer as a tool for engineering or science.

COMP 1201 INTRODUCTION TO COMPUTING LABORATORY (1) LAB. 1. SU. Coreq. COMP 1200. Laboratory activities focused on computer programming in a high-level language.

COMP 1210 FUNDAMENTALS OF COMPUTING I (3) LEC. 2. LAB. 3. Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

COMP 1220 INTRODUCTION TO COMPUTING WITH PYTHON (2) LEC. 1. LAB. 3. Computational problem-solving using Python, with emphasis on developing programs from specifications, verification and testing, and engineering applications.

COMP 1230 INTRODUCTION TO COMPUTING WITH MATLAB (2) LEC. 1. LAB. 3. Computational problem-solving using MATLAB, with emphasis on developing programs from specifications, verification and testing, and engineering applications.

COMP 1AA0 COMPUTER COMPETENCY TEST (0) TST. SU. A comprehensive test of all material covered in COMP 1000 and COMP 1003. Course may be repeated with change in topics.

COMP 2000 NETWORK PROGRAMMING WITH HTML AND JAVA (3) LEC. 3. Pr. COMP 1000 or COMP 1003 or ENGR 1110 or ENGR 1113. Introduction to network programming using HTML and Java to build web pages and web-based applications; presentation graphics; retrieval of information from the Internet; integration of data among applications. Pr., COMP 1000 or higher, or ENGR 1110.

COMP 2210 FUNDAMENTALS OF COMPUTING II (4) LEC. 3. LAB. 3. Pr. COMP 1210 or COMP 1213. Software development in the context of collections (e.g., lists, trees, graphs, hashtables). Communication, teamwork, and a design experience are integral course experience. Pr. COMP 1210 with a grade of C or higher.

COMP 2240 DISCRETE STRUCTURES (3) LEC. 3. Pr. (COMP 1210 or COMP 1213 or COMP 1217) and (MATH 1610 or MATH 1617). Characterization of computer science data structures and algorithms in terms of sets and relations, functions, recurrence relations. Use of propositional and predicate calculus to describe algorithms. Proving correctness and running time bounds for algorithms by induction and structural induction. Pr. COMP 1210 & MATH 1610, both with a grade of C or higher.

COMP 2710 SOFTWARE CONSTRUCTION (3) LEC. 3. Pr. COMP 2210 or COMP 2213. Intensive experience in software construction, to include topics such as testing, debugging, and associated tools; configuration management; low-level file and device I/O; systems and event-driven programming. Pr. COMP 2210 with a grade of C or higher.

COMP 2800 PROFESSIONAL DEVELOPMENT I (1) LEC. Introduction to career opportunities and student development options for majors in computer science and software engineering. Students will explore course, research, and extracurricular options within the department; create resumes and digital professional profiles; investigate post-graduation opportunities; and explore other professional development opportunities.

COMP 3000 OBJECT-ORIENTED PROGRAMMING FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr., Departmental approval. Fundamentals of object-oriented design and programming principles; data abstraction, identifying objects, problem decomposition, design and implementation of classes. Credit for the major will not be given to CSCI and SWEN, and WIRS majors.

COMP 3220 PRINCIPLES OF PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 2210 or COMP 2213. Study of programming language principles supporting procedural abstraction, data abstraction, storage allocation, and parallel execution; language types and examples; language translations. Pr. COMP 2210 with a grade of C or higher.

COMP 3270 INTRODUCTION TO ALGORITHMS (3) LEC. 3. Pr. COMP 2240 and (COMP 2210 or COMP 2213). Algorithms for standard computational problems and techniques for analyzing their efficiency; designing efficient algorithms and experimentally evaluating their performance. Pr. COMP 2210 & 2240, both with a grade of C or higher.

COMP 3350 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 3. Pr. ELEC 2200 or ELEC 2210. Stored Program Computers, hardware and software components; data representation, instruction sets, addressing modes; assembly language programming; linkers, loader, and operating systems.

COMP 3500 INTRODUCTION TO OPERATING SYSTEMS (3) LEC. 3. Pr. (COMP 2710 or COMP 2713) and (COMP 3350 or COMP 3353 or ELEC 2220). Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

COMP 3510 EMBEDDED SYSTEMS DEVELOPMENT (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220). Operating system design and analysis for embedded systems: Real-time issues, resource management, scheduling, exception handling, device driver development, kernel development, synchronization, network support.

COMP 3700 SOFTWARE MODELING AND DESIGN (3) LEC. 3. Pr. COMP 2710. Current processes, methods, and tools related to modeling and designing software systems. Communication, teamwork, and a design experience are integral course experiences.

COMP 3710 WIRELESS SOFTWARE ENGINEERING (3) LEC. 3. Pr. COMP 2710. Software engineering for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

COMP 4200 FORMAL LANGUAGES (3) LEC. 3. Pr. COMP 3240 or COMP 2240. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models. Pr. COMP 2240 with a grade of C or higher.

COMP 4300 COMPUTER ARCHITECTURE (3) LEC. 3. Pr. COMP 3350 or COMP 3353. Comparison of computer architectures, emphasizing the relationships between system software and hardware. Includes processor control and datapath organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

COMP 4320 INTRODUCTION TO COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220) or Departmental approval. Fundamentals of computer networks, OSI model, LAN, WAN, packet transmission, interworking, Internet Protocol, WWW and Java technology.

COMP 4710 SENIOR DESIGN PROJECT (3) LEC. 3. Pr. COMP 3700 or COMP 3710 or COMP 3703. Development of requirement definitions, architectural design specification, detailed design specification, testing plan and documentation for the software and/or hardware components of a comprehensive project.

COMP 4730 COMPUTER ETHICS (2) LEC. 2. Pr. PHIL 1020 or PHIL 1023 or PHIL 1027 or PHIL 1110 or PHIL 1113. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity. Communication and teamwork are integral course experiences.

COMP 4800 PROFESSIONAL DEVELOPMENT II (1) LEC. 1. Pr. COMP 2800. Discussion and activities in effective communication, ethical solutions, and career development in preparation for students to transition into professional practice and lifelong learning in Computer Science and Software Engineering.

COMP 4810 PROGRAM ASSESSMENT (0) LEC. SU. Pr. COMP 4800. Coreq. UNIV 4AA0. Academic program assessment to include curriculum, course offerings and content, student services, and career exploration and first destination outcomes. Course may be repeated for a maximum of 10 credit hours.

COMP 4960 SPECIAL PROBLEMS (1-4) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 4970 SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 12 credit hours.

COMP 5000 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 5020 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3. Pr. COMP 5000. Departmental approval. Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures.

COMP 5120 DATABASE SYSTEMS I (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 5130 DATA MINING (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 5210 COMPILER CONSTRUCTION (3) LEC. 3. Pr. COMP 4200 and COMP 3220. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 5320 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 4320 or COMP 4323. Departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

COMP 5350 DIGITAL FORENSICS (3) LEC. 3. Pr. COMP 2710 or ISMN 3080 or MNGT 3080 or MNGT 3087 or COMP 2713. Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 5360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Pr. COMP 4320. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM. A

COMP 5370 COMPUTER AND NETWORK SECURITY (3) LEC. 3. Pr. COMP 4320. Fundamentals of computer security. Access Control. Authentication. Digital signatures and watermarks. Modeling and performance assessment. Viruses and worms. Identification of avenues for compromising systems.

COMP 5520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Pr. COMP 4320. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 5530 SECURE CLOUD COMPUTING: PRINCIPLES, PRACTICE, AND APPLICATIONS (3) LEC. 3. Pr. COMP 3220 and COMP 3500. Cloud concepts and issues including architecture, service models, security, and implementation. Hands-on experience in both using, managing, and deploying clouds.

COMP 5600 ARTIFICIAL INTELLIGENCE (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 5610 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 5600. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic, and constraint programming, knowledge representation and heuristic search methods.

COMP 5620 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 5630 MACHINE LEARNING (3) LEC. 3. Pr. COMP 5600. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning. Pr. COMP 5600.

COMP 5650 DEEP LEARNING (3) LEC. 3. Pr. COMP 5630. Convolutional neural networks (CNNs); visualizing CNNs; detection CNNs; segmentation CNNs; recurrent neural networks; machine translation; unsupervised learning; and generative adversarial networks.

COMP 5660 EVOLUTIONARY COMPUTING (3) LEC. 3. Pr. COMP 3270 and (STAT 3010 or STAT 3600). This course covers in depth the fundamentals of evolutionary computing and surveys the most popular types of evolutionary algorithms (e.g., genetic programming), a class of stochastic, population-based algorithms inspired by natural evolution theory, genetics, and population dynamics, capable of solving complex optimization and modeling problems. It applies them to solve a series of challenging assignments involving intensive programming, experimentation, statistical analysis, and technical writing.

COMP 5700 SECURE SOFTWARE PROCESS (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Process models of the software life cycle as well as methods and tools for software development with a special emphasis on secure software engineering.

COMP 5710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 5720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Pr. COMP 3500 or COMP 3510. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 5830 CYBERSECURITY THREATS AND COUNTERMEASURES (3) LEC. 3. LAB. 0, DSL/LEC. 0. Pr. COMP 4320. Analysis of methods used by ethical hackers to identify security threats against networks, systems, and personnel. Examination of tactics, techniques, and procedures employed by threat actors and defensive countermeasures.

COMP 5870 SECURITY INTEGRATION AND APPLICATION (1) LEC/LST. Coreq. COMP 4710. Departmental approval. Exploration of the integration and application of state-of-the-practice cybersecurity topics.

COMP 5970 SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 6000 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 6120 DATABASE SYSTEMS I (3) LEC. 3. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 6130 DATA MINING (3) LEC. 3. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 6210 COMPILER CONSTRUCTION (3) LEC. 3. Departmental approval. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 6320 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3. Departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

COMP 6350 DIGITAL FORENSICS (3) LEC. 3. Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 6360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM.

COMP 6370 COMPUTER AND NETWORK SECURITY (3) LEC. 3. Departmental approval. Fundamentals of computer security. Access Control. Authentication. Digital signatures and watermarks. Modeling and performance assessment. Viruses and worms. Identification of avenues for compromising systems.

COMP 6520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Departmental approval. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 6530 SECURE CLOUD COMPUTING: PRINCIPLES, PRACTICE, AND APPLICATIONS (3) LEC. 3. Cloud concepts and issues including architecture, service models, security, and implementation. Hands-on experience in both using, managing, and deploying clouds.

COMP 6600 ARTIFICIAL INTELLIGENCE (3) LEC. 3. Departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 6610 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic and constraint programming, knowledge representation and heuristic search methods.

COMP 6620 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3. Departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 6630 MACHINE LEARNING (3) LEC. 3. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning.

COMP 6650 DEEP LEARNING (3) LEC. 3. Pr. COMP 6630. Convolutional neural networks (CNNs); visualizing CNNs; detection CNNs; segmentation CNNs; recurrent neural networks; machine translation; unsupervised learning; and generative adversarial networks.

COMP 6660 EVOLUTIONARY COMPUTING (3) LEC. 3. Departmental approval. This course covers in depth the fundamentals of evolutionary computing and surveys the most popular types of evolutionary algorithms (e.g., genetic programming), a class of stochastic, population-based algorithms inspired by natural evolution theory, genetics, and population dynamics, capable of solving complex optimization and modeling problems. It applies them to solve a series of challenging assignments involving intensive programming, experimentation, statistical analysis, and technical writing.

COMP 6700 SECURE SOFTWARE PROCESS (3) LEC. 3. Pr. COMP 3700. Process models of the software life cycle as well as methods and tools for software development with a special emphasis on secure software engineering.

COMP 6710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 6720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Departmental approval. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 6830 CYBERSECURITY THREATS AND COUNTERMEASURES (3) LEC. 3. Pr. COMP 4320. Analysis of methods used by ethical hackers to identify security threats against networks, systems, and personnel. Examination of tactics, techniques, and procedures employed by threat actors and defensive countermeasures.

COMP 6970 SPECIAL TOPICS (1-3) LEC. 1-3. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 7120 DATABASE SYSTEMS II (3) LEC. 3. Pr. COMP 6120 or COMP 6126. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of object-oriented database systems.

COMP 7270 ADVANCED TOPICS IN ALGORITHMS (3) LEC. 3. Departmental approval. In-depth study of advanced topics in algorithms.

COMP 7300 ADVANCED COMPUTER ARCHITECTURE (3) LEC. 3. Departmental approval. Modern instruction level parallel computer design, including superscalar and very-long instruction word processor design.

COMP 7370 ADVANCED COMPUTER AND NETWORK SECURITY (3) LEC. 3. Pr. COMP 6370 or COMP 6376. Departmental approval. Advanced, research-based examination of computer network attack and defense techniques, viruses and other malware; operating system vulnerabilities and safeguards.

COMP 7500 ADVANCED TOPICS IN OPERATING SYSTEMS (3) LEC. 3. Departmental approval. Advanced topics in operating system concepts, design and implementation.

COMP 7620 HUMAN-COMPUTER INTERACTION (3) LEC. 3. Pr. COMP 6620. Theoretical principles and practical aspects of interaction between humans and computers, design and evaluation of interactive systems.

COMP 7660 RESEARCH METHODS IN EVOLUTIONARY COMPUTING (3) LEC. 3. Pr. COMP 6660 or COMP 5660. This course prepares students to perform independent research in general, and in the field of evolutionary computing (EC) in specific. This course covers in the context of EC: ideation, literature review, proposal writing and evaluation, research software design and implementation, experiment design and analysis, scientific writing and evaluation, and scientific oral presentation.

COMP 7700 SOFTWARE ARCHITECTURE (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Methods and tools related to the analysis, specification and design of software architecture.

COMP 7720 SOFTWARE REVERSE ENGINEERING (3) LEC. 3. Pr. P/C COMP 6370 or COMP 6376. Process, methods and tools associated with software reverse engineering. Course covers static and dynamic analysis techniques applied to analyze malware (i.e., malicious software).

COMP 7800 ARTIFICIAL INTELLIGENCE FOR SECURITY (3) LEC. 3. Exposes students in mixed-discipline teams to applying concepts and techniques in the AI domain to real-world problems of the security domain. In addition to practical experience with both domains, it will also provide students the opportunity to apply a multidisciplinary perspective conveying the “conventional wisdom” and mindsets of both AI and security through project-based learning. This course mimics R&D environments where teams extract requirements from customers, identify the state-of-the-art, design and propose solutions, implement and evaluate those solutions, and culminates in both customer and technical communication of project artifacts.

COMP 7810 PROGRAM ASSESSMENT (0) LEC. SU. Coreq. UNIV 4AA0. Academic program assessment to include curriculum, course offerings and content, student services, and career exploration and first destination outcomes. Course may be repeated for a maximum of 10 credit hours.

COMP 7930 DIRECTED STUDY (1-3) IND/RES. Course may be repeated with change in topics.

COMP 7970 SPECIAL TOPICS (1-3) DSL. Course may be repeated with change in topics.

COMP 7980 CAPSTONE ENGINEERING PROJECT (3) LEC. 3. Planning, implementation, and completion of a design project. Project culminates in both a written report and an oral presentation.

COMP 7990 RESEARCH AND THESIS (1-15) DSL. May count either COMP 7990 or COMP 7996. Course may be repeated with change in topics.

COMP 8930 DIRECTED STUDY (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 8970 SPECIAL TOPICS (1-3) IND. Course may be repeated with change in topics.

COMP 8990 RESEARCH AND DISSERTATION (1-20) DSL/DSR. Course may be repeated with change in topics.

Computer Science Courses

CPSC 1210 INTRODUCTION TO COMPUTER SCIENCE I (3) LEC. 45. Admission into Bachelor of Computer Science Program. Introduces the fundamental concepts of object-oriented programming.

CPSC 1220 INTRODUCTION TO COMPUTER SCIENCE II (3) LEC. 45. Pr. CPSC 1213 or CPSC 1210. Admission into Bachelor of Computer Science Program. Continues the development of programming from an object-oriented perspective. Emphasizes sound software engineering principles and best practices.

CPSC 1230 DATA STRUCTURES (3) LEC. 45. Pr. CPSC 1223 or CPSC 1220. Admission into Bachelor of Computer Science Program. Developing programs that use data structures and collections to efficiently store data. Emphasis will be placed on the interplay between effective data structures and efficient algorithms.

CPSC 2010 INTRODUCTION TO COMPUTER SCIENCE I (3) DSL. 45. Admission into Bachelor of Computer Science Program. Introduces the fundamental concepts of object-oriented programming.

CPSC 2710 SOFTWARE CONSTRUCTION FUNDAMENTALS (3) LEC. 45. Pr. CPSC 1233 or CPSC 1230. Admission into Bachelor of Computer Science Program. Development of graphical user interface-based, event-driven desktop/laptop computer application using a modern object-oriented language. Systematic testing, debugging, documentation, and maintenance programming.

CPSC 3220 PROGRAMMING LANGUAGES AND TRANSLATION (3) DSL. Pr. (CPSC 1230 or CPSC 1233) and (CPSC 3300 or CPSC 3303). Admission into Bachelor of Computer Science Program. Fundamental concepts of programming language design, interpretation, and compilation.

CPSC 3240 DISCRETE STRUCTURES (3) LEC. 45. Admission into Bachelor of Computer Science Program. Basics of set theory, propositional and predicate logic as used to describe algorithms, recurrence relations. Proving correctness and estimating running time for algorithms. Mathematical and structural induction.

CPSC 3270 ALGORITHMS I (3) LEC. 45. Pr. CPSC 1233 or CPSC 1230. Admission into Bachelor of Computer Science Program. Introduction to algorithms as tools for computational l problem solving, language of algorithms, understanding algorithms, approximately analyzing correctness and efficiency of algorithms, algorithms that solve fundamental computational problems, basic algorithm design techniques, steps of computational problem solving.

CPSC 3280 ALGORITHMS II (3) LEC. 45. Pr. CPSC 3270 or CPSC 3273. Admission into Bachelor of Computer Science Program. Advanced complexity analysis techniques, notions of computational complexity, polynomial time hierarchy, computability, algorithms that solve advanced computational problems, advanced algorithm design techniques, computational problem solving.

CPSC 3300 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 45. Pr. (CPSC 3243 or CPSC 3240) and (CPSC 1213 or CPSC 1210). Admission into Bachelor of Computer Science Program. Stored program computers, hardware and software components, data representations, instruction sets, addressing modes, assembly language programming, loaders, linkers and operating systems.

CPSC 3320 COMPUTER ARCHITECTURE (3) LEC. 45. Pr. CPSC 3333 or CPSC 3330. Admission into Bachelor of Computer Science Program. Design of Computer Systems, emphasizing the relationship between computer hardware and software. Includes processor control and data path organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

CPSC 3330 OPERATING SYSTEMS (3) LEC. 45. Pr. (CPSC 1230 or CPSC 1233) and (CPSC 3300 or CPSC 3303). Admission into Bachelor of Computer Science Program. Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

CPSC 3340 PARALLEL SYSTEMS (3) LEC. 45. Pr. CPSC 3333 or CPSC 3330. Admission into Bachelor of Computer Science Program. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, and parallel applications.

CPSC 3350 COMPUTER NETWORKS I (3) LEC. 45. Pr. CPSC 3330 or CPSC 3333. Admission into Bachelor of Computer Science Program. Fundamentals of computer networks, TCP/IP layered model: application layer, transport layer, network layer, link layer, with examples of each layer, and explanation of design issues. IPv6.

CPSC 3360 COMPUTER NETWORKS II (3) LEC. 45. Pr. CPSC 3353 or CPSC 3350. Admission into Bachelor of Computer Science Program. Computer network design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

CPSC 3370 WIRELESS AND MOBILE NETWORKS (3) DSL. Pr. CPSC 3353 or CPSC 3350. Admission into Bachelor of Computer Science Program. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless, wireless TCP personal communication systems, and current mobile phone OTA protocols.

CPSC 3700 SOFTWARE ENGINEERING I (3) LEC. 45. Pr. CPSC 2713 or CPSC 2710. Admission into Bachelor of Computer Science Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 3710 SOFTWARE ENGINEERING II (3) DSL. Pr. CPSC 3703 or CPSC 3700. Admission into Computer Science Online Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 4000 SYSTEM ADMINISTRATION (3) LEC. 45. Pr. CPSC 3330 or CPSC 3333. Admission into Bachelor of Computer Science. Basics of system administration for Windows and Unix machines, including configuration of Performance measurement and enhancement.

CPSC 4200 FORMAL LANGUAGES (3) DSL/LEC. 45. Pr. (CPSC 3273 or CPSC 3270) and (CPSC 3243 or CPSC 3240). Admission into Bachelor of Computer Science Program. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models. Basics of interpretation and compilation.

CPSC 4730 COMPUTER ETHICS (3) LEC. 45. Admission into Bachelor of Computer Science Program. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity.

CPSC 4800 PROFESSIONAL DEVELOPMENT I (1) DSL. Discussion and activities in effective communication, ethical solutions, and career development in preparation for students to transition into professional practice and lifelong learning in Computer Science.

CPSC 4810 PROFESSIONAL DEVELOPMENT II (1) DSL. Pr. CPSC 4800. Discussion and activities in effective communication, ethical solutions, and career development in preparation for students to transition into professional practice and lifelong learning in Computer Science.

CPSC 4820 PROGRAM ASSESSMENT (0) DSL. SU. Coreq. UNIV 4AA0. Academic program assessment to include curriculum, course offerings and content, student services, and career exploration and first destination outcomes. Course may be repeated for a maximum of 10 credit hours.

CPSC 4970 SPECIAL TOPICS (3) LEC. 3. Investigation of current topics in computer science. Course may be repeated for a maximum of fifteen credit hours.

CPSC 5120 DATABASE I (3) LEC. 45. Pr. CPSC 1230 or CPSC 1233. Admission into Bachelor of Computer Science Program. The design and implementation of database applications, with a focus on relational database management systems.

CPSC 5130 DATABASE II (3) LEC. 45. Pr. CPSC 5123 or CPSC 5120. Admission into Bachelor of Computer Science Program. Theory, design, and implementation of database systems.

CPSC 5200 DEVELOPING WEB APPLICATIONS WITH XML (3) LEC. 45. Pr. CPSC 1230 or CPSC 1233. Admission into Bachelor of Computer Science Program. Comprehensive introduction to XML, working with XML and Databases, event-driven programming with XML, implementing Communication and Web Services with XML, working with XML, JQuery, XHTML and HML5.

CPSC 5210 WEB APPLICATION DEVELOPMENT WITH JSP (3) LEC. 40. Pr. CPSC 5203 or CPSC 5200. Admission into Bachelor of Computer Science Program. Advanced course in web development using JSP, includes JCP fundamentals, JAP and web server software development, and applying JSP in the real world.

CPSC 5330 MOBILE APPLICATIONS I (3) LEC. 45. Pr. CPSC 2710 or CPSC 2713. Admission into Computer Science Online Program. Software development for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

CPSC 5340 MOBILE APPLICATION DEVELOPMENT II (3) LEC. 3. Pr. CPSC 5330 or CPSC 5333. Admission into Bachelor of Computer Science Program. Builds mastery of mobile application development and the skills necessary to stay current in this fast-moving field throughout one’s career by introducing a new programming language and application programmer interface and interface and requiring the student to master them.

Bachelor of Computer Science (On-line) (CPSC)

The Bachelor of Computer Science is designed as a completer degree, in which non-major coursework is satisfied by acceptable transfer credit, which could include credit earned for a first bachelor’s degree at a regionally accredited institution. All students must satisfy the degree requirements as specified in the In-Major Courses and Non-Major Courses below. Students without transfer credit for all the requirements specified in the Non-Major Courses table must consult their academic advisor regarding what courses should be selected to satisfy these requirements. Each In-Major course is offered completely online in 7.5 week terms, with 5 terms per calendar year.

In-Major Courses

Term	Course 1	Hours	Course 2	Hours
1	CPSC 1210 Introduction to Computer Science I	3	CPSC 3240 Discrete Structures	3
2	CPSC 1220 Introduction to Computer Science II	3	CPSC 3300 Computer Organization	3

3	CPSC 1230 Data Structures	3	CPSC 4730 Computer Ethics	3
4	CPSC 3270 Algorithms I	3	CPSC 2710 Software Construction Fundamentals	3
5	CPSC 3280 Algorithms II	3	CPSC 3330 Operating Systems	3
6	CPSC 3350 Computer Networks I	3	CPSC 5120 Database I	3
7	CPSC 3700 Software Engineering I	3	CPSC 5130 Database II	3
8	CPSC 5330 Mobile Application Development I	3	CPSC 5200 Web Development I	3
9	CPSC 5210 Web Development II	3	CPSC Elective	3
10	CPSC 5340 Mobile Application Development II	3	CPSC Elective	3

Non-Major Course

Code	Title	Hours
Math (Core)		**3-4**
Science (Core)		**8**
Core Science Sequence I		4
Core Science Sequence II		4
Composition and Humanities (Core)		**15**
ENGL 1100	English Composition I	3
ENGL 1120	English Composition II	3
Core Fine Art		3
Core Literature		3
Core Humanities		3
Social Science (Core)		**9**
Core History		3-6
Core Social Science Elective		3-6
Free Elective (including ROTC)		**24-25**
TOTAL HOURS		**120**

Certificate in Artificial Intelligence Engineering

Online and On-Campus options

The undergraduate certificate program in Artificial Intelligence Engineering (AIEN-UCRT) is open to all Auburn University undergraduate students who are majoring in computer science, software engineering or another STEM discipline, or have relevant professional experience that provides necessary background knowledge of programming, computing, and mathematics. It entails 12 undergraduate credit hours. All students are required to take three required courses (COMP 5130, COMP 5600, COMP 5630) and three credit hours of department-approved electives relevant to artificial intelligence.

Code	Title	Hours
COMP 5600	Artificial Intelligence	3
COMP 5630	Machine Learning	3
COMP 5130	Data Mining	3

Approved AI Elective	3
Total	**12**

Certificate in Cyber Defense

Undergraduate Certificate in Cyber Defense

The Undergraduate Certificate in Cyber Defense is administered through the Department of Computer Science and Software Engineering. It is designed to equip students with the knowledge and skills needed to enter the workforce prepared to address security threats. In completing the requirements, students will gain valuable skills and experience that will help them better address needs of industry.

Students earn the certificate by completing the following courses with at least a grade of C:

Code	Title	Hours
COMP 5350	Digital Forensics	3
COMP 5370	Computer and Network Security	3
COMP 5530	Secure Cloud Computing: Principles, Practice, and Applications	3
COMP 5700	Secure Software Process	3
COMP 5830	Cybersecurity Threats and Countermeasures	3
Total Hours		**15**

Applications for the Undergraduate Certificate in Cyber Defense program are considered on a competitive basis.

Applicants are expected to have a strong foundation in computer science and software engineering, as demonstrated by past performance in the following courses (or equivalent courses):

Code	Title	Hours
COMP 1210	Fundamentals of Computing I	3
COMP 2210	Fundamentals of Computing II	4
COMP 3220	Principles of Programming Languages	3
COMP 3270	Introduction to Algorithms	3
COMP 3350	Computer Organization and Assembly Language Programming	3
COMP 3500	Introduction to Operating Systems	3
COMP 3700	Software Modeling and Design	3
COMP 4320	Introduction to Computer Networks	3
COMP 4730	Computer Ethics	2
COMP 5120	Database Systems I	3

Computer Science (CSCI)

Freshman			
Fall	**Hours**	**Spring**	**Hours**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Science Sequence (Series B, D, H)[1]	4	Core Science Sequence (Series B, D, H)[1]	4
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
COMP 1210 Fundamentals of Computing I	**3**	**COMP 2210 Fundamentals of Computing II**	**4**
ENGR 1110 Introduction to Engineering	2	**COMP 2240 Discrete Structures**	**3**
ENGR 1100 Engineering Orientation	0		
	16		**18**

Sophomore

Fall	Hours	Spring	Hours
MATH 2660 Topics in Linear Algebra	3	STAT 3010 Statistics for Engineers and Scientists	3
Core History Sequence	3	Core History Sequence	3
ELEC 2200 Digital Logic Circuits	3	Core Literature	3
COMP 2710 Software Construction	**3**	Core Social Science Elective	3
COMP 2800 Professional Development I	1	**COMP 3270 Introduction to Algorithms**	**3**
	13		**15**

Junior

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking	3	PHIL 1020 Introduction to Ethics ***or*** 1110 Ethical and Conceptual Foundations of Science	3
Math Elective[1]	3	Free Elective	3
Core Fine Arts	3	**COMP 3500 Introduction to Operating Systems**	**3**
COMP 3220 Principles of Programming Languages	**3**	**COMP 3700 Software Modeling and Design**	**3**
COMP 3350 Computer Organization and Assembly Language Programming	**3**	**COMP 4320 Introduction to Computer Networks**	**3**
	15		**15**

Senior

Fall	Hours	Spring	Hours
Technical Elective[1]	**9**	Technical Elective[1]	9
COMP 4200 Formal Languages	**3**	**COMP 4710 Senior Design Project**	**3**
COMP 5120 Database Systems I	**3**	**COMP 4730 Computer Ethics**	**2**
COMP 4800 Professional Development II	1	COMP 4810 Program Assessment	0
		UNIV 4AA0 University Graduation	0
	16		**14**

Total Hours: 122

1 Courses for Core Science Sequence, Math Elective, and Technical Elective credit must be chosen in accordance with CSSE department policies and approved course listings. Students must consult with a CSSE Academic Advisor when selecting these courses.

The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering.

The course in bold-face are those used to calculate in-major GPA.

Computer Science Minor

Code	Title	Hours
COMP 1210	Fundamentals of Computing I	3
COMP 2210	Fundamentals of Computing II	4
COMP 2710	Software Construction	3
COMP 2240	Discrete Structures	3
COMP 3270	Introduction to Algorithms	3

COMP 3700	Software Modeling and Design	3
Total Hours		**19**

Minor in Information Technology

15 semester hours in minor (minimum 9 hours at 3000-level or above)

Code	Title	Hours
Select three of the following:		9
COMP 3000	Object-Oriented Programming for Engineers and Scientists	
COMP 4730	Computer Ethics	
COMP 5000	Web Application Development	
COMP 5020	Advanced Web Application Development	
Electives Courses: see advisor for approved course listing.		6
Total Hours		**15**

Software Engineering (SENG)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Science Sequence (Series B, D, H)[1]	4	Core Science Sequence (Series B, D, H)[1]	4
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
COMP 1210 Fundamentals of Computing I	**3**	**COMP 2210 Fundamentals of Computing II**	**4**
ENGR 1110 Introduction to Engineering	2	**COMP 2240 Discrete Structures**	**3**
ENGR 1100 Engineering Orientation	0		
	16		**18**

Sophomore

Fall	Hours	Spring	Hours
MATH 2660 Topics in Linear Algebra	3	STAT 3010 Statistics for Engineers and Scientists	3
Core History Sequence	3	Core History Sequence	3
ELEC 2200 Digital Logic Circuits	3	Core Literature	3
COMP 2710 Software Construction	**3**	Core Social Science Elective	3
COMP 2800 Professional Development I	1	**COMP 3270 Introduction to Algorithms**	**3**
	13		**15**

Junior

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking	3	PHIL 1020 Introduction to Ethics ***or*** 1110 Ethical and Conceptual Foundations of Science	3
Math Elective[1]	3	Math Elective[1]	3
Core Fine Arts	3	**COMP 3500 Introduction to Operating Systems**	**3**
COMP 3220 Principles of Programming Languages	**3**	**COMP 3700 Software Modeling and Design**	**3**
COMP 3350 Computer Organization and Assembly Language Programming	**3**	**COMP 4320 Introduction to Computer Networks**	**3**
	15		**15**

Senior				
Fall	**Hours**		**Spring**	**Hours**
Technical Elective[1]		**6**	**Technical Elective**[1]	**3**
COMP 4300 Computer Architecture		**3**	**COMP 4710 Senior Design Project**	**3**
COMP 5120 Database Systems I		**3**	**COMP 4730 Computer Ethics**	**2**
COMP 5700 Secure Software Process		**3**	**COMP 5710 Software Quality Assurance**	**3**
COMP 4800 Professional Development II		1	Free Elective	3
			COMP 4810 Program Assessment	0
			UNIV 4AA0	0
		16		**14**

Total Hours: 122

1 Courses for Core Science Sequence, Math Elective, and Technical Elective credit must be chosen in accordance with CSSE department policies and approved course listings. Students must consult with a CSSE Academic Advisor when selecting these courses.

The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering.

Courses in bold-face are those used to calculate in-major GPA.

Department of Electrical and Computer Engineering

The Electrical and Computer Engineering curricula produce well-educated graduates prepared to practice engineering at a professional level in an era of rapid and challenging technological development. The educational objectives of the Electrical Engineering curriculum include providing a foundation in seven fundamental areas of electrical engineering (circuits and systems, electromagnetics, electronics, digital systems, communications and signal processing, control systems, and power engineering), giving our graduates the technical proficiency needed for the professional practice of electrical engineering. The educational objectives of the Computer Engineering curriculum include providing a foundation in both electrical engineering (circuits and systems, electronics, and digital systems) and computer science, giving our graduates the technical proficiency needed for the professional practice of computer engineering, including the design and application of computer components and systems. Both curricula develop within our graduates the ability to communicate their ideas effectively to technical and non-technical audiences, work effectively in multidisciplinary teams, take their places in society as responsible citizens, and instill within them an appreciation of and enthusiasm for lifelong scientific inquiry, learning and creativity.

The goal of the professional portion of each curriculum is to emphasize basic areas of study while providing the flexibility to accommodate a diversity of interests and talents. To this end, each curriculum emphasizes knowledgeable use of digital computer systems, oral and written communication skills, the importance of business, economic, social and global forces on engineering, appreciation of the need to maintain the highest ethical standards, and the maintenance of professional competence through continued self-improvement after graduation. Each curriculum emphasizes engineering design and hands-on laboratory experience, culminating in a capstone design project. The senior year elective structure provides students with the flexibility to pursue a range of career options.

While the Electrical Engineering curriculum provides a foundation in seven fundamental areas, this foundation is very broad. The department offers several specially designed program specializations that provide unique training and course selection to those students who wish to concentrate in a particular area. The current program specializations are power engineering, pulp and paper engineering, and wireless engineering, with descriptions to follow. Students should discuss specialization details with the Electrical and Computer Engineering academic advisor.

Power Engineering Specialization

Pulp and Paper Engineering Specialization

This specialization provides students for careers in the pulp, paper, and bio-resource industries from the electric power perspective. These industries are uniquely capable of sustainable development with a renewable raw material base, recyclable products, and

processing technology able to achieve energy self-sufficiency and environmental compatibility. This specialization prepares students for a broad range of career paths in process engineering, product development, biotechnology and sustainable engineering.

Students in this specialization take Pulp and Paper Engineering Technical Electives (9 hours). These courses replace ENGR 2100 and the two ELEC Electives.

Wireless Engineering Specialization

This specialization provides students with the necessary preparation to pursue graduate work in wireless engineering or to transition to a career with emphasis on wireless network systems and/or communication devices.

Students in this specialization take Wireless Engineering Technical Electives (12 hours). These courses replace ENGR 2100, ENGR 2200, and the two ELEC Electives.

Majors

- Computer Engineering (p. 688)
- Electrical Engineering (p. 690)

Courses

ELEC 2110 ELECTRIC CIRCUIT ANALYSIS (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (COMP 1200 or COMP 1220 or COMP 1230 or COMP 1210 or COMP 1217) and (P/C ENGR 1110 or P/C ENGR 1113) and P/C MATH 2650. Basic laws and concepts; resistive circuits; first-order transient circuits; phasors and frequency response of circuits; RMS values and complex power.

ELEC 2120 SIGNALS AND SYSTEMS (4) LEC. 3. LAB. 3. Pr. ELEC 2110 and MATH 2650 and (MATH 2630 or MATH 2633 or MATH 2637). Time-domain and frequency-domain methods for modeling and analyzing continuous and discrete-data signals and systems. Generating and observing signals in the time and frequency domains. MATLAB instruction and programming for signal analysis.

ELEC 2200 DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr. COMP 1200 or COMP 1220 or COMP 1230 or COMP 1210 or COMP 1217. Electronic devices and digital circuits; binary numbers; Boolean algebra and switching functions; gates and flip-flops; combinational and sequential logic circuits; hierarchical design of digital systems; computer-aided design tools for digital design, simulation, and testing.

ELEC 2210 DIGITAL ELECTRONICS (4) LEC. 3. LAB. 3. Pr. ELEC 2110 and ELEC 2200 and (MATH 2630 or MATH 2633 or MATH 2637) and MATH 2650. History of electronics; semiconductors; biasing and operation of PN junction diodes; field-effect transistors and bipolar junction transistors; logic families and logic technologies; flip-flops and memory circuitry.

ELEC 2220 COMPUTER SYSTEMS (3) LEC. 3. Pr. ELEC 2200. Computer hardware/software organization, processor programming models, assembly language programming, design of memory systems, I/O device interfacing, programming and multiprocessing.

ELEC 3030 RF SYSTEMS LAB (1) LAB. 3. Pr. ELEC 2210. Assembly, testing and analysis of a radio. Integration of basic concepts of electronics, electromagnetics, and signals and systems.

ELEC 3040 ELECTRICAL SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2220 and (P/C ELEC 3030 and P/C ELEC 3500). Exploration and integration of electrical engineering concepts and professional practice issues through the design of a contemporary engineering system.

ELEC 3050 EMBEDDED SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2210 and ELEC 2220 and P/C ELEC 2120. Integration of hardware and software in the design of an embedded computing system; development of professional skills.

ELEC 3060 WIRELESS DESIGN LAB (1) LAB. 3. Pr. P/C ELEC 3400. Laboratory experiments geared towards understanding the implementation and testing of components used in wireless communication systems.

ELEC 3310 FUNDAMENTALS OF APPLIED ELECTROMAGNETICS (3) LEC. 3. Pr. (MATH 2660 or MATH 2667) and ELEC 2110 and (MATH 2630 or MATH 2633 or MATH 2637) and MATH 2650. Transmission lines are studied as a bridge to understanding electromagnetic theory. Then, electric and magnetic fields are studied using vector algebra, culminating in Maxwell's equations.

ELEC 3320 ELECTROMAGNETICS FOR WIRELESS COMMUNICATION (3) LEC. 3. Pr. ELEC 3310. Maxwell's equations are used in the study of plane waves, guided waves, fiberoptics, electromagnetic compatibility and interference, antennas and radiation, and satellite communication systems.

ELEC 3400 COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3800. Pulse code modulation, line coding, information rate, equalization, amplitude modulation, angle modulation, noise in communication systems.

ELEC 3500 CONTROL SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Analog and discrete transfer function models, system response specifications, control system characteristics, root locus analysis and design, frequency response analysis and design.

ELEC 3600 ELECTRIC POWER ENGINEERING (3) LEC. 3. Pr. ELEC 2110 and (MATH 2630 or MATH 2633 or MATH 2637) and MATH 2650. Introduction to the basic concepts in electric power engineering.

ELEC 3700 ANALOG ELECTRONICS (3) LEC. 3. Pr. ELEC 2210 and ELEC 2120. Amplifier modeling. Design and analysis of single-stage and multistage transistor amplifiers. Biasing for integrated circuit design. Operational amplifier circuits.

ELEC 3800 RANDOM SIGNALS AND SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Introduction to probability, random variables, random processes and basic statistics, analysis of random signals and noise.

ELEC 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING (3) LEC. 3. Pr. (PHYS 1610 or PHYS 1617) and P/C MATH 2650. Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems. Not open to ECE majors.

ELEC 4010 CAPSTONE DESIGN I (1) LEC. 1. Pr. (ELEC 3800 and P/C ELEC 3030 and P/C ELEC 3040) or (ELEC 3800 and P/C ELEC 3050 and P/C ELEC 4200) or (ELEC 3800 and P/C ELEC 3030 and P/C ELEC 3060). The engineering design process, project management and teamwork, ethical and social impacts of design projects, project documentation and presentation, business considerations, and intellectual property.

ELEC 4020 CAPSTONE DESIGN II (3) LEC. 3. Pr. (ELEC 4010 and ELEC 3030 and ELEC 3040 and ELEC 3320 and ELEC 3600 and ELEC 3700 and P/C ELEC 3400) or (ELEC 4010 and ELEC 3050 and ELEC 3800 and ELEC 4200 and COMP 3270 and P/C ELEC 5200 and P/C ELEC 5220) or (ELEC 4010 and ELEC 3030 and ELEC 3060 and P/C ELEC 4100 and P/C ELEC 5130 and P/C ELEC 5410). A capstone design project which draws on the accumulated curricular experience. Particular project sections may have additional prerequisites. Departmental approval needed.

ELEC 4100 WIRELESS COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3400. Introduction to mobile cellular radio and wireless personal communications, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.

ELEC 4200 DIGITAL SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. ELEC 2210 and ELEC 2220. Hierarchical, modular design of digital systems, computer-aided digital system modeling, simulation, analysis, and synthesis; design implementation with programmable logic devices and FPGAs.

ELEC 4980 SPECIAL PROJECTS (1-3) IND. Departmental approval. Supervised study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

ELEC 5120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Pr. ELEC 3400. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures

ELEC 5130 RF DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 3700. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 5150 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 5190 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Pr. ELEC 3700. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on front-end design skills.

ELEC 5200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Pr. ELEC 4200. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 5210 HARDWARE SECURITY I (3) LEC. 3. Pr. ELEC 2200. Hardware design of symmetric and asymmetric ciphers, digital signature generation and verification, key management, detection and avoidance of counterfeit ICs, cryptographic primitives, and automated hardware design aids.

ELEC 5220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 5230 PARALLEL PROCESSING (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.

ELEC 5240 NEURAL NETWORKS (3) LEC. 3. Pr. ELEC 2120. Principles, architectures, and technologies of neural networks; design and implementation of neural networks using electronics and optics; applications of neural networks.

ELEC 5250 COMPUTER AIDED DESIGN OF DIGITAL INTEGRATED CIRCUITS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation, verification, fault diagnosis and testing, RTL-to-GDSII ASIC flow.

ELEC 5260 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 5290 HARDWARE SECURITY II (3) LEC. 3. Pr. ELEC 5210. This course will provide an in-depth analysis of various topics, which includes advanced cryptography, hardware Trojans, PUFs, RFID security, side-channel attacks and solutions, and blockchain.

ELEC 5310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Pr. P/C ELEC 3320. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 5320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 5340 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 5350 RADAR PRINCIPLES (3) LEC. 3. Pr. ELEC 3320 and ELEC 3800. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 5410 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Pr. ELEC 3800. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 5470 FUNDAMENTALS OF VLSI TEST (3) LEC. 3. Test economics, automatic test equipment, fault models, automatic test pattern generation, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability, scan and boundary scan, IDDQ testing.

ELEC 5530 ROBOT CONTROL (3) LEC. 3. Pr. ELEC 3500. Design, analysis, and simulation of robotic manipulator control. An exploration of kinematics, inverse kinematics, equation of motion, various control strategies, including classic computed-torque feedback control, modern optimal control and AI-based methods such as reinforcement learning and neural network control.

ELEC 5600 ELECTRIC VEHICLES (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Electric vehicles, technical aspects, mathematical relationships, and basic design guidelines on electric powertrain, traction inverters, electric machines, motor drives, power converter components, Wide Band Gap power electronics, permanent magnets, battery charging infrastructures, grid interactions, the roles in microgrids and smart grids, and computer simulations.

ELEC 5610 POWER ELECTRONICS (3) LEC. 3. Pr. ELEC 3700 and ELEC 3600. Power electronic circuits, components, and devices.

ELEC 5620 POWER SYSTEM ANALYSIS (3) LEC. 3. Pr. ELEC 3600. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.

ELEC 5630 ELECTRIC MACHINES (3) LEC. 3. Pr. ELEC 3600. Departmental approval. Fundamentals of the electromagnetic-mechanical energy conversion process. Principles of operation, application, and control of ac and dc motors and generators.

ELEC 5640 RENEWABLE ENERGY IN ELECTRICAL POWER SYSTEMS (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Conventional power plants, global renewables, energy efficiency, marine hydrokinetic (ocean currents and waves), wind power (aerodynamic, generator, plants, grid integration, finance), photovoltaic (device, inverter, plant levels, finance), hydropower (generator, plant level, pumped storage hydro, advances in hydro),power systems grid integration, system impact studies, control and operation of inverter-based resources, ancillary services provisions, and other important aspects of renewables for bulk power (transmission levels) and for distribution power systems.

ELEC 5650 POWER SYSTEM PROTECTION (3) LEC. 3. Pr. ELEC 3600. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 5660 SMART GRIDS (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Conventional power systems, renewable energy, inverter base resources, smart grid challenges and opportunities, real-time management, grid edge sensors, communications, advanced system protection, restoration, reactive/voltage control, real power/frequency regulation, monitoring and diagnostics, microgrids concept.

ELEC 5670 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. 3. Pr. ELEC 3600. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 5690 MICROGRIDS (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Distribution power system modeling, inverter-based resources, control, protection, resilience, and security technologies within distributed energy resources (generation, distribution, energy storage, reactive compensation, renewable energy resources) covering microgrid design, analysis, and operation.

ELEC 5700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Pr. ELEC 2210. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 5710 SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 2210. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 5720 LASER-MATERIAL INTERACTIONS (3) LEC. 3. Pr. MATH 1620 or Departmental approval. Fundamental principles of lasers, optics, and laser-matter interaction mechanisms in various laser-based manufacturing, materials processing, and diagnostic techniques.

ELEC 5730 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Pr. ELEC 2210. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 5760 SOLID STATE SENSORS (3) LEC. 3. Pr. ELEC 3700. or consent of instructor. Theory, technology and design micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 5770 VLSI DESIGN (3) LEC. 3. Pr. ELEC 2210 and ELEC 2220. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 5780 ANALOG CIRCUIT DESIGN (3) LEC. 3. Pr. ELEC 3700. Departmental approval. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 5810 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 5820 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 5970 SPECIAL TOPICS (1-5) AAB. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 6120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.

ELEC 6130 RF DEVICES AND CIRCUITS (3) LEC. 3. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 6150 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 6190 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on on front-end design skills.

ELEC 6200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 6210 HARDWARE SECURITY I (3) LEC. 3. This course will provide an in-depth analysis of various topics, which include (i) introduction to cryptography - symmetric and asymmetric ciphers, message authentication codes, and digital signatures, (ii) detection & avoidance of counterfeit ICs, and (iii) security primitives - physically unclonable functions (PUFs) and true random number generators (TRNGs).

ELEC 6220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 6230 PARALLEL PROCESSING (3) LEC. 3. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.

ELEC 6240 NEURAL NETWORKS (3) LEC. 3. Principles, architectures, and technologies of neural networks; design and implementation of neural networks using electronics and optics; applications of neural networks.

ELEC 6250 COMPUTER AIDED DESIGN OF DIGITAL INTEGRATED CIRCUITS (3) DSL/LEC. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation, verification, fault diagnosis and testing, RTL-to-GDSII ASIC flow.

ELEC 6260 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 6290 HARDWARE SECURITY II (3) LEC. 3. Pr. ELEC 5210 or ELEC 6210. This course will provide an in-depth analysis of various topics, which includes advanced cryptography, hardware Trojans, PUFs, RFID security, side-channel attacks and solutions, and blockchain.

ELEC 6310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 6320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 6340 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 6350 RADAR PRINCIPLES (3) LEC. 3. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 6410 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 6470 FUNDAMENTALS OF VLSI TEST (3) LEC. 3. Test economics, automatic test equipment, fault models, automatic test pattern generation, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability, scan and boundary scan, IDDQ testing

ELEC 6530 ROBOT CONTROL (3) LEC. 3. Design, analysis, and simulation of robotic manipulator control. An exploration of kinematics, inverse kinematics, equation of motion, various control strategies, including classic computed-torque feedback control, modern optimal control and AI-based methods such as reinforcement learning and neural network control.

ELEC 6600 ELECTRIC VEHICLES (3) LEC. 3. Electric vehicles, technical aspects, mathematical relationships, and basic design guidelines on electric powertrain, traction inverters, electric machines, motor drives, power converter components, Wide Band Gap power electronics, permanent magnets, battery charging infrastructures, grid interactions, the roles in microgrids and smart grids, and computer simulations.

ELEC 6610 POWER ELECTRONICS (3) LEC. 3. Power electronic circuits, components, and devices. Departmental Approval.

ELEC 6620 POWER SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.

ELEC 6630 ELECTRIC MACHINES (3) LEC. 3. Departmental approval. Fundamentals of the electromagnetic-mechanical energy conversion process. Principles of operation, application, and control of ac and dc motors and generators.

ELEC 6640 RENEWABLE ENERGY IN ELECTRICAL POWER SYSTEMS (3) LEC. 3. Conventional power plants, global renewables, energy efficiency, marine hydrokinetic (ocean currents and waves), wind power (aerodynamic, generator, plants, grid integration, finance), photovoltaic (device, inverter, plant levels, finance), hydropower (generator, plant level, pumped storage hydro, advances in hydro), power systems grid integration, system impact studies, control and operation of inverter-based resources, ancillary services provisions, and other important aspects of renewables for bulk power (transmission levels) and for distribution power systems.

ELEC 6650 POWER SYSTEM PROTECTION (3) LEC. 3. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 6660 SMART GRIDS (3) LEC. 3. Conventional power systems, renewable energy, inverter base resources, smart grid challenges and opportunities, real-time management, grid edge sensors, communications, advanced system protection, restoration, reactive/voltage control, real power/frequency regulation, monitoring and diagnostics, microgrids concept.

ELEC 6670 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. 3. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 6690 MICROGRIDS (3) LEC. 3. Distribution power system modeling, inverter-based resources, control, protection, resilience, and security technologies within distributed energy resources (generation, distribution, energy storage, reactive compensation, renewable energy resources) covering microgrid design, analysis, and operation.

ELEC 6700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 6710 SEMICONDUCTOR DEVICES (3) LEC. 3. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 6720 LASER-MATERIAL INTERACTIONS (3) LEC. 3. Departmental approval. Fundamental principles of lasers, optics, and laser-matter interaction mechanisms in various laser-based manufacturing, materials processing, and diagnostic techniques.

ELEC 6730 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 6750 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3. Departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.

ELEC 6760 SOLID STATE SENSORS (3) LEC. 3. Theory, technology and design of micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 6770 VLSI DESIGN (3) LEC. 3. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 6780 ANALOG CIRCUIT DESIGN (3) LEC. 3. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 6810 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 6820 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 6970 SPECIAL TOPICS (1-5) DSL. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 24 credit hours.

ELEC 7190 ADVANCED RFIC DESIGN FOR WIRELESS COMMUNICATIONS (3) LEC. Pr. ELEC 5190 or ELEC 6190 or ELEC 6196. Wireless standards and multi-standard transceiver architectures, SiGe and CMOS RFIC designs for wireless transceiver building blocks, software defined radios, phase array radars, ultra-high speed data converters, and MIMO wireless transceivers.

ELEC 7250 VLSI TESTING (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Exponential nature of the test problem, fault models, test generation algorithms, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability approaches.

ELEC 7310 ADVANCED ELECTRODYNAMICS I (3) LEC. 3. Departmental approval. Review of basic electromagnetics. Electromagnetic wave propagation in infinite and bounded media. Equivalence Principle, Uniqueness Theorem, Reciprocity, Green's functions and Plane wave functions.

ELEC 7320 ADVANCED ELECTRODYNAMICS II (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Cylindrical wave functions. Spherical wave functions. Scattering by cylinders and spheres. Perturbational and variational techniques.

ELEC 7410 STOCHASTIC SIGNAL AND SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Applications of probability, random variables and stochastic processes in electrical engineering.

ELEC 7440 WIRELESS COMMUNICATION THEORY (3) LEC. 3. Pr. ELEC 3400 or ELEC 7410 or ELEC 7416. The basic of design, analysis and performance limits of wireless communication systems.

ELEC 7450 DIGITAL IMAGE PROCESSING (3) LEC. 3. Departmental approval. Digital image processing principles and applications such as enhancement, restoration and compression.

ELEC 7470 ADVANCED VLSI TEST (3) LEC. 3. Pr. ELEC 5470 or ELEC 6470. Memory/PLA/FPGA testing, delay fault testing, test compression, in-field testing, cell-aware test, adaptive test, system-level test.

ELEC 7500 STATE-VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 3. Departmental approval. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.

ELEC 7520 ADVANCED DISCRETE CONTROL (3) LEC. 3. Departmental approval. Discrete state modeling. Pole assignment and estimation. Multi-rate sampled systems. Non-synchronous sampled systems. MIMO.

ELEC 7560 NONLINEAR SYSTEMS AND CONTROL (3) LEC. 3. Pr. ELEC 7500 or ELEC 7506. Departmental approval. Principles of nonlinear system modeling and analysis; nonlinear control systems design; nonlinear system state estimation.

ELEC 7610 POWER SYSTEM DYNAMICS AND STABILITY (3) LEC. 3. Pr. (ELEC 5620 or ELEC 6620 or ELEC 6626) and (ELEC 5650 or ELEC 6650 or ELEC 6656). Departmental approval. Dynamic models of power systems and analysis of power system stability.

ELEC 7620 POWER SYSTEM OPERATION (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Unit commitment, power system security, state estimation, power system control centers and real-time applications.

ELEC 7630 ADVANCED ELECTRIC MACHINES (3) LEC. 3. Pr. ELEC 5630 or ELEC 6630 or ELEC 6636. Departmental approval. Advanced machine modeling, including Kron's generalized machine theory, Park's transformation, and generalized coordinate transformations. Derivation of traditional machine models. Machine non-linearities, including finite element analysis.

ELEC 7640 POWER SYSTEM TRANSIENTS (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Transients in electric power systems, including lightning and switching phenomena. Traveling waves on power transmission lines, BIL, BSL, line insulation. System modeling.

ELEC 7710 THE FIELD-EFFECT TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern field-effect transistor: the state-of-the art, the MOS capacitor, the 4-terminal MOSFET, short and narrow-channel effects, reliability, scaling theory, modeling, silicon-on-insulator technology, heterostructure devices.

ELEC 7720 THE BIPOLAR TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern bipolar junction transistor; the state-of-the-art, terminal currents, solutions for arbitrary doping profiles, the polysilicon emitter contact, high-injector effects, dynamic operation, device models, heterojunction bipolar transistors.

ELEC 7750 LOW TEMPERATURE ELECTRONICS (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of electronic devices operating at reduced temperatures: the case for cryogenic computers, semiconductor physics at low temperatures, carrier freeze-out, cooled CMOS technology, cooled bipolar technology, superconductors, packaging.

ELEC 7760 SILICON-BASED HETEROSTRUCTURE DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 5700 or ELEC 6700 or ELEC 6706. Departmental approval. Bandgap engineering, strained SiGe and Si, SiGe BiCMOS technology, noise, linearity, circuits applications.

ELEC 7770 ADVANCED VLSI DESIGN (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Departmental approval. Review of CMOS logic circuits; impact of fabrication issues on design; high speed switching circuits; high performance memory structures; advanced clocking strategies and clock distribution; performance optimization; deep submicron design issues; ASIC design flow: logic synthesis, placement and routing; design verification; low power design.

ELEC 7780 RF MICROELECTRONICS (3) LEC. 3. Pr. ELEC 5780 or ELEC 6780 or ELEC 6786. Departmental approval. Techniques used in the design of monolithic integrated circuits for RF applications.

ELEC 7830 PHOTOVOLTAICS (3) LEC. 3. Departmental Approval. Theory, technology, design and application of photovoltaic devices and systems.

ELEC 7900 INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 7950 ELECTRICAL ENGINEERING SEMINAR (1-10) SEM. SU. Course may be repeated for a maximum of 10 credit hours.

ELEC 7970 SPECIAL TOPICS (1-5) DSL. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change of topic. Course may be repeated for a maximum of 24 credit hours.

ELEC 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated for a maximum of 6 credit hours.

ELEC 8120 PRINCIPLES OF NETWORK PERFORMANCE ANALYSIS (3) LEC. 3. Pr. (ELEC 5120 or ELEC 6120 or ELEC 6126) and (ELEC 7410 or ELEC 7416). Data network performance analysis, queueing systems, admission control, network traffic modeling, network calculus, flow and congestion control, wireless network analysis, and network simulation.

ELEC 8420 DETECTION AND ESTIMATION THEORY (3) LEC. 3. Pr. ELEC 7410 or ELEC 7416. Decision theory concepts. Detection of deterministic and random signals in noise; parameter estimation. Bayesian and maximum likelihood approaches, non-random and random parameter estimation; signal estimation.

ELEC 8560 ADAPTIVE CONTROL (3) LEC. 3. Pr. ELEC 7500 or ELEC 7506. Departmental approval. Theory and application of adaptive control systems. Real-time parameter estimation, self-tuning regulators, model-reference adaptive systems, stability, auto-tuning and gain scheduling controllers.

ELEC 8710 ADVANCED TOPICS IN SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of selected topics in semiconductor devices. Course may be repeated for a maximum of 6 credit hours.

ELEC 8900 ADVANCED INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 8970 ADVANCED SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 9 credit hours.

ELEC 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individual doctoral dissertation research. Course may be repeated with change in topics.

Computer Engineering (CMPE)

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	**COMP 1210 Fundamentals of Computing I**	**3**
CHEM 1031 Fundamental Chemistry I Laboratory	1	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	ENGR 1110 Introduction to Engineering	2
ENGR 1100 Engineering Orientation	0	MATH 1620 Calculus II	4
MATH 1610 Calculus I	4	PHYS 1600 Engineering Physics I	4
Core Fine Arts[1]	3		
	14		**16**

Sophomore

Fall	Hours	Spring	Hours
COMP 2210 Fundamentals of Computing II	**4**	**COMP 2710 Software Construction**	**3**
ELEC 2200 Digital Logic Circuits	**3**	**ELEC 2110 Electric Circuit Analysis**	**4**
MATH 2630 Calculus III	4	**ELEC 2220 Computer Systems**	**3**
PHYS 1610 Engineering Physics II	4	MATH 2650 Linear Differential Equations	3
		MATH 2660 Topics in Linear Algebra	3
	15		**16**

Junior

Fall	Hours	Spring	Hours
COMP 2240 Discrete Structures	**3**	**COMP 3270 Introduction to Algorithms**	**3**
COMP 3500 Introduction to Operating Systems	**3**	**ELEC 3050 Embedded System Design Lab**	**1**
ELEC 2120 Signals and Systems	**4**	**ELEC 3800 Random Signals and Systems**	**3**
ELEC 2210 Digital Electronics	**4**	**ELEC 4200 Digital System Design**	**3**
Core History[1]	3	Core History or Core Social Science[1]	3
		Ethics[2]	3
	17		**16**

Senior

Fall	Hours	Spring	Hours
ELEC 4010 Capstone Design I	**1**	**ELEC 4020 Capstone Design II**	**3**
CMPE Elective[3]	**3**	**CMPE Elective[3]**	**5**
ELEC 5200 Computer Architecture and Design	**3**	Free Elective[4]	3
ELEC 5220 Information Networks and Technology	**3**	Core Literature[1]	3
INSY 3600 Engineering Economy[4]	3	UNIV 4AA0 Achieve the Creed	0
Core Social Science[1]	3		
	16		**14**

Total Hours: 124

Comments:

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2 Ethics course options: PHIL 1020 Introduction to Ethics, PHIL 1030 Ethics and the Health Sciences, PHIL 1040 Business Ethics, and PHIL 1110 Ethical and Conceptual Foundations of Science.
3 CMPE elective - see advisor for approved course listing.
4 For students completing the ROTC program, the first ROTC course may be used as the 3-hour free elective, and the second ROTC course may be substituted for INSY 3600.

Electrical Engineering (ELEC)

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	COMP 1220 Introduction to Computing with Python[2]	2
CHEM 1031 Fundamental Chemistry I Laboratory	1	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	ENGR 1110 Introduction to Engineering	2
ENGR 1100 Engineering Orientation	0	MATH 1620 Calculus II	4
MATH 1610 Calculus I	4	PHYS 1600 Engineering Physics I	4
Core Fine Arts[1]	3		
	14		**15**

Sophomore

Fall	Hours	Spring	Hours
ELEC 2200 Digital Logic Circuits	**3**	**ELEC 2110 Electric Circuit Analysis**	**4**
ENGR 2100 Fundamentals of Engineering Mechanics[6]	3	**ELEC 2220 Computer Systems**	**3**
MATH 2630 Calculus III	4	MATH 2650 Linear Differential Equations	3
PHYS 1610 Engineering Physics II	4	MATH 2660 Topics in Linear Algebra	3
Core History[1]	3	Core History or Core Social Science[1]	3
	17		**16**

Junior

Fall	Hours	Spring	Hours
ELEC 2120 Signals and Systems	**4**	**ELEC 3030 RF Systems Lab**	**1**
ELEC 2210 Digital Electronics	**4**	**ELEC 3040 Electrical System Design Lab**	**1**
ELEC 3310 Fundamentals of Applied Electromagnetics	**3**	**ELEC 3320 Electromagnetics for Wireless Communication**	**3**
ELEC 3600 Electric Power Engineering	**3**	**ELEC 3500 Control Systems**	**3**
Ethics[3]	3	**ELEC 3700 Analog Electronics**	**3**
		ELEC 3800 Random Signals and Systems	**3**
	17		**14**

Senior

Fall	Hours	Spring	Hours
ELEC 3400 Communication Systems	**3**	**ELEC 4020 Capstone Design II**	**3**
ELEC 4010 Capstone Design I	**1**	ENGR 2200 Introduction To Thermodynamics, Fluids And Heat Transfer[5,6]	3
INSY 3600 Engineering Economy	3	Core Literature[1]	3
Core Social Science[1]	3	**ELEC Elective[6]**	**3**
ELEC Elective[6]	**3**	Free Elective[5]	3

Technical Elective[4]	3	UNIV 4AA0 Achieve the Creed	0
	16		**15**

Total Hours: 124

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2 Students take the C-programming version of COMP 1200, or they may opt for the 3 credit course COMP 1210 Fundamentals of Computing I. Only two credits of COMP 1210 will count in place of COMP 1200, and the third hour may count toward free elective credit.

3 Ethics course options: PHIL 1020 Introduction to Ethics, PHIL 1030 Ethics and the Health Sciences, PHIL 1040 Business Ethics, and PHIL 1110 Ethical and Conceptual Foundations of Science.

4 Technical elective is chosen from an approved list of MATH/SCIENCE, ELEC, and other College of Engineering electives.

5 For students completing the ROTC program, the first ROTC course may be used as the 3-hour free elective, and the second ROTC course may be substituted for ENGR 2200.

6 Students accepted into a Specialization will replace ENGR 2100, ENGR 2200, and the two ELEC electives with elective courses approved for the Specialization. See the Department Advisor for details.

ELEC and Technical Elective: see adviser for approved course listing.

Department of Industrial and Systems Engineering

Industrial and systems engineers plan, design, implement, and analyze systems. This engineering discipline is where technology, people, business and information intersect. The degree provides graduates with broad, flexible career opportunities with manufacturing, consulting, service or governmental organizations. The degree can also provide the foundation and background for further studies in engineering and business as well as professions such as law or medicine. The curriculum builds on a solid engineering mathematics and science core and adds courses in manufacturing, ergonomics and safety, operations research, statistics, quality control, engineering economics, simulation, and information technologies. The curriculum graduates students who have:

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- An ability to communicate effectively with a range of audiences
- An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Majors

- Industrial and Systems Engineering (p. 702)

Minors

- Business Engineering Technology (p. 700)
- International Business Engineering Technology (p. 703)
- Advanced Manufacturing Processes (p. 700)

Undergraduate Certificates

- Applied Safety and Ergonomics
- Manufacturing Systems (p. 701)

Courses

INSY 3010 PROGRAMMING AND DATABASE APPLICATIONS FOR ISE (3) LEC. 3. Pr. COMP 1200 or COMP 1220 or COMP 1230. Programming and database applications for ISE students. Focus is on algorithm development as related to optimization, probability, statistics, and data analysis.

INSY 3017 HONORS PROGRAMMING AND DATABASE APPLICATIONS FOR ISE (3) LEC. 3. Pr. COMP 1200 or COMP 1220 or COMP 1230. Programming and database applications for ISE students. Focus is on algorithm development as related to optimization, probability, statistics, and data analysis.

INSY 3020 OCCUPATIONAL SAFETY ERGONOMICS (3) LEC. 3. Basic principles of occupational safety engineering and ergonomics in the evaluation and design of occupation work areas and processes that include human operators.

INSY 3021 METHODS ENGINEERING AND WORK MEASUREMENT (3) LEC. 2. LAB. 2.5. Develops the student's ability to design workplaces and methods while providing an understanding of the work measurements process. Enables students to generate much of the basic methods data utilized in most industrial engineering projects.

INSY 3030 MANUFACTURING PROCESSES AND CAD (3) LEC. 2. LAB. 2.5. Pr. (COMP 1200 or COMP 1210 or COMP 1217 or COMP 1220 or COMP 3000) and (ENGR 1110 or ENGR 1113). Use of computer technology to aid engineering design in industrial applications, e.g. represent and modify mechanical parts, diagrams, schematics, tools, equipment, office and plant layouts, etc. This course aims to provide students with all the necessary understanding of typical part design and fabrication processes.

INSY 3400 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 2660 or MATH 2667) and STAT 3600. with a grade of C or better in STAT 3600. Modeling and analysis of decision-making and operations subject to randomness including decision analysis, stochastic dynamic programming, Markov chains, and queuing theory.

INSY 3410 DETERMINISTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and MATH 2660 and P/C INSY 3010. Formulation, solution, interpretation, and implementation of mathematical models in operations research including linear programming, integer programming and network flows.

INSY 3420 SIMULATION (3) LEC. 2. LAB. 3. Pr. INSY 3400 and (COMP 3010 or COMP 3013 or INSY 3010) and STAT 3610. with a grade of C or better in INSY 3400. Simulation procedures for solving complex systems analysis problems. Emphasis on random processes, model building and construction of computer simulation models.

INSY 3600 ENGINEERING ECONOMY (3) LEC. 3. Pr. ENGR 1110 or ENGR 1113. Principles required in engineering economic studies. Junior or Senior standing.

INSY 3607 HONORS ENGINEERING ECONOMY (3) LEC. 3. Pr. Honors College. ENGR 1110 or ENGR 1113. Principles required in engineering economic studies.

INSY 3700 OPERATIONS PLANNING AND CONTROL (3) LEC. 3. Pr. INSY 3400 and INSY 3410 and STAT 3610. with a grade of C or better in both INSY 3400 and INSY 3410. Analytical methods for operations planning and control, including forecasting systems, production planning, inventory control systems, scheduling systems, and project management.

INSY 3800 MANUFACTURING SYSTEMS I (3) LEC. 2. LAB. 3. Introduction to the design, analysis, and operation of manufacturing systems, the first course in a required two-course sequence including Manufacturing Systems II. Departmental approval required for non-INSY majors.

INSY 4330 STATISTICAL QUALITY DESIGN AND CONTROL (3) LEC. 3. Pr. STAT 3610. Statistical process control and methods for quality improvement. Acceptance sampling for attributes and for variables.

INSY 4500 PROFESSIONAL PRACTICE (1) LEC. 1. Pr. P/C INSY 3700. Discussion and activities in current problems, the global context of, professional practice, professional opportunities and lifelong learning in Industrial and Systems Engineering. Senior standing in INSY.

INSY 4610 INTERNATIONAL ENGINEERING PROJECT (3) LEC. 3. This course provides students with a real-life work experience in solving engineering-business problems through teamwork in an international setting. At the course end, students present their project to faculty and industry sponsors. The course is Auburn University Faculty led in which students work in groups mentored by faculty from Auburn and foreign universities and company sponsors. Students will be involved in projects that expose them to theory and practice of problem solving techniques involving data collection, statistical analysis, computational modeling, and experimental design of problems related to the service and manufacturing industries.

INSY 4700 MANUFACTURING SYSTEMS II (3) LEC. 3. Pr. INSY 3010 and INSY 3400 and INSY 3410 and INSY 3420 and (INSY 3600 or INSY 3607) and INSY 3700 and INSY 3800. Continuation of the design, analysis, and operation of manufacturing systems, the second course in a required two-course sequence including Manufacturing Systems I.

INSY 4800 SENIOR DESIGN (3) LEC. 0. LAB. 3. Pr. INSY 3021 and (INSY 4500 or INSY 4503) and P/C INSY 4700. Capstone course in which undergraduate course-work principles are brought to bear upon a design problem in a cooperating industry or institution.

INSY 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Individual student endeavor under faculty supervision involving special problems in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 4970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-10) AAB. Departmental approval. Special topics in Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 10 credit hours.

INSY 5010 OCCUPATIONAL SAFETY ENGINEERING (3) LEC. 3. Pr. INSY 3020. Departmental approval. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design, and maintenance, and operation of effective safety programs. Credit will not be given for both INSY 5010 and INSY 6010/6016.

INSY 5050 INDUSTRIAL HYGIENE AND ENVIRONMENTAL HAZARDS (3) LEC. 3. Introduction to the basic concepts of industrial hygiene with emphasis on the industrial hygiene/safety interface and on the evaluation and control of chemical exposures, biological hazards, noise and heat stress for undergraduate engineers.

INSY 5080 HUMAN FACTORS ENGINEERING (3) LEC. 3. Human Factors Engineering is the science of designing products and systems for optimal human well-being and system performance. This course will focus on information processing and the cognitive aspects of ergonomics design. Students will gain insight into the effects of various environments (hot, cold, noise, information overload, etc.) on humans and human performance. Physical ergonomics will be addressed somewhat as well. Emphasis is on human information input, output, and control processes with the objective of optimizing the integration of the human into simple and complex systems.

INSY 5100 SYSTEMS ENGINEERING I (3) LEC. Processes and tools for engineering large-scale, complex systems: architecture, requirements, risk management, evaluation, concept exploration, decision-making, tradeoff studies, life cycle models, decomposition, system coupling, test, verification, validation, system modeling, business process re-engineering, sensitivity analysis, teamwork, process maturity, and documentation.

INSY 5110 SYSTEMS ENGINEERING 2: SYSTEM LIFECYCLE REQUIREMENTS (3) LEC. 3. Pr. INSY 5100. The System Lifecycle Requirements course focuses on developing, properly writing, and decomposing requirements for complex systems across the entire system life cycle. Well written requirements are a solid foundation for system design development and this course will identify design considerations at early concept identification, design maturation, implementation, production, operations & sustainment, and disposal phases. Students will exercise stakeholder needs elicitation, requirements writing and decomposition, and will apply life cycle considerations during requirements development and evolution.

INSY 5120 DIGITAL SYSTEMS ENGINEERING DESIGN (3) LEC. 3. The study and practice of digital system engineering design methods include both object-oriented and structured analysis-based techniques. Design description languages, such as SysML, are introduced and used to carry out complete system designs. This process encompasses stakeholder analysis, requirement definition, logical architecture, physical architecture, as well as system evaluation, validation, and verification.

INSY 5130 MODEL-BASED SYSTEMS ENGINEERING (3) LEC. 3. Pr. INSY 5120. Model-Based Systems Engineering (MBSE) offers a structured framework for applying modeling to facilitate the engineering of complex systems. This course is designed to explore and apply prominent methodologies in MBSE, elucidating its approaches in systems engineering and management. Emphasis is placed on advanced object-oriented systems engineering methodologies and model transformation techniques. Throughout the course, students will be introduced to software tools that play a pivotal role in supporting the design phase of systems engineering.

INSY 5240 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Pr. INSY 3700. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240/6246.

INSY 5250 PROJECT MANAGEMENT (3) LEC. 3. Introduction to project management for engineering, business and technology including; project management concepts, project life cycle, planning techniques, scheduling and network analysis, cost estimating and budgeting, risk management, execution and control, and evaluation and closeout.

INSY 5330 SIX SIGMA (3) LEC. 3. This course covers the six sigma engineering techniques. The content emphasizes the DMAIC (Define, Measure, Analyze, Improve, and Control) methodology combined with Lean management practices through analytical and quantitative tools.

INSY 5400 MULTI-PARADIGM MODELING AND SIMULATION (3) LEC. 2. LAB. 1. Pr. INSY 3420. Multi-paradigm simulation modeling procedures for analyzing real-world complex systems. Emphasis on model building, and construction of multi-paradigm computer simulation models using Agent Based Modeling, System Dynamics, and Discrete Event Simulation approaches.

INSY 5450 SIMULATION-BASED PLANNING AND SCHEDULING (3) LEC. 3. Pr. INSY 3420. A graduate/undergraduate course in simulation-based planning and scheduling. Topics include intermediate simulation modeling, dispatching and scheduling methods, and implementation of scheduling systems and supply chain planning systems using a commercial simulation software package.

INSY 5500 MODERN TOOLS FOR DATA ANALYTICS AND MODELING (3) LEC. 3. Pr. INSY 3010. Introduction to modern data science tools with applications in manufacturing and service industries and operations. Focus on the manipulation and use of small and large datasets. Tools include Jupyter, Python, R, and MySQL along with the related packages that support data modeling, visualization, and analysis.

INSY 5550 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Pr. INSY 3010. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550/6556.

INSY 5600 ENGINEERING ECONOMIC SYSTEMS (3) LEC. 3. Pr. INSY 3600. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600/6606.

INSY 5650 HEALTHCARE SYSTEMS, CULTURE, AND POLICY (3) LEC. 3. This course aims to introduce the basic structures and operations of the U.S. Healthcare (HC) delivery system and the resources that comprise it. The course introduces and describes the U.S. healthcare system, the major service components and complexities, and the history and basis of HC. Topics to be covered include professional roles and accreditation, data and data reporting in HC, including performance, quality, and outcome measures.

INSY 5660 HEALTHCARE OPERATIONS (3) LEC. 3. LAB. 0, LEC. 0. Strategies to apply traditional Industrial Engineering skills in a variety of healthcare contexts such as doctors offices, hospitals and pharmacies.

INSY 5670 HUMAN FACTORS IN HEALTHCARE (3) LEC. 3. LAB. 0, LEC. 0. The application of human factors engineering and ergonomics in healthcare.

INSY 5700 DIGITAL DRAWINGS, GEOMETRIC TOLERANCES, AND METROLOGY FOR INDUSTRY 4.0 (4) LEC. 3. LAB. 2.33. Digital manufacturing begins with accurate electronic drawings designed with precision measurement in mind. This course covers the design, dimensioning, tolerancing, and inspection for part and assembly manufacturing from the ASME Y14.5 (2018) Standard. Students will model parts in a CAD program, create manufacturing inspection drawings with applied GD&T concepts, and work with an industry grade Coordinate Measurement Machine (CMM) software to develop inspection plans. Basic Computer Aided Design (CAD) concepts are taught in Fusion 360. Department approval.

INSY 5710 BASIC CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. LAB. 0, LEC. 0. This is the first of a two-semester program detailing all the manufacturing processes available in the 21st Century. There is an emphasis on the interaction of shapes, materials and process in design and economic decision making. Students will review basic fundamentals of acceptance testing, material properties and characteristics as a foundation for all process decisions. Processes introduced in this course will include metal casting, rolling and forging. Departmental approval required.

INSY 5720 ADVANCED CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. LAB. 0, LEC. 0. This is the second of a two-semester program detailing all the manufacturing processes available in the 21st Century. There is emphasis on the interaction of shapes, materials and process in design and economic decision making. This course covers all the classic subtractive machining, modern subtractive methods and all the joining methods. The course concludes with automation of manufacturing processes, computer aided and integrated manufacturing along with the standards of Industry 4.0. Departmental approval required.

INSY 5730 CONCEPTS OF COMPUTER NUMERICAL CONTROLS (4) LEC. 3. LAB. 2.33, LEC/LLB. 0. Pr. INSY 5700. Departmental approval. This course will introduce key concepts involved in the use of Computer Aided Machining. Concepts include the construction of tools within CAM software, determining feeds and speeds from tool manufacturer specifications, basics of G-Code and M-Code, and various tool pathing operations. The course covers model-based CAM, conversational CAM, and basic 3D printing concepts. The model-based CAM portion will cover 3 axis and 5 axis mill work, lathe operations, and mill turn operations.

INSY 5740 CONCEPTS OF INDUSTRY 4.0 (3) LEC. 2. LAB. 2.33, LEC/LLB. 0. Pr. INSY 5700. Departmental approval. Students develop a firm understanding of the fundamentals of Mechatronics and learn how to utilize these new tools in conjunction with the Industrial Internet of Things (IIOT) via the MTConnect Standard. Topics include circuits, sensors, actuators, controls, communication protocols, Industry 4.0, and the MTConnect Standard. Labs will be held at the Interdisciplinary Center for Advanced Manufacturing Systems (ICAMS).

INSY 5800 LEAN SYSTEMS (3) LEC. 2. LAB. 2. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800/6806.

INSY 5830 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830/6836.

INSY 5840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia, and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840/6846.

INSY 5850 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850/6856.

INSY 5860 INNOVATIONS IN MANUFACTURING SYSTEMS (3) LEC. 3. This course reviews the history of manufacturing and discusses the contributions of the automotive manufacturing industry in developing most of the major manufacturing systems improvements over the decades. Issues associated with suppliers are presented related to processes, supply chain, product and process improvement, quality control, and costs. In addition, the issue of globalization and the digitalization of manufacturing is investigated. Finally, a discussion of future manufacturing technologies and impacts will be discussed. Credit will not be given for both INSY 5860 and INSY 6860/6866.

INSY 5870 INTERACTIVE SENSING SYSTEMS (3) LEC. 3. Pr. (INSY 3010). Interactive Sensing Systems is an advanced course designed to provide students with in-depth knowledge and hands-on experience in developing intelligent systems that integrate microcontrollers and sensors. The course emphasizes the practical application of sensor technologies and microcontroller programming to solve real-world problems.

INSY 6010 OCCUPATIONAL SAFETY ENGINEERING (3) LEC. 3. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design and maintenance, and operation of effective safety programs. Credit will not be given for both INSY 5010 and INSY 6010.

INSY 6050 INDUSTRIAL HYGIENE AND ENVIRONMENTAL HAZARDS (3) LEC. 3. Introduction to the basic concepts of industrial hygiene with emphasis on the industrial hygiene/safety interface and on the evaluation and control of chemical exposures, biological hazards, noise and heat stress for graduate engineers.

INSY 6080 HUMAN FACTORS ENGINEERING (3) LEC. 3. Human Factors Engineering is the science of designing products and systems for optimal human well-being and system performance. This course will focus on information processing and the cognitive aspects of ergonomics design. Students will gain insight into the effects of various environments (hot, cold, noise, information overload, etc.) on humans and human performance. Emphasis is on human information input, output, and control processes with the objective of optimizing the integration of the human into simple and complex systems.

INSY 6100 SYSTEMS ENGINEERING I (3) LEC. 3. Processes and tools for engineering large-scale, complex systems: architecture, requirements, risk management, evaluation, concept exploration, decision-making, tradeoff studies, life cycle models, decomposition, system coupling, test, verification, validation, system modeling, business process re-engineering, sensitivity analysis, teamwork, process maturity and documentation. Credit will not be given for both INSY 5100 and INSY 6100.

INSY 6110 SYSTEMS ENGINEERING 2: SYSTEM LIFECYCLE REQUIREMENTS (3) LEC. 3. All man-made systems have a life cycle. A life cycle is the series of stages (or phases) that a system passes through over time. This course is concerned with understanding the life cycle of systems and the development, definition, and management of requirements for systems or products with consideration to the life cycle.

INSY 6120 DIGITAL SYSTEMS ENGINEERING DESIGN (3) LEC. 3. The study and practice of digital system engineering design methods include both object-oriented and structured analysis-based techniques. Design description languages, such as SysML, are introduced and used to carry out complete system designs. This process encompasses stakeholder analysis, requirement definition, logical architecture, physical architecture, as well as system evaluation, validation, and verification.

INSY 6130 MODEL-BASED SYSTEMS ENGINEERING (3) LEC. 3. Model-Based Systems Engineering (MBSE) offers a structured framework for applying modeling to facilitate the engineering of complex systems. This course is designed to explore and apply prominent methodologies in MBSE, elucidating its approaches in systems engineering and management. Emphasis is placed on advanced object-oriented systems engineering methodologies and model transformation techniques. Throughout the course, students will be introduced to software tools that play a pivotal role in supporting the design phase of systems engineering.

INSY 6240 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240.

INSY 6250 PROJECT MANAGEMENT (3) LEC. 3. Introduction to project management for engineering, business and technology including; project management concepts, project life cycle, planning techniques, scheduling and network analysis, cost estimating and budgeting, risk management, execution and control, and evaluation and closeout.

INSY 6330 SIX SIGMA (3) LEC. 3. This course covers the six sigma engineering techniques. The content emphasizes the DMAIC (Define, Measure, Analyze, Improve, and Control) methodology combined with Lean management practices through analytical and quantitative tools.

INSY 6400 MULTI-PARADIGM MODELING AND SIMULATION (3) LLB. Pr. INSY 7400. Multi-paradigm simulation modeling procedures for analyzing real-world complex systems. Emphasis on model building, and construction of multi-paradigm computer simulation models using Agent Based Modeling, System Dynamics, and Discrete Event Simulation approaches. Students must have successfully passed a graduate level course in Probability and Statistics or an equivalent course, INSY 7400, or request instructor approval.

INSY 6450 SIMULATION-BASED PLANNING AND SCHEDULING (3) DSL/LEC. A graduate/undergraduate course in simulation-based planning and scheduling. Topics include intermediate simulation modeling, dispatching and scheduling methods, and implementation of scheduling systems and supply chain planning systems using a commercial simulation software package. Knowledge of simulation and basic understanding of Simio is required to enroll in course.

INSY 6500 MODERN TOOLS FOR DATA ANALYTICS AND MODELING (3) LEC. 3. Introduction to modern data science tools with applications in manufacturing and service industries and operations. Focus on the manipulation and use of small and large datasets. Tools include Jupyter, Python, R, and MySQL along with the related packages that support data modeling, visualization, and analysis.

INSY 6550 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550.

INSY 6600 ENGINEERING ECONOMIC SYSTEMS (3) LEC. 3. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600.

INSY 6650 HEALTHCARE SYSTEMS, CULTURE, AND POLICY (3) LEC. 3. LAB. 0, LEC. 0. This course aims to introduce the basic structures and operations of the U.S. Healthcare (HC) delivery system and the resources that comprise it. The course introduces and describes the U.S. healthcare system, the major service components and complexities, and the history and basis of HC. Topics to be covered include professional roles and accreditation, data and data reporting in HC, including performance, quality, and outcome measures.

INSY 6660 HEALTHCARE OPERATIONS (3) LEC. 3. LAB. 0, LEC. 0. Strategies to apply traditional Industrial Engineering skills in a variety of healthcare contexts such as doctors offices, hospitals and pharmacies.

INSY 6670 HUMAN FACTORS IN HEALTHCARE (3) LEC. 3. LAB. 0, LEC. 0. The application of human factors engineering and ergonomics in healthcare.

INSY 6700 DIGITAL DRAWINGS, GEOMETRIC TOLERANCES, AND METROLOGY FOR INDUSTRY 4.0 (4) LEC. 3. LAB. 2.33. Departmental approval. Digital manufacturing begins with accurate electronic drawings designed with precision measurement in mind. This course covers the design, dimensioning, tolerancing, and inspection for part and assembly manufacturing from the ASME Y14.5 (2018) Standard. Students will model parts in a CAD program, create manufacturing inspection drawings with applied GD&T concepts, and work with an industry grade Coordinate Measurement Machine (CMM) software to develop inspection plans. Basic Computer Aided Design (CAD) concepts are taught in Fusion 360.

INSY 6710 BASIC CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. Departmental approval. This is the first of a two-semester program detailing all the manufacturing concepts and processes available in the 21st Century. There is a heavy emphasis on the interaction of shapes, materials and process in design and economic decision making. Students will review basic fundamentals of acceptance testing, material properties and characteristics as a foundation for all process decisions. Processes introduced in this course will include metal casting, rolling, and extrusion.

INSY 6720 ADVANCED CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. Departmental approval. This is the second of a two-semester program detailing all the manufacturing concepts and processes available in the 21st Century. There is a heavy emphasis on the interaction of shapes, materials and process in design and economic decision making. This course covers all the classic and modern subtractive methods as well as the joining methods. Automation of manufacturing processes, computer aided and computer integrated manufacturing along with industry 4.0 are covered.

INSY 6730 CONCEPTS OF COMPUTER NUMERICAL CONTROLS (4) LEC. 3. LAB. 2.33. Pr. INSY 5700 or INSY 6700. Departmental approval. This course will introduce key concepts involved in the use of Computer Aided Machining. Concepts include the construction of tools within CAM software, determining feeds and speeds from tool manufacturer specifications, basics of G-Code and M-Code, and various tool pathing operations. The course covers model-based CAM, conversational CAM, and basic 3D printing concepts. The model-based CAM portion will cover 3 axis and 5 axis mill work, lathe operations, and mill turn operations.

INSY 6740 CONCEPTS OF INDUSTRY 4.0 (3) LEC. 2. LAB. 2.33. Pr. INSY 5700 or INSY 6700. Departmental approval. Students develop a firm understanding of the fundamentals of Mechatronics and learn how to utilize these new tools in conjunction with the Industrial Internet of Things (IIOT) via the MTConnect Standard. Topics include circuits, sensors, actuators, controls, communication protocols, Industry 4.0, and the MTConnect Standard. Labs will be held at the Interdisciplinary Center for Advanced Manufacturing Systems (ICAMS).

INSY 6800 LEAN SYSTEMS (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800.

INSY 6830 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830.

INSY 6840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840.

INSY 6850 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850.

INSY 6860 INNOVATIONS IN MANUFACTURING SYSTEMS (3) LEC. 3. This course reviews the history of manufacturing and discusses the contributions of the automotive manufacturing industry in developing most of the major manufacturing systems improvements over the decades. Issues associated with suppliers are presented related to processes, supply chain, product and process improvement, quality control, and costs. In addition, the issue of globalization and the digitalization of manufacturing is investigated. Finally, a discussion of future manufacturing technologies and impacts will be discussed. Credit will not be given for both INSY 5860 and INSY 6860.

INSY 6870 INTERACTIVE SENSING SYSTEMS (3) LEC/LLB. Interactive Sensing Systems is an advanced course designed to provide students with in-depth knowledge and hands-on experience in developing intelligent systems that integrate microcontrollers and sensors. The course emphasizes the practical application of sensor technologies and microcontroller programming to solve real-world problems.

INSY 7020 SYSTEM SAFETY ENGINEERING (3) LEC. 3. Systems safety analysis techniques including human error and reliability, fault trees, and cost benefit analysis.

INSY 7040 COGNITIVE ENGINEERING AND SYSTEM DESIGN (3) LEC. 3. Cognitive Engineering and System Design is an introduction into human capabilities and limitations in human-machine interaction, with a focus on human cognition, memory, attention, and error. The course emphasis is on cognitive engineering theory and its application to automated system design.

INSY 7060 FUNDAMENTALS OF ERGONOMICS (3) LEC. 3. Overview of the human body systems and evaluation of the physiological response of the human body to occupational activities with emphasis on task design.

INSY 7070 OCCUPATIONAL BIOMECHANICS (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Use of biomechanics in the evaluation and design of work activities. Emphasis is placed on biomechanical modeling, manual materials handling, tool design, and repetitive motion trauma.

INSY 7081 HUMAN FACTORS LABORATORY (1) LAB. 3. Coreq. INSY 7080. Laboratory experience in testing human factors principles and concepts covered in INSY 7080. Experience in proper writing of laboratory reports.

INSY 7100 ADAPTIVE OPTIMIZATION (3) LEC. 3. Departmental approval. Adaptive search methods inspired by nature for continuous and combinatorial optimization. Methods include simulated annealing, genetic algorithms, evolutionary strategies, tabu search and ant colony systems.

INSY 7120 DATA ANALYTICS FOR OPERATIONS (3) LEC. 3. or equivalent. This course covers the broad topics of predictive analytics, data visualization, and big data in the context of operations analysis. Focus will be on the application of modern computer tools with previously learned statistical and mathematical modeling tools, culminating in a semester project.

INSY 7130 DATA MINING TECHNIQUES AND APPLICATIONS FOR OPERATIONS (3) LEC. 3. or equivalent. This introductory course will cover the most common techniques for extracting useful information and models from numerical or categorical data. Techniques include clustering and classification, regression and spline models, kriging, and artificial neural networks. Also considered are data pre-processing, model building and model validation. Modeling and validation under conditions of sparse data will be addressed as well. Applications include those in finance, manufacturing, health care, and more.

INSY 7190 OCCUPATIONAL SAFETY AND HEALTH FORUM I (1) LEC. 1.

INSY 7290 OCCUPATIONAL SAFETY AND HEALTH PRACTICUM I (1) LEC. 1. Study of contemporary interdisciplinary issues in occupational safety and health. Investigation of real-world interdisciplinary OSH problems. Analysis and presentation of OSH concerns and solutions.

INSY 7300 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Advanced concepts of experimental design including blocked designs, analysis of variance regression approach, and fractional factorials in base-2 designs. Emphasis throughout is on developing and improving industrial products and processes. Credit will not be given for both INSY 7300 and STAT 7300.

INSY 7380 RELIABILITY ENGINEERING (3) LEC. 3. Departmental approval. Reliability Engineering is a sub-discipline of systems engineering that emphasizes the ability of a system or component to function without failure. This course covers concepts and methods to evaluate the reliability of engineering systems. The primary focus is on statistical reliability distributions, analysis of reliability data, prediction of failure and reliability modeling, accelerated life testing, reliability of complex systems, and design for reliability.

INSY 7390 OCCUPATIONAL SAFETY AND HEALTH FORUM II (1) LEC. 1. Pr. INSY 7190. Continuation of OSH Forum I (contemporary interdisciplinary issues in occupational safety and health). Emphasis is placed on leadership and mentoring of other OSH students (INSY 7190).

INSY 7400 APPLIED DISCRETE-EVENT SIMULATION MODELING (3) LEC. 3. Introductory graduate course in discrete event modeling and simulation. Course focus is on the application of modern simulation tools and techniques for solving design and analysis problems in manufacturing, service systems, and general operations.

INSY 7420 LINEAR PROGRAMMING AND NETWORK FLOWS (3) LEC. 3. Linear programming and network flows emphasizing algorithms and theory.

INSY 7430 INTEGER AND NONLINEAR PROGRAMMING (3) LEC. 3. Pr. INSY 7420 or INSY 7426. Departmental approval. Integer and non linear programming, emphasizing algorithms and theory.

INSY 7440 DYNAMIC PROGRAMMING (3) LEC. 3. Departmental approval. Aspects of sequential decision making with emphasis on formulation and solution using the dynamic programming algorithm. Approximation methods for problems involving large state spaces. Solution techniques for problems under uncertainty.

INSY 7450 STOCHASTIC OPTIMIZATION AND RISK (3) LEC. 3. Pr. INSY 7420. Stochastic Optimization and Risk is a course for graduate students in engineering, operations research, management science, etc. The objective of the course is to familiarize students with the challenges that uncertain or randomized data bring into the decision making/design process and introduce the general methods and approaches for dealing with such challenges. We will discuss various approaches to modeling of uncertainties and risk in optimization problems, properties of the resulting stochastic programming formulations, and several common techniques for solving stochastic programs.

INSY 7470 SEARCH METHODS FOR OPTIMIZATION (3) LEC. 3. Single and multivariate search techniques and strategies that are used in finding the optimum of discrete and continuous functions.

INSY 7490 OCCUPATIONAL SAFETY AND HEALTH PRACTICUM II (1) LEC. 1. Pr. INSY 7290. Investigation of real-world interdisciplinary OSH problems. Analysis and presentation of OSH concerns and solutions. Emphasis is placed on leadership and mentoring of other OSH students (INSY 7290).

INSY 7550 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Stochastic operations research models with emphasis on model formation, solution and interpretation of results. Emphasis on stochastic processes, queuing theory and their applications.

INSY 7710 SYSTEM LIFECYCLE REQUIREMENTS (3) LEC. 3. The System Lifecycle Requirements course focuses on developing and writing proper requirements for systems across the entire life cycle. Well written requirements are a solid foundation for system design development and this course will identify design considerations at early concept identification, design maturation, implementation, production, operations & sustainment, and disposal phases. Students will exercise stakeholder needs elicitation, requirements writing, requirements decomposition, and applying life cycle considerations during requirements development process during a semester long project.

INSY 7730 PRODUCT DESIGN, DEVELOPMENT, AND TEST (3) LEC. 3. This class teaches modern tools and methods for product design, development,and test of highly complex and large systems including technical specification, reliability, maintainability, manufacturability, testability, marketing, costs, etc. May count either INSY 7730 or INSY 7736.

INSY 7740 PRODUCT LAUNCH, MANUFACTURING, AND DELIVERY (3) LEC. 3. This course teaches students the issues, strategies, and approaches related to launching, manufacturing, and delivering new products or services including customer focus, marketing, manufacturing and launch strategies, delivery and related tools and techniques.

INSY 7750 INTELLECTUAL PROPERTY, LEGAL, AND VENTURE CAPITAL (3) LEC. 3. This course teaches students the US law of intellectual property with major emphasis on patents. Students also learn venture capital including stages of funding, funding presentations, various requirements of funding, types of partnership, exit plans, etc. May count either INSY 7750 or INSY 7756.

INSY 7760 ENGINEERING & TECHNOLOGY MANAGEMENT (3) LEC. 3. Engineering Management is the branch of management that focuses on leading technical personnel in the management of engineering driven enterprises. This course emphasizes the application of management principles to the engineering of large-scale systems and research efforts. It focuses on the planning, individual & team motivation, strategic /tactical management, change and risk management and decision-making necessary to manage a company’s technical portfolio.

INSY 7940 INDUSTRIAL AND SYSTEMS ENGINEERING PROBLEMS (1-5) DSL/IND. Departmental approval. Individual student endeavor under staff supervision involving special problems of an advanced undergraduate or graduate nature in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 7950 SEMINAR (1) LEC. 1. SU. Presentation and discussion of ISE research by graduate students, faculty and guests. Must be taken at least one term and cannot be used in the plan of study to apply towards the minimum number of hours for a degree.

INSY 7970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. 1. LAB. 1. Departmental approval. Special topics of a graduate nature pertinent to Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 7980 MASTER'S IN INDUSTRIAL AND SYSTEMS ENGINEERING PROJECT (1-5) DSL/IND. SU. Non-thesis master's project. Course may be repeated for a maximum of 5 credit hours.

INSY 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Individual masters research. May be repeated for credit. Course may be repeated with change in topics. No more than six hours may be counted toward meeting degree requirements. Must be an INSY major.

INSY 8010 ADVANCED SAFETY ENGINEERING (3) LEC. 3. Pr. INSY 7020 or INSY 7026. Topics of current interest in occupational safety research. Occupational safety research methodology and research priorities.

INSY 8020 RESEARCH METHODS IN OCCUPATIONAL SAFETY, ERGONOMICS, AND INJURY PREVENTION (3) LEC. 3. Pr. INSY 7300 or INSY 7306 or INSY 7060 or INSY 7066 or INSY 6010 or INSY 6016. To introduce students to contemporary and developmental research methods in occupational safety, ergonomics, and injury prevention with emphasis on the public health model as applied to occupational injury prevention and epidemiology. Instructor approval may be required.

INSY 8060 CONTEMPORARY ERGONOMICS (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Topics of current interest in occupational ergonomics and human factors research. Occupational ergonomics and human factors research methodology and research priorities.

INSY 8970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. Departmental approval. Special topics of an advanced graduate nature pertinent to industrial and systems engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Departmental approval. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics. Must be INSY major.

Advanced Manufacturing Processes Minor

Alabama Industry, the Department of Commerce, and the Department of Defense have identified a lack of manufacturing process knowledge as a critical element in the development of the next generation of manufacturing engineers and workers.

This minor, like manufacturing in general, is open to all majors within the College of Engineering and the Auburn University community.

Students will take the following five required courses (17 hours).

Code	Title	Hours
INSY 5700	Digital Drawings, Geometric Tolerances, and Metrology for Industry 4.0	4
INSY 5710	Basic Concepts of 21st Century Manufacturing Processes	3
INSY 5720	Advanced Concepts of 21st Century Manufacturing Processes	3
INSY 5730	Concepts of Computer Numerical Controls	4
INSY 5740	Concepts of Industry 4.0	3
Total Hours		**17**

Three of the five classes include engineering laboratories using the new equipment within the Interdisciplinary Center for Advanced Manufacturing Systems (ICAMS). ICAMS is largely funded by the Department of Defense as part of their workforce development program

Business Engineering Technology Minor

Students who minor in Business-Engineering-Technology learn, practice, and integrate entrepreneurship, engineering, and business management skills demanded by the technology-driven global economy, solve real-world case study and design problems, and work in cross-functional teams. The minor is a joint offering by the Colleges of Business and Engineering. Admission to the minor is competitive. Engineering and business majors apply for admission to the Business-Engineering-Technology Program as second semester sophomores. To remain in the program the cumulative GPA must be equal to or greater than 3.0.

Code	Title	Hours
BUSI/ENGR 3500	Leadership in Engineering & Business Theory	4
BUSI/ENGR 3510	Product Innovation: From Concept to Production (Name changing to Sketch to Shelf: Tools for Product Innovation)	4
BUSI 5500	Entrepreneurship and Strategic Management of Technology and Innovation (Entrepreneurship and Strategic Management of Technology and Innovation)	4
or ENGR 5500	Entrepreneurship and Strategic Management of Technology and Innovation	
BUSI 5510	Business Engineering Technology Minor-Capstone (BET Capstone Project)	4
or ENGR 5510	Business Engineering Technology Minor-Capstone	
Total Hours		**16**

Certificate in Applied Safety and Ergonomics

The Applied Safety and Ergonomics Undergraduate Certificate is for students looking to acquire more knowledge in safety and ergonomics. Students completing this certificate will explore the design, analysis, and operation of work systems to assure safe and healthful conditions for working people. The certificate is offered through the Department of Industrial & Systems Engineering and requires completing four of the courses from the list below, with a minimum of two from Industrial and Systems Engineering:

Code	Title	Hours
Choose four of the following courses from the list below. **Students must select two courses from the INSY Department.		
INSY 3020	Occupational Safety Ergonomics ( )	
INSY 5010	Occupational Safety Engineering	
INSY 5050	Industrial Hygiene and Environmental Hazards	
INSY 5080	Human Factors Engineering	
AVMG 2600	Human Factors in Aviation	
AVMG 4060	Commercial Aviation Safety	
CHEN 4450	Process Economics and Safety	
CIVL 5430	Construction Safety and Health Management	
MECH 5330	Introduction to Biomechanical Engineering	
Total Hours: 12		

Certificate in Manufacturing Systems

The Manufacturing Systems Certificate is for students looking to acquire more knowledge in manufacturing. Students completing this certificate will explore the design, analysis, and operation of manufacturing systems as a combination of humans, machinery, equipment, tooling, controls, building, transportation, etc., that are bound by a common material and information flow through application-based courses in state-of-the-art labs and classroom environments.

12 hours total

Required Courses

Code	Title	Hours
INSY 5330	Six Sigma	3
INSY 6330	Six Sigma	
INSY 5800	Lean Systems	3
INSY 6800	Lean Systems	
Total Hours		**6**

Choose 2 of the following

Code	Title	Hours
INSY 4960	Special Problems	1-5
INSY 4970	Industrial and Systems Engineering Special Topics	1-10
INSY 5100	Systems Engineering I	3
INSY 6100	Systems Engineering I	
INSY 5240	Production and Inventory Control Systems	3
INSY 6240	Production and Inventory Control Systems	
INSY 5860	Innovations in Manufacturing Systems	3
INSY 6860	Innovations in Manufacturing Systems	
INSY 5830	Vehicle Technology and Trends	3
INSY 6830	Vehicle Technology and Trends	
INSY 5840	Control of the Manufacturing Floor and Processes	3
INSY 6840	Control of the Manufacturing Floor and Processes	
INSY 5850	Electronics Manufacturing Systems	3
INSY 6850	Electronics Manufacturing Systems	
INSY 5450	Simulation-based Planning and Scheduling	3
INSY 6450	Simulation-based Planning and Scheduling	

6xxx and 7xxxx-level courses are only for undergraduate students in the ABM program or for graduate students as part of the Graduate Certificate. Special Topics/Problems courses require Department Approval and only will count as credit towards the certificate based on the topic of the course. Students cannot take 5xxx and the corresponding 6xxx course and receive credit for both.

Lean Six Sigma Green Belt Certification

UG students who complete INSY 5800/6800, INSY 5330/6330, and INSY 4800 with a B average receive the certification.

Industrial and Systems Engineering (INSY)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Fine Arts	3	Core History[1]	3
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
CHEM 1030 Fundamentals Chemistry I	3	PHYS 1600 Engineering Physics I	4
CHEM 1031 Fundamental Chemistry I Laboratory	1	COMP 1220 Introduction to Computing with Python	2
ENGR 1100 Engineering Orientation	**0**		
ENGR 1110 Introduction to Engineering	**2**		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
PHYS 1610 Engineering Physics II	4	MATH 2660 Topics in Linear Algebra	3
MATH 2630 Calculus III	4	ENGR Elective[2, 4]	3
MATH 2650 Linear Differential Equations	3	**INSY 3020 Occupational Safety Ergonomics**	**3**
STAT 3600 Probability and Statistics I[6]	**3**	**INSY 3021 Methods Engineering and Work Measurement**	**3**
		STAT 3610 Probability and Statistics II	**3**

		STAT 3611 Probability and Statistics II Laboratory	**1**
	14		**16**

Junior

Fall	**Hours**	**Spring**	**Hours**
Core Social Science[1]	3	Core Literature	3
INSY 3010 Programming and Database Applications for ISE	**3**	TECH Elective[3, 4]	3
INSY 3400 Stochastic Operations Research[6]	**3**	**INSY 3420 Simulation**	**3**
INSY 3410 Deterministic Operations Research[6]	**3**	**INSY 3700 Operations Planning and Control**	**3**
INSY 3600 Engineering Economy	**3**	**INSY 3800 Manufacturing Systems I**	**3**
	15		**15**

Senior

Fall	**Hours**	**Spring**	**Hours**
Select one of the following:	3	Core Social Science[1]	3
PHIL 1020 Introduction to Ethics (Core Humanities)		**INSY 4800 Senior Design**	**3**
PHIL 1030 Ethics and the Health Sciences (Core Humanities)		**INSY Elective**	**3**
PHIL 1040 Business Ethics (Core Humanities)		TECH Elective[3, 4]	3
TECH Elective[3,4]	3	UNIV 4AA0 Achieve the Creed	0
INSY 4330 Statistical Quality Design and Control	**3**		
INSY 4500 Professional Practice	**1**		
INSY 4700 Manufacturing Systems II	**3**		
INSY Elective	**3**		
	16		**12**

Total Hours: 120

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2 ENGR 2050, ENGR 2200, ENGR 2100, MECH 2130, MATL 2100

3 Any 3-hour ISE course not required for major or COMP 5000, ELEC 5150, MATL 3100, MECH 2220, MECH 5510, STAT 4610, STAT 4620,STAT 4630, STAT 5630, STAT 5670, STAT 5690, ELEC 3810, CHEN 5090, CTCT 3250, or a course with ISE department approval.

4 Six hours of ROTC required courses can be substituted for the ENGR and one TECH Elective.

5 General Note: Bold classes represent major classes. Total Hours for degree = 120, (P) Denotes courses required to complete pre-engineeering.

6 Grade of C or better is required in these courses.

International Business Engineering Technology Minor

Students who minor in International Business-Engineering-Technology learn, practice, and integrate entrepreneurship, engineering, and business management skills demanded by the technology-driven global economy, solve real-world case study and design problems, and work in cross-functional teams. The minor is a joint offering by the Colleges of Business and Engineering. Admission to the minor is competitive. Engineering and business majors apply for admission to the Business-Engineering-Technology Program as second semester sophomores. To remain in the program the cumulative GPA must be equal to or greater than 3.0.

Code	Title	Hours
BUSI/ENGR 3500	Leadership in Engineering & Business Theory	4
BUSI/ENGR 3510	Product Innovation: From Concept to Production	4
BUSI/ENGR 5600	International Entrepreneurship and Strategic Management of Technology and Innovation	4
BUSI/ENGR 5610	International Business Engineering Technology Minor-Capstone	4
Total Hours		**16**

Department of Mechanical Engineering

The curriculum in Mechanical Engineering focuses on the analysis, design, manufacturing, and maintenance of mechanical components and systems. Emphasis is placed on the fundamental concepts of engineering science and design needed in a variety of industries, including automotive, aerospace, biotechnology, material and chemical processing, microsystems and sensors, nanotechnology, machinery and robotics, pharmaceutical, energy production and distribution, heating and refrigeration, food production and processing, entertainment, pulp and paper, weapons systems, and many others. Mechanical engineering students take courses in several areas of engineering including: mechanics of rigid and deformable solids, thermo-fluid sciences, energy systems, dynamic systems and controls, design and manufacturing, materials, and electronics.

In compliance with the Engineering Accreditation Commission (EAC) of ABET, the Department of Mechanical Engineering at Auburn University has developed and maintained a well-defined set of Program Educational Objectives to assure the quality of our program and graduates. These objectives are broad statements that describe the career and professional accomplishments that the mechanical engineering degree program is preparing the graduates to achieve a few years after graduation. The objectives are consistent with the needs and expectations of the program constituencies, and are reviewed and updated regularly using an annual assessment process. The current program educational objectives are:

- Our graduates have rewarding careers where they use their technical proficiency and mechanical engineering education for the professional practice of mechanical engineering or any other career path they choose.
- Our graduates contribute to their chosen field by effectively leveraging a broad array of professional skills such as oral and written communication, leadership, and teamwork.
- Our graduates are life-long learners through a variety of means including self study, continuing education courses, and graduate level education.
- Our graduates maintain awareness of a broad range of contemporary issues and global concerns especially as they relate to the field of mechanical engineering.

Students are able to concentrate on areas of special interest through technical elective courses taken in the senior year. In addition, specialized concentrations are offered in Additive Manufacturing, Automotive Engineering, and Pulp and Paper Engineering. Minors are offered in Tribology, Business-Engineering-Technology, Materials Engineering, Material Science, and Nuclear Generation Systems.

Materials Engineering

The curriculum in Materials Engineering (MATL) is structured to address problems associated with the design of materials and materials processes to meet specific needs for a variety of industries. Emphasis is on the basic sciences and principles of engineering with applications of these principles to materials behavior. The student must obtain a broad foundation in chemistry, physics and mathematics, which is applied in engineering courses. Within materials engineering courses, students obtain a foundation in the major areas of materials science and to the major classes of engineering materials, which is applied in courses in materials properties and selection, computational methods and in a capstone design course. Students gain in-depth experience in another engineering discipline through coordinated technical elective sequences. Students may design alternative cross-disciplinary sequences, but they must be coordinated and approved by the Materials Engineering Curriculum Committee. The objective of the MATL program is to produce graduates who are engaged in careers through which they apply materials engineering proficiency, effective communication and lifelong learning to provide technical, economic, or other benefits to society.

Majors

- Materials Engineering (p. 716)
- Mechanical Engineering (p. 717)

Minors

- Material Science Minor (p. 715)
- Materials Engineering Minor (p. 715)
- Nuclear Power Generation Systems (p. 718)
- Tribology (p. 718)

Materials Engineering Courses

MATL 2100 INTRODUCTION TO MATERIALS SCIENCE (3) LEC. 3. The science of solid materials and the relationship between this science and material properties.

MATL 2150 MATERIALS STRUCTURE, PROPERTIES, PROCESSING, AND PERFORMANCE (3) LEC. 2. LAB. 2, LLB. 0. Pr. (MATL 2100). Fundamental principles governing materials are explored, including how atomic structure, crystallography, and phase transformations impact material properties and performance. The structural origins of mechanical, electrical, thermal, and magnetic properties are reviewed. Material characterization and analysis techniques are explored.

MATL 2210 MATERIALS FOR SUSTAINABLE ENERGY PRODUCTION AND STORAGE (1) LEC. 1. Technologies for sustainable energy production and storage, renewable energy conversion, associated materials challenges.

MATL 2220 MATERIALS AND THE ENVIRONMENT (1) LEC. 1. Environmental impact of the production, use and disposal of materials.

MATL 2230 MINERAL RESOURCES: PROCESSING AND AVAILABILITY (1) LEC. 1. Mineral resources for engineering materials; processing and availability of mineral resources.

MATL 3100 ENGINEERING MATERIALS - METALS (3) LEC. 3. Pr. MATL 2100. The relationship among processing, microstructure, properties and engineering applications of metallic materials.

MATL 3101 METALLOGRAPHY LABORATORY (1) LAB. 3. Coreq. MATL 3100. The use of microstructural characterization to understand the relationship between microstructure and properties of metallic materials.

MATL 3200 ENGINEERING MATERIALS POLYMERS (3) LEC. 3. Pr. CHEM 1040. The synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3201 POLYMER AND COMPOSITES LABORATORY (1) LAB. 3. Coreq. MATL 3200. A hands-on lab course on the synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3300 ENGINEERING MATERIALS - CERAMICS (3) LEC. 3. Pr. MATL 2100. The engineering of ceramic materials. Structural property relationships of crystalline and glassy ceramics will be included.

MATL 4100 THERMODYNAMICS AND KINETICS OF MATERIALS (3) LEC. 3. Pr. CHEM 1040 and ENGR 2200. Laws of thermodynamics to describe phase equilibria and phase transformations in one-component and multi-component systems, mechanisms of diffusion, the interplay of thermodynamic driving forces and kinetics of mass transfer in materials systems

MATL 4500 MATERIALS PROPERTIES AND SELECTION (4) LEC. 3. LAB. 3. Pr. ENGR 2070 and MATL 3100 and MATL 3200. Methods for microstructure control. Design of processing sequences, statistical and economical analysis.

MATL 4930 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Areas of interest within Materials Engineering. Course may be repeated for a maximum of 6 credit hours.

MATL 4980 SENIOR DESIGN PROJECT (3) LEC. 1. LAB. 6. Students select, design, schedule, fabricate and perform an engineering design project related to Materials Engineering.

MATL 5100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Pr. CHEM 1040 and ENGR 2200. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface, and interface energy and transformations.

MATL 5200 MATERIALS CHARACTERIZATION (2) LEC. 2. Pr. PHYS 1610 or PHYS 1617. Principles of materials characterization including x-ray diffraction, optical and electron microscopy, and other advanced analytical methods for materials design.

MATL 5201 MATERIALS CHARACTERIZATION LABORATORY (1) LAB. 3. Coreq. MATL 5200. Laboratory on the use of x-ray diffraction, metallography, and optical/electron microscopy for materials characterization.

MATL 5300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Pr. MATH 2650 and ENGR 2200. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure and morphology.

MATL 5400 PHYSICS OF SOLIDS (3) LEC. 3. Pr. PHYS 1610 or PHYS 1617. Departmental approval. The physics of solid-state materials, including the electronic, optical and magnetic properties of materials.

MATL 5420 PLASMONICS AND NANOPHOTONICS (3) LEC. 3. Pr. PHYS 1600 or PHYS 1610. This course will cover both fundamental and application aspects, with an emphasis on basic principles in nanophotonics, nanophotonic devices for light manipulation, plasmonic energy transfer, biomedical treatment, plasmonics in emerging materials, etc.

MATL 5500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Pr. MATL 5100 and P/C MATL 5300. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.

MATL 5600 CORROSION (3) LEC. 3. Pr. CHEM 1040. Fundamentals of chemical degradation of materials. Types and methods for prevention and minimization of corrosion.

MATL 5700 BIOMATERIALS (3) LEC. 3. Departmental approval. Interactions between materials and proteins, cells, and tissue as related to medicine and biotechnology including tissue culture, cardiovascular, drug delivery, tissue engineering and other applications. Thermodynamics of protein adsorption. Cell biology of adhesion. Analytical methods, sterilization, and regulations.

MATL 5720 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Pr. P/C BIOL 1030 or P/C CHEM 2070. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 5750 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3. Pr. MATL 2100 and (ENGR 2070 or MECH 3130). Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 5970 INTERMEDIATE SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 6100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface and interface energy and transformations.

MATL 6200 MATERIALS CHARACTERIZATION (2) LEC. 2. Principles of materials characterization including x-ray diffraction, optical and electron microscopy, and other advanced analytical methods for materials design.

MATL 6201 MATERIALS CHARACTERIZATION LABORATORY (1) LAB. 3. Coreq. MATL 6200. Laboratory on the use of x-ray diffraction, metallography, and optical/electron microscopy for materials characterization.

MATL 6300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure, and morphology.

MATL 6400 PHYSICS OF SOLIDS (3) LEC. 3. Departmental approval. The physics of solid-state materials, including the electronic, optical, and magnetic properties of materials.

MATL 6420 PLASMONICS AND NANOPHOTONICS (3) LEC. 3. This course will cover both fundamental and application aspects, with an emphasis on basic principles in nanophotonics, nanophotonic devices for light manipulation, plasmonic energy transfer, biomedical treatment, plasmonics in emerging materials, etc.

MATL 6500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.

MATL 6600 CORROSION (3) LEC. 3. Pr. CHEM 1040. Fundamentals of chemical degradation of materials. Types and methods for prevention and minimization of corrosion.

MATL 6700 BIOMATERIALS (3) LEC. 3. Departmental approval. Interactions between materials and proteins, cells, and tissue as related to medicine and biotechnology including tissue culture, cardiovascular, drug delivery, tissue engineering and other applications. Thermodynamics of protein adsorption. Cell biology of adhesion. Analytical methods, sterilization and regulations.

MATL 6720 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 6970 INTERMEDIATE SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. 3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7050 DEFORMATION AND FAILURE OF ENGINEERING MATERIALS (3) LEC. 3. Departmental approval. Theoretical presentation of the fundamental principles of deformation and failure in materials systems.

MATL 7120 ADVANCED CERAMIC MATERIALS (3) LEC. 3. Departmental approval. Processing, structure-property relationships and applications of advanced ceramics. Structural and functional applications of ceramics.

MATL 7130 ADVANCED POLYMER SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Recent developments in both functional and structural polymers including approaches to synthesis, processing techniques, high-strength materials, electronic polymers, optic polymers, and medical polymers.

MATL 7320 THIN FILM SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Structure, properties, characterization, processing and application of thin films.

MATL 7330 MATERIALS FOR ENERGY STORAGE (3) LEC. 3. Introduction of various electrochemical energy storage devices (Batteries, Supercapacitor, etc) and discussion of advancement in development of materials for these devices. Instructor's consent required for prerequisites.

MATL 7420 SMART MATERIALS AND STRUCTURES (3) LEC. 3. Departmental approval. An introduction to the principles and applications of various sensor, actuator and functionality smart material systems and structures.

MATL 7430 DIELECTRIC MATERIALS AND DEVICES (3) LEC. 3. Pr. (MATL 6100 or MATL 6106) and (MATL 6400 or MATL 6406). Departmental approval. Processing, structure, properties, and application of dielectrics, including physics of dielectrics, material/ device design/fabrication processes, and application of dielectric materials in high-technological industry.

MATL 7610 ENGINEERING ASPECTS OF BIOLOGICAL AND CHEMICAL DETECTION (3) LEC. 3. Departmental approval. Biological and chemical scientific concepts related to biological and chemical threat agents. Existing and developing detection technologies, trends and needs for the future detection systems. Physical principles behind the detection technologies. Evaluation of detection device or system performance.

MATL 7630 NANOMATERIALS FOR BIOTECHNOLOGY (3) LEC. 3. Departmental approval. Basic understanding of nanobiotechnology and practical applications in the interdisciplinary fields of Materials Science and Engineering and biotechnology/ medicine including nanostructured biomolecules and bioarrays as well as biomolecular nanoelectronics.

MATL 7950 MATERIALS ENGINEERING SEMINAR (0) SEM. SU. Required during each semester of residency, but cannot be used toward minimum requirements for graduate degree in Materials Engineering. Content changes each semester and consists of off-campus speakers and presentations by graduate students and faculty.

MATL 7960 DIRECTED READINGS IN MATERIALS ENGINEERING (1-6) DSL/IND. SU. Departmental approval. May be taken more than one semester. Up to 6 hours may count toward the minimum degree requirements. Course may be repeated with change in topics.

MATL 7970 SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) DSL. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7980 MASTER MATERIALS ENGINEERING PROJECT (1-3) LEC. 3. SU. Special design project report directed by major faculty. Topics to be determined by the student's graduate committee. Course may be repeated for a maximum of 3 credit hours.

MATL 7990 RESEARCH AND THESIS (1-15) MST. Individual mater's thesis research. Course may be repeated with change in topics.

MATL 8990 RESEARCH AND DISSERTATION (1-15) DSL/DSR. Individual doctoral dissertation research. Course may be repeated with change in topics.

Mechanical Engineering Courses

MECH 2020 MANUFACTURING TECHNOLOGY LAB (2) LEC. 3. LAB. 1. Pr. PHYS 1600. Manufacturing technology lab for introduction of processes such as cutting, forming, machining, and joining of metals and other materials. Basic and applied machine shop and manufacturing floor safety.

MECH 2130 MECHANICAL ENGINEERING STATICS (3) LEC. 2.5. Pr. (MATH 1620 or MATH 1627) and (PHYS 1600 or PHYS 1607). Forces, vectors, moments and free body diagrams. Systems in mechanical equilibrium.

MECH 2140 KINEMATICS AND DYNAMICS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and MECH 2130. Kinematics and kinetics of particles and rigid bodies with an emphasis on mechanical engineering applications such as machines, mechanisms, cams, gears and vibrations. MECH 2130 with a grade of C or higher.

MECH 2220 COMPUTER-AIDED ENGINEERING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (COMP 1200 or COMP 1220 or COMP 1230) and P/C MATH 2650. The computer as a tool in mechanical engineering.

MECH 2AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Pr. MECH 2130 and MATH 2650 and PHYS 1610. Progress Assessment Examination in: multivariate calculus, differential equations, chemistry, physics, statics, dynamics. Course may be repeated with change in topics.

MECH 3020 THERMODYNAMICS II (3) LEC. 3. Pr. ENGR 2010. Gas and Vapor power cycles, Refrigeration cycles, Gas and gas-vapor mixtures, Chemical reactions, Chemical and phase equilibrium, Thermodynamic property relations. Pr. ENGR 2010 with a grade of C or higher.

MECH 3030 FLUID MECHANICS (3) LEC. Pr. MECH 2130 and ENGR 2010 and MATH 2650 and P/C MECH 3120. Fluid properties; fluid statics; mass conservation; momentum equation; external and internal flows; Euler and Bernoulli equations; dimensional analysis; viscous flows; boundary layers; compressible flow. Pr. MECH 2130 with a grade of C or higher, and ENGR 2010 with a grade of C or higher.

MECH 3040 HEAT TRANSFER (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Fundamentals of heat transfer by conduction, convection, and radiation. Introduction to heat exchangers.

MECH 3050 MEASUREMENT AND INSTRUMENTATION (3) LEC. 2. LAB. 3. Pr. MECH 3030 and P/C ELEC 3810. Theory and practice of modern sensors and computer-based data acquisition techniques, uncertainty analysis, results reporting, filtering and signal processing.

MECH 3120 MECHANICS OF MATERIALS (3) LEC. 3. Pr. MECH 2130 and MATL 2100 and MATH 2650 and MATH 2660. Stress and strain concepts, stress-strain relationships, applications, uniaxially loaded members, torsion, normal and shear stresses in beams, beam deflections, buckling, stress concentration, combined loading, failure theories (Grade of C or higher required in MECH 2130.)

MECH 3140 SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3. Pr. MECH 2140 and MATH 2650. System dynamics and automatic control theory.

MECH 3150 DYNAMICS LAB (1) LAB. 2.5. Pr. MECH 2140. Laboratory experiences designed to enhance student understanding of engineering mechanics, including statics, dynamics, and kinematics.

MECH 3160 MECHANICS LAB (1) LAB. 2.5. Pr. MECH 3120 and MECH 2220. Laboratory experiences designed to enhance student understanding of engineering mechanics including statics, stresses, & strains.

MECH 3200 CONCEPTS IN MECHANICAL DESIGN (2) LEC. 1. LAB. 1. Pr. MECH 2130 and (P/C MECH 2220 or P/C MECH 3220). Introduction to the mechanical design process including identification of needs and engineering requirements, concept generation and selection, and design development. Students will work in teams to perform a design project, and will also be exposed to project management and communication skills. MECH 2130 with a grade of C or higher.

MECH 3230 MACHINE DESIGN (3) LEC. 3. Pr. MECH 3120 and MECH 2020 and MECH 3200. Design of systems containing a variety of mechanical elements.

MECH 3AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr. MECH 2AA0 and MECH 2140 and MECH 3020 and MECH 3120. Progress Assessment Examination in: Statistics, linear algebra, mechanical design, thermo-fluid design, social impact, contemporary issues. Course may be repeated with change in topics.

MECH 4240 COMPREHENSIVE DESIGN I (2) LEC. 1. LAB. 3. Pr. (MECH 3AA0 and MECH 3150 and MECH 3160 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and MECH 3140) or (MECH 3AA0 and MECH 3150 and MECH 3160 and MECH 3230 and MECH 3040 and P/C MECH 3050 and P/C MECH 3140). Capstone engineering design course based on a design project similar to those encountered by the engineer in industry involving thermal and mechanical design.

MECH 4250 COMPREHENSIVE DESIGN II (2) LEC. 1. LAB. 3. Pr. (MECH 4240 and MECH 3040 and MECH 3050 and P/C MECH 3140 and P/C INSY 3600) or (MECH 4240 and MECH 3050 and MECH 3140 and P/C MECH 3040 and P/C INSY 3600) or (MECH 4240 and MECH 3140 and MECH 3040 and P/C MECH 3050 and P/C INSY 3600). Continuation of MECH 4240. Detailed design, fabrication, communication, and presentation of a prototype machine for an industrial sponsor.

MECH 4300 MECHANICAL EQUIPMENT ENGINEERING (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Operation, performance, maintenance, selection, design and optimization of mechanical equipment commonly found in industrial operations.

MECH 4310 HEATING, VENTILATING, AIR CONDITIONING AND REFRIGERATION (3) LEC. 3. Pr. MECH 3040. Theory and practice of modern heating, ventilation, air conditioning and refrigeration systems; concepts, equipment, and systems design.

MECH 4320 APPLIED CFD AND HEAT TRANSFER (3) LEC. 3. Pr. MECH 3040 and MATH 2660. Introduction to computational fluid dynamics and heat transfer techniques used to analyze thermal performance of devices and systems. Commercial software will be used.

MECH 4420 VEHICLE DYNAMICS (3) LEC. 3. Pr. MECH 3140. Ground vehicle resistance, propulsion, maneuvering, and control tires, suspensions, braking, aerodynamics, case studies.

MECH 4430 GROUND VEHICLE FUNDAMENTALS (3) LEC. 3. Pr. ENGR 2100 or ENGR 2350 or MECH 3120. Engineering fundamentals of ground vehicles and typical subsystems, including: power (engine and electrical); drivetrain; braking; steering; suspension; ergonomics; and structure.

MECH 4440 AUTOMOTIVE DESIGN EXPERIENCE I (2) LEC. 1. LAB. 3. Pr. MECH 3AA0 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and P/C MECH 3140. Departmental Approval. Team-based design of a ground vehicle, both whole-vehicle and subsystem; design evaluation and modification; oral and written communication.

MECH 4450 AUTOMOTIVE DESIGN EXPERIENCE II (2) LEC. 1. LAB. 3. Pr. MECH 4440. Departmental approval. Team-based fabrication, testing, modification and operation of a ground vehicle; oral and written communication; project management.

MECH 4700 INTEGRATED ENGINEERING THEORY AND PRACTICE (3) LEC. 3. Pr. MECH 3200 and MECH 2020. Real world engineering management decision making, case studies from industry.

MECH 4930 DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND/INT. Departmental approval. Individual or small group study of a specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 4970 SPECIAL TOPICS IN MECHANICAL ENGINEERING (3) LEC. Departmental approval. Regular course addressing a specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 9 credit hours.

MECH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student directed research and writing of an honors thesis. Course may be repeated for a maximum of 6 credit hours.

MECH 5010 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 5050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 3. Pr. ENGR 2010 or ENGR 2200. or permission of instructor. Overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles.

MECH 5120 COMBUSTION (3) LEC. 3. Pr. MECH 3040. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 5210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Pr. MECH 3040 and ELEC 3810. Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 5220 VIRTUAL PROTOTYPING (3) LEC. 3. Pr. MECH 2220 and MECH 3120. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 5230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Pr. MECH 3030 and MECH 3120. Theory and techniques for considering friction, wear and lubrication, in the design of machine components, and other surface interactions.

MECH 5240 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Pr. MECH 3030. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine comments in order to control friction and wear.

MECH 5250 MULTISCALE CONTACT MECHANICS (3) LEC. 3. Pr. MECH 3120. Theory and techniques for considering contact between solid bodies and the effect on friction, wear, the design of machine components, and other surface interactions.

MECH 5270 METALWORKING AND MANUFACTURING TRIBOLOGY (3) LEC. 3. Pr. MECH 2020. Theory and optimization techniques for tool life and surface finish considering friction, wear and lubrication in manufacturing processes including both metalworking fluids and hard/dry machining.

MECH 5300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Pr. MECH 3120. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problems, axisymmetric problems bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 5310 MECHANICS OF ELECTRONIC PACKAGING (3) LEC. 3. Pr. MECH 3120 and ELEC 3810. Stress and strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 5320 ENGINEERED FLEXIBLE STRUCTURES (3) LEC. 3. LAB. 0, LEC. 0. Pr. (MECH 3120 or AERO 3610 or CHEN 3090 or CIVL 3310 or MATL 3200). Fiber to fabric design, engineering, manufacturing, testing and applications. Principles of modern machinery and techniques for flexible material manufacturing.

MECH 5330 INTRODUCTION TO BIOMECHANICAL ENGINEERING (3) LEC. 3. Pr. MECH 2140 and MECH 3120 and MECH 2130. Introduction to the multidisciplinary field of study called Biomechanical Engineering – a mechanics and calculus-based examination of energy and forces within living systems and the physical effects produced by such energy and forces. Topics covered include 1) human musculoskeletal physiology and anatomy, 2) mechanics of biological materials, 3) biomechanically relevant rigid body dynamics, 4) engineering of technology and applications to biomechanical systems, 5) medical imaging technology, and 6) applications of biomechanical engineering study.

MECH 5390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 3. LAB. 0. Pr. MECH 3040 and MATH 2660 and MECH 3120. Introduction to the fundamentals of the finite element method.

MECH 5420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Pr. MECH 3140. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 5430 BASICS SENSOR APPLICATIONS (3) LEC. 3. Pr. MECH 3120. Basic concepts, fabrication and operation of micromachined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.

MECH 5450 NON-DESTRUCTIVE EVALUATION OF MATERIALS AND STRUCTURES (3) LEC. 3. Pr. MECH 3120. Non-destructive testing fundamentals. Ultrasonic, acoustic, vibration strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 5500 ENGINEERING IN THE ARTS (3) LEC. 3. This course will educate students on the engineering associated with multiple forms of art such as the playing of musical instruments, painting, Renaissance architecture, and dance. Students will also learn about key historical figures of the Renaissance that held major influence on the origins of Western engineering, architecture, and art.

MECH 5510 ENGINEERING ACOUSTICS (3) LEC. 3. Pr. MATH 2650. The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics and noise control will be emphasized.

MECH 5520 MANUFACTURING OF POLYMERIC STRUCTURES (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3120 or AERO 3610 or CHEN 3090 or CIVL 3310 or MATL 3200. Characteristics and flow properties of polymers; film and fiber extrusion, compression and injection molding technology, polymer material selection and processing.

MECH 5530 ADVANCED REFRIGERATION SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3020 and MECH 3040. Overview of thermodynamics, fluid mechanics, and heat transfer in advanced vapor compression systems. Methodology for the analysis of refrigeration systems and their components. Applications include advanced refrigeration systems, heat pump systems, buildings HVAC, industrial refrigeration systems, agricultural facilities climate control, energy storage, transport refrigeration, and cold food chain.

MECH 5610 MECHANICAL VIBRATION (3) LEC. 3. Pr. MECH 2140 and MATH 2650 and MATH 2660. Modeling of lumped dynamic systems, free and forced vibration of single degree freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 5630 FEEDBACK CONTROL OF DYNAMIC SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3140. Concepts in feedback control of dynamical systems including time and frequency domain, digital control, and modern state space control techniques.

MECH 5640 PRINCIPLES OF NAVIGATION AND GUIDANCE SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3140. Develop understanding of the principles associated with coordinate frames, pose estimation, and navigation with a focus on inertial navigation.

MECH 5650 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3140. Detailed analysis of the GPS system and receiver including signal acquisition, tracking, decoding, and Position, Velocity, and Timing (PVT) determination

MECH 5710 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Pr. MECH 3140. Basic concepts in robotics such as kinematic analysis, coordinate transformation, Lagrange and Newton Euler equations of motion.

MECH 5720 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Pr. MECH 3140. Application of various algorithms for robot manipulators.

MECH 5810 MECHATRONICS (3) LEC. 3. Pr. MECH 2140 and ELEC 3810. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines, and design of automatic machinery.

MECH 5830 ENGINES (3) LEC. 3. Pr. (ENGR 2010 and MECH 3030) or ENGR 2200. or (ENGR 2010 plus any one of (AERO 3110, CHEN 2610, CIVL 3110, MECH 3030)), Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics, thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 5840 APPLIED MECHATRONICS (3) LEC. 3. LAB. 0, LEC. 0. Pr. (P/C MECH 3140). Implementation basic circuits, power electronics, analog (continuous) and digital (discrete) control topics in multiple design projects.

MECH 5850 SOFTWARE FOR SENSORS AND SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 2220. Course Description: Develop C++ programs, use Linux terminal, manage source code using Git, implement robotics applications using the robot operating system (ROS).

MECH 5970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. 1-3. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 9 credit hours.

MECH 6010 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 6050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 3. An overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles.

MECH 6120 COMBUSTION (3) LEC. 3. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 6210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Thermal issues in electronics, review of heat transfer hermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 6220 VIRTUAL PROTOTYPING (3) LEC. 3. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 6230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Friction, wear, and lubrication in design of machine components and other surface interactions, with emphasis on optimizing tribological performance.

MECH 6240 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine comments in order to control friction and wear.

MECH 6250 MULTISCALE CONTACT MECHANICS (3) LEC. 3. Theory and techniques for considering contact between solid bodies and the effect on friction, wear, the design of machine components, and other surface interactions.

MECH 6300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problem, axisymmetric problems, bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 6310 MECHANICS OF ELECTRONIC PACKAGING (3) LEC. 3. Stress and strain analysis of Microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 6320 ENGINEERED FLEXIBLE STRUCTURES (3) LEC. 3. LAB. 0, DSL/LEC. 0. Fiber to fabric design, engineering, manufacturing, testing and applications. Principles of modern machinery and techniques for flexible material manufacturing.

MECH 6330 INTRODUCTION TO BIOMECHANICAL ENGINEERING (3) LEC. 3. Introduction to the multidisciplinary field of study called Biomechanics – the examination of energy and forces within living systems and the physical effects produced by such energy and forces. Topics covered include 1) human musculoskeletal physiology and anatomy, 2) properties of biological materials, 3) biomechanically relevant mechanics, 4) methods and practice of measuring biomechanical systems, and 5) applications of biomechanical study.

MECH 6390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 3. LAB. 0. Introduction to the fundamentals of the finite element method.

MECH 6420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 6430 BASICS OF SENSOR APPLICATIONS (3) LEC. 3. Basic concepts, fabrication and operation of micro machined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.

MECH 6450 NON-DESTRUCTIVE EVALUATION OF MATERIALS AND STRUCTURES (3) LEC. 3. Non-destructive testing fundamentals. Ultrasonic, acoustic, vibration, and eddy current techniques. Case studies.

MECH 6500 ENGINEERING IN THE ARTS (3) LEC. 3. This course will educate students on the engineering associated with multiple forms of art such as the playing of musical instruments, painting, Renaissance architecture, and dance. Students will also learn about key historical figures of the Renaissance that held major influence on the origins of Western engineering, architecture, and art. Sample lecture topics include 1) Science and Engineering in The Renaissance, 2) Leonardo da Vinci, 3) Musical Vibrations and Acoustics, and 4) Architecture and Biomimicry.

MECH 6520 MANUFACTURING OF POLYMERIC STRUCTURES (3) LEC. 3. LAB. 0, DSL/LEC. 0. Characteristics and flow properties of polymers; film and fiber extrusion, compression and injection molding technology, polymer material selection and processing.

MECH 6530 ADVANCED REFRIGERATION SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Overview of thermodynamics, fluid mechanics, and heat transfer in advanced vapor compression systems. Methodology for the analysis of refrigeration systems and their components. Applications include advanced refrigeration systems, heat pump systems, buildings HVAC, industrial refrigeration systems, agricultural facilities climate control, energy storage, transport refrigeration, and cold food chain.

MECH 6610 MECHANICAL VIBRATION (3) LEC. 3. Modeling of lumped dynamic systems, free and forced vibration of single degree of freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 6630 FEEDBACK CONTROL OF DYNAMIC SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Concepts in feedback control of dynamical systems including time and frequency domain, digital control, and modern state space control techniques.

MECH 6640 PRINCIPLES OF NAVIGATION AND GUIDANCE SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Develop understanding of the principles associated with coordinate frames, pose estimation, and navigation with a focus on inertial navigation.

MECH 6650 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 2.5. LAB. 0, LEC. 0. Detailed analysis of the GPS system and receiver including signal acquisition, tracking, decoding, and Position, Velocity, and Timing (PVT) determination

MECH 6710 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Basic concepts in robotics such as kinematics analysis, coordinate, Lagrange and Newton Euler equations of motion.

MECH 6720 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Application of various algorithms for robot manipulators.

MECH 6810 MECHATRONICS (3) LEC. 3. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines and design of automatic machinery.

MECH 6830 ENGINES (3) LEC. 3. Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 6840 APPLIED MECHATRONICS (3) LEC. 3. Implementation basic circuits, power electronics, analog (continuous) and digital (discrete) control topics in multiple design projects.

MECH 6850 SOFTWARE FOR SENSORS AND SYSTEMS (3) LEC. 2.5. Develop C++ programs, use Linux terminal, manage source code using Git, implement robotics applications using the robot operating system (ROS).

MECH 6930 INTERMEDIATE DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 6970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) AAB. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7010 ADVANCED THERMODYNAMICS (3) LEC. 3. Classical and statistical treatment of the laws and properties of thermodynamic systems; applications.

MECH 7110 ADVANCED FLUID MECHANICS I (3) LEC. 3. Mass Conservation, Linear and Angular Momentum Equations; Energy Equation for Fluid Systems; Foundations of Inviscid Flows.

MECH 7120 ADVANCED FLUID MECHANICS II (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Schwarz-Christoffel Transformation; Hodograph Method; Three-Dimensional Potential Flows; Interface Waves; Low Reynolds Number Solutions; Oseen Approximation; Stability of Laminar Flows.

MECH 7130 BOUNDARY LAYER THEORY (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Mass Conservation; Momentum Equation; Energy Equation; Dimensional Analysis; Fully-Developed Laminar Flows; Similarity Solutions; Boundary layer Approximation; Stability of Laminar Flows.

MECH 7140 TURBULENCE (3) LEC. 3. Pr. MECH 7130 or MECH 7136. Properties of Turbulence; Governing Conservation, Momentum and Energy Equations; Time-averaging, Vorticity Equatiion; Turbulence Models; Shear Flows; Jets, Wakes and Boundary Layers; Experimental Techniques.

MECH 7210 DIFFUSIVE TRANSPORT (3) LEC. 3. Formulations and analytical solutions of steady, periodic, and unsteady heat and mass diffusion problems in one, two, and three dimensions.

MECH 7220 CONVECTION HEAT TRANSFER (3) LEC. 3. Advanced topics in free and forced convection transport within the laminar, transitional and turbulent regimes; confined and external flows.

MECH 7230 THERMAL RADIATION (3) LEC. 3. Fundamentals of thermal radiation heat transfer including: absorption, emission, and reflection from solids; absorption, emission, and scattering by gases; combined mode and conjugate heat transfer; exact and approximate solution methodologies.

MECH 7240 NUMERICAL METHODS IN HEAT TRANSFER (3) LEC. 3. Advanced topics in finite element and finite difference methods; solution techniques, stability and convergence.

MECH 7250 BOILING AND CONDENSATION (3) LEC. 3. Hydrodynamics of vapor-liquid flow, pool boiling, forced convective boiling, condensation, instabilities in two-phase systems, augmentation of boiling and condensation.

MECH 7300 FRACTURE MECHANICS (3) LEC. 3. Stress and strain analysis of cracked bodies, energy release rate, Griffith problem, modes of fracture, crack tip fields, stress intensity factors, small scale crack tip yielding, the J-integral, HRR equations, experimental and numerical methods for fracture parameter estimation.

MECH 7310 SOLID MECHANICS (3) LEC. 3. Stress and strain analysis in 3-D, constitutive behavior of elastic solids, orthotropy and isotropy, stress compatibility equations, Navier's equation, stress functions, applications.

MECH 7320 CONTINUUM MECHANICS AND TENSOR ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Cartesian and curvilinear tensor analysis with applications to the mechanics of continuous media. Constitutive equations for solids and fluids.

MECH 7330 EXPERIMENTAL MECHANICS (3) LEC. 3. Experimental methods for measurement of stress, strain and displacement. Strain gauges, transducers and brittle coatings. Transmission photoelasticity and photoelastic coatings. Introduction to moire' and coherent optical techniques.

MECH 7340 INELASTIC STRESS ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Introduction to modeling material behavior of non-elastic materials. Theories of plasticity, linear and non-linear viscoelasticity, and viscoplasticity. Applications to modern engineering materials and simple structural members.

MECH 7360 MECHANICS OF COMPOSITE MATERIALS (3) LEC. 3. Properties and mechanical behavior of fiber-reinforced composite materials. Anisotropic stress-strain relations, orthotropic elasticity and laminated plate theories, failure criteria, applications.

MECH 7370 ANALYSIS OF PLATES AND SHELLS (3) LEC. 3. Theories for the bending and stretching of plate and shell structures. Transverse loading, buckling, vibration, and thermal stress problems. Introduction to energy methods, numerical techniques, and large deflection theories.

MECH 7390 VARIATIONAL MECHANICS (3) LEC. 3. Energy methods in solid mechanics. Virtual work, stationary potential energy, and variational calculus. Elastic strain energy. Applications to bars, trusses, beams, frames, and plates. Castigliano's Theorem and the Ritz Method.

MECH 7410 OPTICAL METHODS IN MECHANICS (3) LEC. 3. Measurement of stresses, strains, and deformations using optical methods; optical interference; Fourier optics; optical spatial filtering, white light methods; coherent optical methods.

MECH 7430 OPTICAL PROPERTIES OF ADVANCED MATERIALS (3) LEC. 3. Pr. MECH 6430 or MECH 6436 or PHYS 7200. Linear and nonlinear optical properties, correlation with material-structure, electro-optic effects, lasers, frequency conversion, fiber-optics, technological applications.

MECH 7500 STATE VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.

MECH 7520 PRINCIPLES AND APPLICATION OF OPTIMAL ESTIMATION (3) LEC. 2.5. LAB. 0, LEC. 0. Pr. (MECH 7500 or ELEC 7500 or MECH 5720 or MECH 6720 or MECH 4420). Statistical processes, Bayesian estimation including linear and non-linear batch and sequential filters such as least squares and Kalman filtering.

MECH 7610 ADVANCED DYNAMICS (3) LEC. 3. Dynamics of particles and systems of particles applied to engineering problems. Work-energy and impulse-momentum principles. Lagrange's equations and Hamilton's Principle.

MECH 7620 NONLINEAR SYSTEMS (3) LEC. 3. Introduction, geometrical concepts, analytical methods, Poincare' maps, strange attractors, bifurcation, normal forms, center manifold theory, Liapunov stability, Liapunov exponents, linearization about periodic orbits, Floquet theory, bifurcation analysis.

MECH 7630 MECHANICAL IMPACT (3) LEC. 3. Departmental approval. Investigation of the fundamental concepts used to solve collision problems with friction.

MECH 7710 CONTROL SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. Topics from control theory are introduced in the context of control systems analysis and design, including state variable feedback, modal control, optimal control and adaptive control for both continuous and discrete systems.

MECH 7930 ADVANCED DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Topics may vary. Will not fulfill degree requirements. Course may be repeated with change in topics.

MECH 7970 ADVANCED SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) DSL. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7990 RESEARCH & THESIS (1-12) MST. Individual Master's thesis research. May be repeated for credit. Course may be repeated with change in topics.

MECH 8990 RESEARCH & DISSERTATION (1-12) DSR. Individual Doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

MECH TECH MECHANICAL TECHNICAL ELECTIVE (3) LEC. 3.

Material Engineering Minor

Students completing this 15-hour minor will have an understanding structure-property relationships of different types of materials and be able to apply this understanding to the processing and selection of materials for engineering applications. The minor includes courses that focus on each of the major classes of materials (metals, polymer and ceramics) and includes an elective to allow students to pursue their particular areas of interest. The minor will provide students in other disciplines with a better understanding of materials related to their particular interests.

Code	Title	Hours
Required Courses		
MATL 2100	Introduction to Materials Science	3
MATL 3100	Engineering Materials - Metals	3
MATL 3200	Engineering Materials Polymers	3
MATL 3300	Engineering Materials - Ceramics	3
Elective Courses (at least 3 credit hours from the following)		
MATL 2210	Materials for Sustainable Energy Production and Storage	1
MATL 2220	Materials and the Environment	1
MATL 2230	Mineral Resources: Processing and Availability	1
MATL 3101	Metallography Laboratory	1
MATL 3201	Polymer and Composites Laboratory	1
MATL 4500	Materials Properties and Selection	4
MATL 5600	Corrosion [1]	3
MATL 5700	Biomaterials [1]	3
MATL 5750	Microstructure and Mechanics of Skeletal Tissues [1]	3

[1] These courses aren't offered every year.

Material Science Minor

Students completing this 15-hour minor will have an understanding science underlying the structure-property relationships in solid state materials. The minor provides student with understanding of the solid state chemistry and physics that are applied to control materials properties and design fabrication processes. The minor can provide complementary scientific understanding to engineering students or demonstrate application of science to materials properties to students from the sciences.

Code	Title	Hours
Required Courses		
MATL 2100	Introduction to Materials Science	3
MATL 4100	Thermodynamics and Kinetics of Materials	3
MATL 5200	Materials Characterization	2
MATL 5201	Materials Characterization Laboratory	1
MATL 5500	Numerical Simulation of Materials Processing	3
Elective Courses (3 credit hours from the following)		

MATL 5400	Physics of Solids	3
PHYS 5610	Introduction to Solid State Physics	3

Materials Engineering (MATL)

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
ENGL 1100 English Composition I	3	PHYS 1600 Engineering Physics I	4
ENGR 1100 Engineering Orientation	0	ENGL 1120 English Composition II	3
Core History[1]	3		
ENGR 1110 Introduction to Engineering	2		
	16		**15**

Sophomore

Fall	Hours	Spring	Hours
MATH 2630 Calculus III	4	MATH 2650 Linear Differential Equations	3
MATL 2100 Introduction to Materials Science	**3**	STAT 3010 Statistics for Engineers and Scientists	3
COMP 1230 Introduction to Computing with MATLAB	2	ENGR 2070 Mechanics of Materials	3
ENGR 2050 Statics	3	ELEC 3810 Fundamentals of Electrical Engineering	3
PHYS 1610 Engineering Physics II	4	ECON 2020 Principles of Microeconomics	3
	16		**15**

Junior

Fall	Hours	Spring	Hours
MATH 2660 Topics in Linear Algebra	3	ENGR 2200 Introduction To Thermodynamics, Fluids And Heat Transfer	3
PHIL 1020 Introduction to Ethics	3	MECH 2220 Computer-Aided Engineering	3
MATL 3100 Engineering Materials - Metals	**3**	**MATL 3200 Engineering Materials Polymers**	**3**
MATL 3101 Metallography Laboratory	**1**	**MATL 3201 Polymer and Composites Laboratory**	**1**
MATL 5200 Materials Characterization	**2**	**MATL 3300 Engineering Materials - Ceramics**	**3**
MATL 5201 Materials Characterization Laboratory	**1**	Technical Elective II[2]	3
Technical Elective I[2]	3		
	16		**16**

Senior

Fall	Hours	Spring	Hours
Core Literature	3	Core Fine Arts	3
MATL 4100 Thermodynamics and Kinetics of Materials	**3**	Core Social Science[1]	3
MATL 4500 Materials Properties and Selection	**4**	**MATL 4980 Senior Design Project**	**3**
MATL 5400 Physics of Solids	**3**	**MATL 5500 Numerical Simulation of Materials Processing**	**3**

Technical Electives III[2]	3	UNIV 4AA0 Achieve the Creed	0
	16		**12**

Total Hours: 122

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the disciple specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2 Technical elective are chosen from a list of coordinated cross-disciplinary sequences. Sequences other than those specified must be approved by the material engineering curriculum committee.

Mechanical Engineering (MECH)

Freshman

Fall	Hours	Spring	Hours
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
ENGL 1100 English Composition I	3	PHYS 1600 Engineering Physics I	4
Core History[1]	3	ENGL 1120 English Composition II	3
CHEM 1030 Fundamentals Chemistry I	3	Core Social Science[1]	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	ENGR 1110 Introduction to Engineering	2
COMP 1230 Introduction to Computing with MATLAB	2		
ENGR 1100 Engineering Orientation	0		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
PHYS 1610 Engineering Physics II	4	MATH 2660 Topics in Linear Algebra	3
MECH 2020 Manufacturing Technology Lab	**2**	ENGR 2010 Thermodynamics	3
MATH 2630 Calculus III	4	MATL 2100 Introduction to Materials Science	3
MATH 2650 Linear Differential Equations	3	**MECH 2AA0 Mechanical Engineering Progress Assessment I**	**0**
MECH 2130 Mechanical Engineering Statics	**3**	**MECH 2220 Computer-Aided Engineering**	**3**
		MECH 2140 Kinematics and Dynamics	**3**
	16		**15**

Junior

Fall	Hours	Spring	Hours
ELEC 3810 Fundamentals of Electrical Engineering	3	INSY 3600 Engineering Economy	3
MECH 3020 Thermodynamics II	**3**	**MECH 3AA0 Mechanical Engineering Progress Assessment II**	**0**
MECH 3030 Fluid Mechanics	**3**	**MECH 3040 Heat Transfer**	**3**
MECH 3200 Concepts in Mechanical Design	**2**	**MECH 3050 Measurement and Instrumentation**	**3**
MECH 3120 Mechanics of Materials	**3**	**MECH 3140 System Dynamics and Controls**	**3**
MECH 3150 Dynamics Lab	**1**	**MECH 3230 Machine Design**	**3**

			MECH 3160 Mechanics Lab	**1**
		15		**16**

Senior

Fall	**Hours**		**Spring**	**Hours**
Core Literature[2]		3	Core Social Science[1]	3
PHIL 1020 Introduction to Ethics, 1040 Business Ethics, ***or*** 1110 Ethical and Conceptual Foundations of Science (Core Ethics)		3	Core Fine Arts	3
MECH 4240 Comprehensive Design I		**2**	**MECH 4250 Comprehensive Design II**	**2**
Technical Elective		**6**	**Technical Elective**	**3**
			Free Elective	3
			UNIV 4AA0 Achieve the Creed	0
		14		**14**

Total Hours: 122

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. In order to complete the degree in 122 credits, because of the Mechanical Engineering specific requirements for the Humanities and Fine Arts courses, it is recommended that a two course History sequence (HIST 1010, HIST 1020, HIST 1017, HIST 1027, HIST 1210, HIST 1220 or HIST 1217 - HIST 1227) be completed in the Social Sciences.

2 Core Literature: ENGL 2200, ENGL 2207, ENGL 2210, ENGL 2217, ENGL 2230, ENGL 2240, ENGL 2250 or ENGL 2260.

Technical Elective - see adviser for approved course listing.

Nuclear Power Generation Systems

This 16-hour minor prepares Auburn engineering students for careers specializing in the support and service of America's nuclear power generation industry. Students who complete this minor will have demonstrated an understanding of the industry's basic construction techniques, power plant models, integration into the national electrical grid and common reactor plant operations. Coursework for the minor will take place in the classroom as well as on-site at nuclear power generating facilities, and will be led by faculty and nuclear industry leaders. Areas of emphasis include: regulation, safety, reliability and dependability, radiological health and work control practices, and training requirements for operators and maintenance technicians.

Code	**Title**	**Hours**
ENGR 2700	Nuclear Power Operations, System and Careers	1
ENGR 3710	Basic Nuclear I: Nuclear and Mechanical Systems	4
ENGR 3720	Basic Nuclear II: Materials, Electric, Electronics	4
ENGR 4710	Advanced Reactor Operations I: Health and Safety	3
ENGR 4720	Advanced Reactor Operations II: Safe Operations	4
Total Hours		**16**

Tribology Minor

This 15-hour multidisciplinary minor prepares students from various science and engineering majors for careers that require a background in friction, wear and lubrication (tribology). Students will be prepared for not only the lubricant and bearing manufacturing industry, but for design and maintenance in the power generation, vehicle, and manufacturing industries. Students who complete this minor will acquire the skills necessary to identify critical parameters in a tribological system, design a tribological system for the needs of a specific application, including geometry, lubricant, and surface properties. Students will also understand the chemical formulation and operating mechanisms of lubricants and additives.

Code	Title	Hours
Courses required		
MECH 5240	Boundary and Full-Film Lubrication	3
or PFEN 5300	Rheology	
or CHEN 5410	Macromolecular Science and Engineering	
MECH 5230	Friction, Wear and Lubrication	3
CHEM 2080	Organic Chemistry II	3
or CHEM 2030	Survey of Organic Chemistry	
or CHEM 4070	Physical Chemistry I	
Electives courses		
CHEN 5430	Business Aspects of Chemical Engineering	3
MATL 5600	Corrosion	3
MECH 5830	Engines (This Course is newly added.)	3
MECH 5270	Metalworking and Manufacturing Tribology	3
CHEN 5660	Macroscale Assembly and Applications of Nanomaterials	3
MECH 5970	Intermediate Special Topics in Mechanical Engineering (Can be Advanced Manufacturing)	3
ENGR 3500	Leadership in Engineering & Business Theory	4
MATL 5200	Materials Characterization	2
BSEN 5540	Biomass and Biofuels Engineering	3
CHEN 5120	Surface and Colloid Science	3
CHEM 4070	Physical Chemistry I	3
MECH 5250	Multiscale Contact Mechanics	3
ENGR 3510	Product Innovation: From Sketch to Shelf	4
CHEN 5420	Polymer Chemical Engineering	3
BSEN 4250	Hydraulic Control Systems Design	3

Majors

- Aerospace Engineering (p. 630)
- Biosystems Engineering (p. 640)
- Biosystems Engineering — Bioprocess Engineering Option (p. 637)
- Biosystems Engineering — Ecological Engineering Option (p. 642)
- Biosystems Engineering — Forest Engineering Option (p. 639)
- Chemical Engineering (p. 649)
- Civil Engineering (p. 665)
- Computer Engineering (p. 688)
- Computer Science (p. 677)
- Computer Science — Online Degree Completer Program (p. 675)
- Electrical Engineering (p. 690)
- Industrial and Systems Engineering (p. 702)
- Materials Engineering (p. 716)
- Mechanical Engineering (p. 717)
- Software Engineering (p. 679)

Minors

College of Forestry, Wildlife and Environment

JANAKI ALAVALAPATI, Dean
TODD STEURY, Associate Dean of Academic Affairs

DAOWEI ZHANG, Associate Dean of Research

THE COLLEGE OF FORESTRY, WILDLIFE AND ENVIRONMENT (CFWE) has a long tradition of offering undergraduate and graduate programs that prepare students for employment in a wide variety of natural resources and environmentally focused professions. Our planet's diverse ecosystems, forests, and associated natural resources play a critical role in contemporary society. The sustainable management of those resources protects our health and quality of life, preserves the biological diversity of our environment, and contributes to our economy. The College's programs emphasize a comprehensive understanding of the interrelationships between the functions and values of our diverse renewable natural resources and environment. This awareness is essential to effective management and, ultimately, to meeting society's needs.

Curricula offered in the CFWE include environmental conservation and management, forestry, geospatial information science, parks and recreation management, sustainable packaging, wildlife ecology and management, wildlife enterprise management, and wildlife sciences pre-veterinarian medicine. The CFWE also provides courses required to attain a degree in forest engineering.

Within these disciplines, graduates can anticipate abundant employment opportunities within the public and private sectors, including positions within federal, state, and municipal agencies, consulting firms, and nonprofit organizations such as land trusts, conservancies, etc. Depending on a student's major, potential careers include conservation biologist, ecologist, ecosystem modeler, eco-tourism manager, environmental consultant, data and information specialist, forester, land and resource manager, operations manager, parks and recreation director, regulatory compliance officer, and supply chain manager.

In keeping with the University's land-grant mission, the College of Forestry, Wildlife and Environment pursues excellence in education, research, and extension (including outreach and public service activities) focused on forests, wildlife, and the associated natural resources and environment of Alabama and beyond. With respect to undergraduate education, this focus is on preparing graduates with the necessary skills for post-graduation employment, with the breadth and depth of educational background to support professional growth and continued career advancement. The result of this directed effort from an energized faculty and administration are motivated graduates who have the foundation to master the art and science of managing our natural resources and environment for the betterment of local and global communities.

Students are encouraged to visit the CFWE website (http://cfwe.auburn.edu/), which provides information on its programs and faculty, as well as updates on courses, scheduling, practicum details, and events of interest within the College.

If you would like to speak to someone about the programs in the College of Forestry, Wildlife and Environment, please call the director of student services at (334) 844-1050, the coordinator of student recruitment at (334) 844-1094 or send an email to workingwithnature@auburn.edu.

Transfer Requirements

Transfers from other institutions must apply through Enrollment Services. The exact placement of transfer students can be determined only upon review of their transcripts by the Registrar's Office and the College of Forestry, Wildlife and Environment.

Transfer credit for forestry and wildlife courses not considered equivalent to those required in the chosen curriculum may be substituted for elective credit. However, duplication of credit will not be allowed. Equivalency of College of Forestry, Wildlife and Environment courses will be determined by the Dean's Office.

Credit toward a degree in the College of Forestry, Wildlife and Environment will not be allowed for mathematics or chemistry courses at a lower level than those specified in the curriculum for the degree sought. Students who are not prepared to take the courses prescribed should take lower-level remedial courses without degree credit.

Pre-Veterinary Medicine

The Wildlife Science Pre-Veterinary curricula within the CFWE enables students to complete requirements for admission to colleges of veterinary medicine after a student's third year of undergraduate studies. If students are admitted to a college of veterinary medicine after the completion of their third year, they may obtain a Bachelor of Science degree in Wildlife Sciences Pre-Veterinary Medicine after successful completion of their first year in a college of veterinary medicine and completion of all major courses. The specific graduation requirements may be obtained from a program advisor or academic advisor for the CFWE. The minimum requirements for admission to most colleges of veterinary medicine are incorporated in the first three years of the options listed within the degree curricula. (See also the curriculum in Pre-Veterinary Medicine in the College of Science and Mathematics and College of Agriculture).

Degree Requirements and Courses

For degree specific requirements, courses, and accreditation information, review the desired major via the below links.

Majors

- Environmental Conservation and Management (p. 741) (ENVC, NATR)
- Forestry (p. 743) (FORP, FORW, FOWS)
  - Forest Engineering Option (p. 639) (FOEN)
- Geospatial Information Science (p. 745)(GSEI)
- Parks and Recreation Management (p. 747) (PARK)
- Sustainable Packaging (p. 749) (BIOP)
- Wildlife Ecology and Management (p. 750) (WLDE)
- Wildlife Enterprise Management (p. 752) (WLEM)
- Wildlife Sciences — Pre-Veterinary Medicine (p. 754) (WLPV)

Minors

- Coastal Management (p. 756)
- Conservation Social Sciences (p. 757)
- Environmental Law (p. 757)
- Forest Health (p. 758)
- Forest Resources (p. 758)
- Forest Seedling Nursery Management (p. 758)
- Natural Resources Ecology (p. 759)
- Nature-Based Recreation (p. 760)
- Restoration Ecology (p. 760)
- Tropical Conservation and Sustainable Development (p. 761)
- Urban Forestry (p. 761)
- Watershed Sciences (p. 762)

Graduate Programs

- Applied Economics (Forestry) — PhD (p. 1639)
- Earth System Science — Interdisciplinary — PhD (p. 1635)
- Forestry — MNR, MS, PhD (p. 1668)
  - Professional Forester Option — MNR (p. 1712)
  - Forestry — MS (p. 1671)
  - Forestry — PhD (p. 1672)
- Forest Business & Investment — MS (Online) (p. 1669)
- Forest Finance & Investment — Online Graduate Certificate (p. 1671)
- Natural Resources — MNR, MS (p. 1711)
  - Natural Resources — MNR (On-campus or Online) (p. 1672)
  - Natural Resources — MS (p. 1712)
- One Health — Online Graduate Certificate (p. 1729)
- Restoration Ecology — Online Graduate Certificate (p. 1758)
- Wildlife Sciences — MS, PhD (p. 1796)
  - Wildlife Sciences — MS (p. 1796)
  - Wildlife Sciences — PhD (p. 1796)
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Biomaterials and Packaging Courses

BIOP 1390 INTRODUCTION TO FOREST PRODUCTS AND PACKAGING (3) LEC. 2. LAB. 4. Basic properties of wood and their impact on the manufacture of forest products. Identification of important products and woods.

BIOP 2120 FRONTIERS FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Introduction to the sustainability of biomaterials and resource efficiency to produce materials, food, energy and services, that decrease society's dependency on fossil fuels.

BIOP 2140 FUNDAMENTALS OF PACKAGING TECHNOLOGY (3) LEC. 3. An introduction into basic concepts and theories of packaging design, manufacturing, characterization, and development. The packaging materials covered in this course include paper and paperboard, metal, and plastics.

BIOP 3391 FOREST AND MANUFACTURING OPERATIONS (1) LEC. .5. LAB. 2. Introduction to basic field operations in Forestry including site preparation and planting, harvesting and primary manufacturing processes relative to specific geographic locations.

BIOP 3840 SUSTAINABLE PACKAGING CONCEPTS (3) LEC. 3. Examines the performance and durability of products and packaging, including sustainability of raw materials and society energy needs, the use of sustainable materials to meet these needs and reduce impact on environment, and associated methods.

BIOP 4060 ECONOMICS OF SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Pr. ECON 2020. The course will familiarize students with the economic theory of resource allocation in a market economy as applied to the specific sustainable biomaterials and packaging industry. This will include; production and consumption theory, engineering and financial decision making.

BIOP 4080 BUSINESS MANAGEMENT FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Introduction to key forest products and sustainable biomaterials business management topics including supply chain management policies and limitations specific to the forest products, sustainable biomaterials and packaging industry.

BIOP 4360 SUSTAINABLE BIOMATERIALS TRADE AND MARKETING (3) LEC. 3. Covers the general structure of the sustainable bioproducts/biomaterials industry and the major product markets. Students will be provided an overview of structure of both traditional forest products as well as emerging sustainable biomaterial industry segments.

BIOP 4400 SUSTAINABLE BIOMATERIALS & PRODUCT DEVELOPMENT (4) LEC. 4. Pr. BIOP 5080 or BIOP 5800. Examines the stages of product development, providing a blend of economics, engineering, marketing, and sustainability to design a product that meets the needs of a chosen/participating customer.

BIOP 4410 SUSTAINABLE BIOMATERIALS & PRODUCT DEVELOPMENT II (2) LAB. 2. Pr. BIOP 4400. Continues and completes the final stages of product development (initiated in BIOP 4400), providing a blend of economics, engineering, marketing, and sustainability to finalize the product design that meets the needs of a chosen/participating customer.

BIOP 4700 PACKAGING FOR DISTRIBUTION SYSTEMS (3) LEC. 3. Pr. BIOP 3000. This course explores the role of sustainable raw materials in packaging for distribution systems. Students will learn about the properties, design, and optimization of renewable and recyclable materials to ensure product protection, efficiency, and environmental responsibility throughout the supply chain. Emphasis is placed on material selection, performance in distribution environments, and innovative solutions for sustainable packaging.

BIOP 4920 INTERNSHIP IN SUSTAINABLE PACKAGING (4) INT. 4. Pr. FOWS 3850. Supervised work experience in a Sustainable Packaging (BIOP) setting for a minimum of 50 hours/credit hour. BIOP major, 2.2 cumulative GPA, and senior standing required. Department approval.

BIOP 5050 BIOMASS PROCESSING CHEMISTRY (3) LEC. 3. Wood and fiber morphology, cellulose, hemicellulose and lignin chemistry; biodegradations of cellulose, hemicellulose and lignin. Emphasis on bioenergy and bio-products.

BIOP 5060 PRODUCTION PACKAGING EVALUATION LAB (1) LAB. 3. Pr. BIOP 2140. This lab course provides hands-on experience in evaluating packaging materials and products made from wood, cellulose fibers, and plastics. Students will assess the performance of packaging materials, focusing on real-world applications in product packaging design and manufacturing. The evaluation lab mainly focusses on testing physical, mechanical, and chemical properties of the packaging materials.

BIOP 5070 PERFORMANCE AND DURABILITY OF PRODUCTS AND PACKAGING (3) LEC. 3. Examines the performance and durability of products and packaging, including physics and mechanics properties of solid wood and wood- and bio-based products and packaging materials, as well as notions about durability, thermal, electric and acoustic properties.

BIOP 5080 FIBER-BASED PRODUCTS IN PACKAGING (3) LEC. 3. Pr. BIOP 2140. The manufacturing process of fiber-based products and the applications of the products in packaging industry. Characteristics of wood fibers, including the chemical composition of wood and fibers. Various pulping processes used to separate fibers from other components of the renewable materials. Fiber preparation for papermaking. Property characterization methods for fibers and their products.

BIOP 5250 WOOD COMPOSITES FOR BIOMATERIALS & PACKAGING (3) LEC. 3. Pr. BIOP 3390. Relationships between various biomass feedstock properties and the physical, chemical, and mechanical properties of the biocomposite from various manufacturing processes.

BIOP 5800 BIOPOLYMERS FOR SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Students will learn packaging functions, classification, and regulations; polymers classification and properties; as well as engineering principles applied to biomaterials and packaging materials. Thermo-mechanical properties and polymers processing methods of natural and sustainable biomaterials will be discussed. An understanding of the advantages and limitations/challenges of bio-based polymers for packaging systems will be gained through the course.

BIOP 6050 BIOMASS PROCESSING CHEMISTRY (3) LEC. 3. Wood and fiber morphology, cellulose, hemicellulose and lignin chemistry; biodegradations of cellulose, hemicellulose and lignin. Emphasis on bio-energy and bio-products.

BIOP 6060 PRODUCTION PACKAGING EVALUATION LAB (1) LAB. 3. This lab course provides hands-on experience in evaluating packaging materials and products made from wood, cellulose fibers, and plastics. Students will assess the performance of packaging materials, focusing on real-world applications in product packaging design and manufacturing. The evaluation lab mainly focusses on testing physical, mechanical, and chemical properties of the packaging materials.

BIOP 6070 PERFORMANCE AND DURABILITY OF PRODUCTS AND PACKAGING (3) LEC. 3. Examines the performance and durability of products and packaging, including physics and mechanics properties of solid wood and wood- and bio-based products and packaging materials, as well as notions about durability, thermal, electric and acoustic properties.

BIOP 6080 FIBER-BASED PRODUCTS IN PACKAGING (3) LEC. 3. The manufacturing process of fiber-based products and the applications of the products in packaging industry. Characteristics of wood fibers, including the chemical composition of wood and fibers. Various pulping processes used to separate fibers from other components of the renewable materials. Fiber preparation for papermaking. Property characterization methods for fibers and their products.

BIOP 6250 BIOCOMPOSITES (3) LEC. 3. Relationships between various biomass feedstock properties and the physical, chemical, and mechanical properties of the biocomposite from various manufacturing processes.

BIOP 6800 BIOPOLYMERS FOR SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Students will learn packaging functions, classification, and regulations; polymers classification and properties; as well as engineering principles applied to biomaterials and packaging materials. Thermo-mechanical properties and polymers processing methods of natural and sustainable biomaterials will be discussed. An understanding of the advantages and limitations/challenges of bio-based polymers for packaging systems will be gained through the course.

Earth System Science Courses

ESSI 7150 SCIENCE COMMUNICATION (3) LEC. 3. This course will provide opportunities for STEM graduate students to practice communicating science to multiple audiences. Students will gain skills by communicating with both stakeholders and the public and presenting information, exploring public opinion on socio-political topics such as climate change, resilience, and adaptation planning, and learning about appropriate framing and messaging techniques for target audiences. Guest speakers, reading discussions, practical tips, communication rubrics, and presentations to refine communication skills will be emphasized.

ESSI 7200 STEM STUDIO (2) LEC. 2. This course will provide opportunities for interdisciplinary STEM graduate students to learn about structured decision-making and the coproduction of science, which aims to undertake science that is actionable and useful to targeted stakeholder groups. Students will gain skills by communicating with stakeholders and develop a proposal to conduct research with a stakeholder group of their choice. Ideally, students would then implement their research in the follow-on Internship course (ESSI 7920) offered by the ESSI Program/NRT project. Guest speakers, reading discussions, written communication, workshops, and meetings with stakeholders will be included in the course. This course aims to: (i) expose students working on climate adaptation (from natural, social, or humanities sciences) to ideas of interdisciplinary climate knowledge, co-production, and structured decision-making; (ii) help students reflect on and relate these ideas to their own research - how their own climate research could connect with other disciplines and meet the decision needs of stakeholders; (iii) support participants in designing a climate adaptation research project for review by their peers and future implementation with their chosen stakeholder group.

ESSI 7300 SOCIAL-ECOLOGICAL-ENGINEERED SYSTEMS (3) LEC. 3. This course explores foundational scholarship on the Social-Ecological Systems (SES) approach to understanding complex environmental problems with emphasis on the role of engineering in human interactions with natural systems. Students are expected to apply SES concepts and theories to analyses in their own areas of research.

ESSI 7420 NATURAL HAZARDS RISK AND DISASTER RESILIENCE (3) LEC. 3. The purpose of this course is to present students with an approach to understanding adverse natural hazard impacts and disasters grounded in the analysis of disaster risk, vulnerability, and resilience. The course will use a multidisciplinary perspective to examine factors and conditions that put people differentially at risk before, during, and following a disaster event. The course will also introduce students to the metrics, methodologies, and tools necessary for both quantitative and qualitative resilience assessments and benchmarking methods. Specific topics that are an integral part of the resilience concept will include: climate-related hazard risk assessment; disaster resilience assessment covering ecological, social, economic, infrastructural, and institutional components; community capital; hazard mitigation and planning for fostering resilient communities; social vulnerability, and recovery. The course materials, lectures, and assignments will reflect the emerging emphasis on resilience to climate-induced natural hazards and disasters.

ESSI 7920 CLIMATE INTERNSHIP (1) INT. 1. This course will provide graduate Trainees with an opportunity to gain knowledge and skills from a planned work experience in the area of resilience to climate-related natural hazards and disasters. In addition to meeting core learning objectives, jointly developed learning outcomes that are specific to each Trainee will be selected and evaluated by a faculty internship advisor, a stakeholder sponsor, and the Trainee. It is expected that the internship will afford Trainees the opportunity to: 1) explore career paths related to climate resilience outside of academia, 2) conduct research to solve real-world problems, and 3) to understand the research needs of stakeholders. The experience will also give students the opportunity to build professional networks.

ESSI 8000 EARTH SYSTEM SCIENCE AND GLOBAL CHANGE (3) LEC. 3. The course explores the Earth system as a whole, with an emphasis on the interrelationships between geological, biological, climatological, and human systems on regional and global scales.

ESSI 8040 URBAN CLIMATOLOGY (3) SEM. 3. This seminar will explore past, current, and emerging textbooks and literature to introduce (1) the fundamental concepts of the urban-climate system, (2) observational and modeling strategies for studying the urban-climate system, and (3) the context for how the urban-climate system feedbacks fit into the climate change discussion. Students will be graded based on class participation, examinations, a small group project, and an individual project.

ESSI 8100 EARTH SYSTEM OBSERVATIONS AND ANALYSIS (3) LEC. 2. LAB. 2. Pr. GSEI 1200 and GSEI 2070. Course reviews recent advances in earth system observations and provides students opportunity to develop holistic understanding of key parameters and processes of the earth system including biosphere, atmosphere, and oceans processes using observations.

ESSI 8200 EARTH SYSTEM SCIENCE SEMINAR (1) SEM. 1. SU. Students deliver oral presentations based upon their research and provide constructive criticism of their peers' presentations. Topics of presentations may include student’s dissertation research areas or critical examination of current research problems in Earth system science.

ESSI 8990 RESEARCH AND DISSERTATION (1-6) DSR. Theoretical and practical aspects of designing dissertation research in the interdisciplinary Earth System Science program. The course is designed to assist students through the proposal and dissertation writing and presentation processes and to prepare for the dissertation defense. Course may be repeated for a maximum of 15 credit hours.

Forest Engineering Courses

FOEN 3040 FOREST SURVEYING (2) PRA. 2. Basic land surveying concepts and procedures as applied to Forestry. Use of basic surveying instruments and calculations for land areas, boundaries, and topographic features. Summer.

FOEN 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Individual or small group study of a specialized area in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 8 credit hours.

FOEN 5700 HARVESTING (3) LEC. 2. LAB. 3. Pr. FORY 3180. Analysis of the administration of timber harvest, equipment choice, planning methods, movement of timber products, machine and system costs, balancing of harvesting systems, logging safety, and environmental impact.

FOEN 5710 SYSTEMS ANALYSIS FOR FORESTRY AND BIOLOGICAL OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 2210 and (STAT 3010 or STAT 2510). Junior standing or greater. Analysis methods for timber harvesting productivity and costs including gathering of time and production data, preparation of data for analysis and statistical modeling.

FOEN 6230 ENGINEERED WOOD STRUCTURE DESIGN (3) LEC. 2. LAB. 3. Pr. ENGR 2070. Load, deflection criteria; engineering characteristics of wood; designing wood components and mechanical connections; shear walls and diaphragms; trusses; bridges; post-frame construction.

FOEN 6700 HARVESTING (3) LEC. 2. LAB. 3. Pr. FORY 3180. Analysis of the administration of timber harvest, equipment choice, planning methods, movement of timber products, machine and system costs, balancing of harvesting systems, logging safety, and environmental impact.

FOEN 6710 OPERATIONS ANALYSIS IN BIOSYSTEMS AND FORESTRY (3) LEC. 2. LAB. 3. Analysis methods for timber harvesting productivity and costs including gathering of time and production data, preparation of data for analysis and statistical modeling.

FOEN 7970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Individual or small group study of an advanced specialized area in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 12 credit hours.

Forest Products Courses

FOPR 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Fall, Spring, and Summer. Course may be repeated for a maximum of 12 credit hours.

FOPR 7990 RESEARCH AND THESIS (1-15) MST. Credit to be arranged. Course may be repeated with change in topics.

FOPR 8970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 12 credit hours.

Forestry Courses

FORY 3010 FOREST SOILS (3) LEC. 2. LAB. 3. Pr. CHEM 1010 or CHEM 1030. Overview of forest soil composition, formation, biota, classification, chemistry, ecology, and management.

FORY 3020 FOREST BIOLOGY (3) LEC. 1. LAB. 3. Field exposure to important principles of forest biology and some examples of their applications to forest resources; identification of major tree species and critical analysis of forest stand structure. Summer.

FORY 3050 FIELD MENSURATION (4) LEC. 1. LAB. 3. Basic concepts and procedures for measuring trees, stands and other forest resources; units of measure, log rules, volume tables, condition class mapping and timber estimation. Summer.

FORY 3060 INTRODUCTION TO FOREST MANAGEMENT STRATEGIES (1) LEC. 1. LAB. 3. Biological, social, and economic principles underlying forest management strategies, the diversity of forestry enterprises, and the complexities facing forest managers. Summer.

FORY 3100 DENDROLOGY (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) or FORY 3020. Taxonomy and identification of important forest trees of the U.S., including cover types of forest regions.

FORY 3180 FOREST RESOURCE SAMPLING (3) LEC. 2. LAB. 3. Pr. FORY 3050. Theoretical and empirical estimates of tree and log volumes, tree taper, and yield tables. Sampling design and analysis to estimate current conditions of timber stands.

FORY 3200 FOREST TREE PHYSIOLOGY (3) LEC. 3. Pr. FORY 3020. Relationship between cultural, environmental and genetic factors that affect metabolism and growth of individual trees.

FORY 3500 FORESTRY FOR SMALL WOODLAND OWNERS (3) LEC. 3. An appreciation of forest trees and the environment, the environmental functions of trees, and the economic potential of a balanced land-use plan.

FORY 4190 FOREST BIOMETRICS (3) LEC. 2. LAB. 3. Pr. FORY 3180. Factors affecting and mathematical principles of tree-volume and stand growth.

FORY 4230 FOREST ECOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Forests as functional systems, the biotic and abiotic environment, temporal changes in ecosystem structure and function, application of ecological information.

FORY 4260 LONGLEAF PINE: HISTORY, ECOLOGY, MANAGEMENT, AND RESTORATION (2) LEC. 2. History of forestry in the south, focusing on the longleaf pine ecosystem. Also, information on species that are part of the longleaf ecosystem, comparisons with other southern pines, and management and restoration techniques.

FORY 4450 FOREST SECTOR ECONOMICS (3) LEC. 3. Pr. FORY 5400. Status, trend, employment and other fundamentals of forest industry. Timber supply and demand, forest products supply and demand, technological change, international trade.

FORY 4830 INDUSTRIAL WOOD PROCUREMENT PRACTICUM (1) PRA. 2. SU. Pr. FORY 3050. Strategies, field and office procedures involved in purchasing wood for an industrial forestry firm. Taught as a weekend field exercise at Solon Dixon Forest Education Center. Course may be repeated for a maximum of 2 credit hours.

FORY 4930 DIRECTED STUDY (1-3) AAB/IND. Departmental approval. Fall, Spring, and Summer. Course may be repeated for a maximum of 6 credit hours.

FORY 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Topics of an undergraduate nature pertinent to Forestry. Course may be repeated for a maximum of 3 credit hours.

FORY 4970 SPECIAL TOPICS (1-4) AAB/LEC. Course may be repeated for a maximum of 8 credit hours.

FORY 4980 SENIOR CAPSTONE PROJECT (1-4) LAB. 1-4. Pr. FORY 5230 and FORY 5410. Integrated study of Forest Resource Management using a case-study approach through development of a comprehensive plan related to the declared emphasis. Spring. Course may be repeated for a maximum of 4 credit hours.

FORY 5140 FOREST REGENERATION AND SEEDLING PRODUCTION (3) LEC. 3. Pr. P/C FORY 4230 or P/C HORT 3220. Principles of forest nursery seedling culture. Evaluation of activities to improve out planting performance. Plantation establishment problems and practices in Southern US.

FORY 5150 FOREST HEALTH (3) LEC. 3. Pr. FORY 3020 or BIOL 3060. Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products.

FORY 5151 FOREST HEALTH LABORATORY (1) LAB. 1. Coreq. FORY 5150. Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment. Credit will not be given for both FORY 5151 and FORY 6151.

FORY 5230 SILVICULTURE (4) LEC. 3. LAB. 3. Pr. FORY 4230 or BIOL 5140 or BIOL 3060 or BSEN 3230. Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives.

FORY 5360 CONSULTING FORESTRY (2) LEC. Business and professional requirements of forest resource management consulting. Presentations will be provided by consulting foresters, and analyses of the services they provide will be covered.

FORY 5400 FOREST ECONOMICS (3) LEC. 2. LAB. 3. Pr. FORY 3180. Marginal analysis, investment theory, resource supply, economics of conservation, and taxation principles applied to forestry. Structure and performance of forest products markets.

FORY 5410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3. Pr. FORY 5400 and FORY 4190. Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies.

FORY 5440 INTERNATIONAL FORESTRY (3) LEC. 3. Survey global forest location, characteristics, management systems, international forest products trade, current issues, and international forest governance.

FORY 5460 FOREST FIRE MANAGEMENT (3) LLB. Pr. FORY 4230 or BIOL 3060. The management of fire, both as a tool and wildfire suppression in the management of forested ecosystems. Emphasis placed on experience, technique and administration.

FORY 5470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1. LAB. 3. Basic understanding of GIS through discussion of the basic components of a GIS and how GIS are used in forestry applications.

FORY 5480 GIS DATABASE DESIGN AND ANALYSIS (3) LEC. 3. Pr. GSEI 5800 or COMP 1220 or GEOG 5890. Departmental approval. Geographic information system database planning, design, creation, management and analysis using a project oriented approach.

FORY 5540 ENVIRONMENTAL LAW (3) LEC. 3. A review of environmental law including common and administrative law, land use, and Federal statues on water, air, toxins and waste. May count either FORY 5540 or FORY 6540.

FORY 5550 PROPERTY LAW (3) LEC. 3. Land ownership, transfer and management including trespass, nuisance, adverse possession, easements, concurrent ownership, land use regulations and regulatory takings. May count either FORY 4550 or FORY 5550/6550.

FORY 5620 FOREST FINANCE AND INVESTMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Principles of corporate and real estate finance as applied to commercial timberland and its place in individual and institutional portfolios. May count either FORY 5620 or FORY 6620.

FORY 5650 URBAN FORESTRY (3) LEC. 2. LAB. 3. Pr. FORY 3100 or HORT 3200. Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented.

FORY 5820 FORESTRY IN THE PRIVATE SECTOR (3) SEM. 3. Pr. FORY 3050. Management systems and practices used in wood purchasing, timber harvesting and timberland management including public relations, forest sustainability, certification and personal business skills.

FORY 6140 FOREST REGENERATION AND SEEDLING PRODUCTION (3) LEC. 3. Pr. P/C FORY 4230 or P/C HORT 3220. Principles of forest nursery seedling culture. Evaluation of activities to improve out planting performance. Plantation establishment problems and practices in Southern US.

FORY 6150 FOREST HEALTH (3) LEC. 3. Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products.

FORY 6151 FOREST HEALTH LABORATORY (1) LAB. 1. Coreq. FORY 6150. Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment. Credit will not be given for both FORY 5151 and FORY 6151.

FORY 6230 SILVICULTURE (4) LEC. 3. LAB. 3. Pr. FORY 4230 or BIOL 3060 or BIOL 5140 or BIOL 6140 or BSEN 3230. Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives.

FORY 6360 CONSULTING FORESTRY (2) LEC. Business and professional requirements of forest resource management consulting. Presentations will be provided by consulting foresters, and analyses of the services they provide will be covered.

FORY 6400 FOREST ECONOMICS (3) LEC. 2. LAB. 3. Pr. FORY 3180. Marginal analysis, investment theory, resource supply, economics of conservation, and taxation principles applied to forestry. Structure and performance of forest products markets.

FORY 6410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3. Pr. (FORY 5400 or FORY 6400) and (FORY 4190). Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies.

FORY 6440 INTERNATIONAL FORESTRY (3) LEC. 30. Survey global forest location, characteristics, management systems, international forest products trade, current issues, and international forest governance.

FORY 6460 FOREST FIRE MANAGEMENT (3) LLB. The management of fire, both as a tool and wildfire suppression in the management of forested ecosystems. Emphasis placed on experience, technique and administration.

FORY 6470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1. LAB. 3. Basic understanding of GIS through discussions of the components of a GIS and how GIS are used in natural resource applications.

FORY 6480 GIS DATABASE DESIGN AND ANALYSIS (3) LEC. 3. Departmental approval. Geographic information system database planning, design, creation, management and analysis using a project oriented approach.

FORY 6540 ENVIRONMENTAL LAW (3) LEC. 3. A review of environmental law including common and administrative law, land use, and Federal statues on water, air, toxins and wastes. May count either FORY 5540 or FORY 6540.

FORY 6550 PROPERTY LAW (3) LEC. 3. Land ownership, transfer and management including trespass, nuisance, adverse possession, easements, concurrent ownership, land use regulations and regulatory takings. May count either FORY 4550 or FORY 5550/6550.

FORY 6650 URBAN FORESTRY (3) LEC. 2. LAB. 3. Pr. FORY 3100 or HORT 3200. Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented.

FORY 6820 FORESTRY IN THE PRIVATE SECTOR (3) SEM. 3. Management systems and practices used in wood purchasing, timber harvesting and timberland management including public relations, forest sustainability, certification and personal business skills.

FORY 7110 FOREST BIOGEOCHEMISTRY (3) LEC. 2. LAB. 3. Pr. FORY 6230. Fundamental and applied aspects of forest biogeochemical processes at scales of the individual tree, forest community, and forest ecosystem.

FORY 7160 ECOSYSTEM RESPONSES TO CHEMICAL CLIMATE CHANGE (3) LEC. 2. LAB. 3. Plant responses to changes in the chemical climate. Emphasis on sources, effects, methodologies used and ecosystem and global effects.

FORY 7170 ECOPHYSIOLOGY OF FOREST TREES (3) LEC. 3. Pr. BIOL 3100 or FORY 3200. Interactions among the environment, silvicultural practices, physiological mechanisms and tree growth. Integration of root, shoot and foliar functions and leaf, tree and stand level processes.

FORY 7210 ECOSYSTEM ECOLOGY (3) LEC. 3. Pr. BIOL 3060 or FORY 4230 or BIOL 5140 or BIOL 6140. To create a conceptual model of the terrestrial ecosystem including spatial distributions over time; and the impact of human activity and natural disturbance.

FORY 7250 ADVANCED ECOSYSTEM MODELING (3) LEC. 3. Pr. FORY 4230 or BIOL 3060. Exploration of the theory and rationale in modeling the structure and functions of ecological ecosystems.

FORY 7300 FOREST BUSINESS AND INVESTMENTS SEMINAR (1) LAB. 1. This course is designed to prepare Forest Business and Investments students with the processes, practices, values, actions, and visions associated with finance and investment in commercial timberland.

FORY 7320 FOREST GROWTH, SILVICULTURE, AND MANAGEMENT (3) LEC. 3. Understanding of forest growth and yield, measurements, management practices and methods, and optimization techniques necessary to make management decisions that maximize objectives.

FORY 7330 ECOLOGY AND SILVICULTURE OF EASTERN HARDWOOD FORESTS (3) LEC. 2. LAB. 3. Pr. FORY 4230. Silvical characteristics of major hardwood species and community composition, dynamics, site relationships, and silviculture of Southern and Eastern deciduous forests, emphasizing oaks.

FORY 7350 APPLIED STATISTICS FOR FOREST BUSINESS (3) LEC. 3. Gain an understanding of applied statistics related to forest business and statistical software to make informed and accurate business and investment decisions.

FORY 7400 FOREST VALUATION AND ECONOMICS (3) DSL. Forest valuation and the economic theory of forest resource allocation. Topics covered include forest valuation and appraisal, analysis of consumer behavior, production, market structure and the role of government, economics of forest management and policy, international trade, and financial analysis.

FORY 7450 FOREST SECTOR ECONOMICS (4) LEC. 4. Pr. FORY 5400 or FORY 6400. Fundamentals of forest industry, timber supply and demand, forest products supply and demand, technological change, international trade and development, sophisticated forest sector modeling.

FORY 7460 LAND ECONOMICS (3) LEC. 3. Evolution of the role of economics in forestry, policy and production analysis methods, non-market valuation, and regional analysis.

FORY 7510 RESEARCH METHODS (2) LEC. 1. LAB. 3. Overview of the scientific method and its application in forestry/natural resources research. Evaluation and preparation of project proposals with emphasis on research quality and written communication skills.

FORY 7620 FOREST FINANCE, ACCOUNTING AND TAXATION (3) LEC. 3. Course will provide students with an overview of core concepts in finance, accounting and taxation and how these concepts can be specifically applied to various types of forest operations.

FORY 7650 FOREST OPERATIONS AND WOOD SUPPLY CHAIN MANAGEMENT (3) DSL. 3. This course will review all the intricacies of the wood supply chain, from the diverse landowner base (private landowners, TIMO's and REIT's and government) to the independent logger to the wood supplier and then the consuming mill.

FORY 7850 URBAN FORESTRY SEMINAR (1) SEM. 1. Presentation and discussion of research, scientific papers and issues related to urban forest establishment, care and planning. Credit will not be given for both FORY 7850 and HORT 7850. Fall.

FORY 7910 PRACTICUM IN COLLEGE TEACHING (1) PRA. 1. SU. Techniques and practice of collegiate teaching at the level of Graduate Assistant. Students work under direct supervision and tutelage of the instructor. Fall, Spring, and Summer.

FORY 7930 DIRECTED STUDIES (1-3) AAB/IND. Course may be repeated for a maximum of 9 credit hours.

FORY 7950 CFWE SEMINAR (1) SEM. SU. Participation in the College of Forestry, Wildlife and Environment Seminar Series. Students will learn about research being conducted in various field and by various individuals internal and external to the university. Course may be repeated for a maximum of 3 credit hours.

FORY 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in Forestry or wood utilization involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 12 credit hours.

FORY 7980 MASTER OF NATURAL RESOURCES PAPER (2) IND. In-depth study involving library review, data collection and/or data analysis. Departmental Program.

FORY 7990 RESEARCH AND THESIS (1-15) MST. Credit to be arranged.

FORY 8930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 9 credit hours.

FORY 8970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in Forestry or wood utilization involving library research, laboratory or field work and report on the findings. Course may be repeated for a maximum of 12 credit hours.

FORY 8990 RESEARCH AND DISSERTATION (1-15) DSR. Credit to be arranged.

Forestry Wildlife Sci. Courses

FOWS 1010 INTRODUCTION TO RENEWABLE NATURAL RESOURCES (1) LEC. 1. Introduction to the wealth and breadth of renewable natural resources in the state, region, nation, and world. Speakers cover topics in forestry, wildlife, water, and soil.

FOWS 1020 SCIENCE OF NATURE I (3) LEC. 3. Coreq. FOWS 1021. Introduction to how the natural world is relevant to society. Lectures will focus on connections using the scientific method to assess ecosystems and the effects human use has on them. The course will develop engaged citizens for our planet by helping students to see how science helps identify and solve real natural resources problems.

FOWS 1021 SCIENCE OF NATURE I LABORATORY (1) LAB. 1. Coreq. FOWS 1020. Hands on learning using both laboratory and field exercises to introduce students to how the natural world is relevant to society and its success.

FOWS 1030 SCIENCE OF NATURE II (3) LEC. 3. Pr. FOWS 1020. Coreq. FOWS 1031. In depth exposure for students to think critically about the issues in the natural world, including the history of natural resource use in North America. Students will delve deeper into specific natural resource topics with a focus on the habitats and ecosystems of Alabama including issues on how the natural world is relevant to society.

FOWS 1031 SCIENCE OF NATURE II LABORATORY (1) LAB. 1. Coreq. FOWS 1030. In depth exposure using both laboratory and field exercises to introduce students to how the natural world is relevant to society. As part of the course students will collect real-world data, analyze it, summarize it, and disseminate it for use by the public.

FOWS 1040 CLIMATE SCIENCE I (3) LEC. 3. LAB. 0. Coreq. FOWS 1041. Basics of the Earth’s climate system including atmospheric environment, the energy budget, and biogeochemical cycles. Knowledge of the greenhouse effect, major greenhouse gases (GHG), and their sources and the consequences on Climate Change.

FOWS 1041 CLIMATE SCIENCE I - LABORATORY (1) LEC. 0. LAB. 3. Coreq. FOWS 1040. A field and laboratory course with student exercises designed to introduce students to the basics of Climate Science.

FOWS 1050 CLIMATE SCIENCE II (3) LEC. 3. LAB. 0. Pr. FOWS 1040 and FOWS 1041. Coreq. FOWS 1051. Enhanced examination of the Climate Science and causes of climate change and its impacts on natural and managed ecosystems, natural resources, wildlife, and human health, locally, regionally and internationally.

FOWS 1051 CLIMATE SCIENCE II - LABORATORY (1) LAB. 3. Pr. FOWS 1040 and FOWS 1041. Coreq. FOWS 1050. A field and laboratory course with student exercises designed to bring together concepts discussed and examined in lecture (FOWS 1050) for students to analyze and summarize for decision making.

FOWS 2030 INTRO TO ENVIRON EDUCATION (3) LEC. 3. Students will learn about the historical and theoretical foundations of environmental education while participating in experiential learning exercises.

FOWS 2060 INTRODUCTION TO FORESTED LANDSCAPES (2) LEC. 2. Pr. BIOL 1020 or BIOL 1027. This course will serve as an introduction to forest tree biology, forest types of North America, forest ecology and tree identification. The overall course objective is to introduce students to important concepts in forest ecosystem science and management.

FOWS 3500 FORESTRY, ENVIRONMENT & WILDLIFE LEADERSHIP ACADEMY I (1) LEC. 1. SU. Departmental approval. FEWL Academy I is designed to introduce students to the basic leadership styles that are necessary for critical problem solving in issues related to the management, utilization, and stewardship of natural resources.

FOWS 3510 FORESTRY, ENVIRONMENT & WILDLIFE LEADERSHIP ACADEMY II (1) LEC. 1. SU. Pr. FOWS 3500. Departmental approval. FEWL Academy II is designed to allow students to apply the leadership styles introduced in FOWS 3500 necessary for critical problem solving in issues related to the management, utilization, and stewardship of natural resources.

FOWS 3800 INTRODUCTION TO THE ROLE OF FORESTS ON HUMAN HEALTH AND LIVELIHOODS IN SOUTH AFRICA AND MA (1) LEC. 1. This course is intended to prepare students for the study abroad trip to South Africa and Madagascar (FOWS 3810). Students will gain knowledge as to cultural practices of South Africa and Madagascar, issues faced by communities and the role forests play in livelihoods and human health. Knowledge and theoretical approaches to various issues to ensure the well-being of people, animals and environment through collaborative multidisciplinary problem solving will be introduced and discussed.

FOWS 3810 ROLE OF FORESTS ON HUMAN HEALTH AND LIVELIHOODS IN SOUTH AFRICA AND MADAGASCAR (4) AAB. 4. Pr. FOWS 3800. This is a study abroad course, students will travel to South Africa and Madagascar to learn about the importance of trees for rural community livelihood and human health. Using the knowledge obtained in the pre-requisite theoretical course (FOWS 3800) students will interact with communities and researchers in South Africa and Madagascar to witness and learn about putting theory into action. Students will witness how issues, discussed in FOWS 3800, are addressed through collaborative, multi-disciplinary problem solving that results in unique approaches to ensure the well-being of people, animals and the environment.

FOWS 3850 PROFESSIONAL PREPARATION IN FORESTRY, WILDLIFE, AND THE ENVIRONMENT (1) LEC. 1. Assessment of career opportunities. Prepares students for their CFWE internship and post-graduation employment and career development.

FOWS 3950 UNDERGRADUATE SEMINAR (1) LEC. 1. Students will practice speaking in front of a scientific audience, learn to research topics, and organize presentations for professional audiences, faculty, and other students.

FOWS 4970 SPECIAL TOPICS (1-4) LEC. 1-4. Overview of forest soil composition, formation, biota, classification, chemistry, ecology, and sustainable management. Course may be repeated for a maximum of 8 credit hours.

FOWS 4980 UNDERGRADUATE RESEARCH (1-4) IND. Departmental approval. Directed research in the area of specialty under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

FOWS 5210 RESTORATION ECOLOGY (3) LEC. 3. Pr. BIOL 1030. Overview of the history, science, ethics, and current practice of restoration ecology to recognize and understand the need for restoration.

FOWS 5220 LANDSCAPE ECOLOGY (3) LEC. 3. Pr. BIOL 3060 or FORY 4230. Ecological effects and management of heterogeneous spatial pattern on ecosystems over large areas. May count either FOWS 5220 or FOWS 6220.

FOWS 5230 FOREST STAND DYNAMICS (3) LEC. 3. Pr. BIOL 1030. Forest stand dynamics studies the changes in stand structure over time. Examines phases of stand development and how we can help and aid forest, wildlife, and restoration management decisions.

FOWS 5240 FIRE ECOLOGY (3) LEC. 3. Pr. BIOL 1030. Examines the history of fire management, fire behavior, fuel management and models, ignition techniques, fire suppression techniques, urban interface, smoke management, fire weather, elements of a prescribed burn plan, fire and wildlife, and outreach.

FOWS 5250 LONGLEAF PINE ECOLOGY, MANAGEMENT, AND RESTORATION (3) LEC. 3. Pr. BIOL 1030. Covers the ecology of the once-dominant species, the role fire played in maintaining these ecosystems, management possibilities, conversion to longleaf pine, and an overview of the current restoration efforts.

FOWS 5260 FOREST WETLANDS RESTORATION ECOLOGY (3) LEC. 3. Pr. BIOL 3060 or FORY 4230. History and policy of wetlands destruction and restoration, wetland classification and inventory, techniques for assessing wetland functions, and techniques for forest wetlands restoration.

FOWS 5270 NATURAL RESOURCE POLICY (3) LEC. 3. Departmental approval. Examination of attitudes, philosophies and policies that govern management of the natural resource.

FOWS 5340 INVASION ECOLOGY (3) LEC. 3. The history, ecology, and management issues pertaining to non-native invasive species will be examined and discussed.

FOWS 5450 CONFLICT AND COLLABORATION IN NATURAL RESOURCES MANAGEMENT (3) DSL. Overview of issues, theories, and approaches to conflict management and collaboration in natural resources. Topics include conflict management, collaborative processes, and negotiation; tools and frameworks for analyzing conflict; and evolving management approaches to natural resource conflict.

FOWS 5620 NATURAL RESOURCE FINANCE AND INVESTMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Principles of corporate and real estate finance as applied to natural resources and the place of natural resources in individual and institutional portfolios. May count one of: FORY 6620, FOWS 5620, FOWS 6620.

FOWS 6210 RESTORATION ECOLOGY (3) LEC. 3. Overview of the history, science, ethics, and current practice of restoration ecology to recognize and understand the need for restoration.

FOWS 6220 LANDSCAPE ECOLOGY (3) LEC. 3. Ecological effects and management of heterogeneous spatial pattern on ecosystems over large areas. May count either FOWS 5220 or FOWS 6220.

FOWS 6230 FOREST STAND DYNAMICS (3) LEC. 3. Forest stand dynamics studies the changes in stand structure over time. Examines phases of stand development and how we can help and aid forest, wildlife, and restoration management decisions.

FOWS 6240 FIRE ECOLOGY (3) LEC. 3. Examines history of fire management, fire behavior, fuel management and models, ignition techniques, fire suppression techniques, urban interface, smoke management, fire weather, elements of a prescribed burn plan, fire and wildlife, and outreach.

FOWS 6250 LONGLEAF PINE ECOLOGY, MANAGEMENT, AND RESTORATION (3) LEC. 3. Covers the ecology of the once-dominant species, the role fire played in maintaining these ecosystems, management possibilities, conversion to longleaf pine, and an overview of the current restoration efforts.

FOWS 6260 FOREST WETLANDS RESTORATION ECOLOGY (3) LEC. 3. This course will cover the history and policy of wetlands destruction and restoration, wetland classification and inventory, techniques for assessing wetland functions, and techniques for forest wetlands restoration.

FOWS 6270 NATURAL RESOURCE POLICY (3) LEC. 3. Departmental approval. Examination of attitudes, philosophies and policies that govern management of the natural resource.

FOWS 6340 INVASION ECOLOGY (3) LEC. 3. The history, ecology, and management issues pertaining to non-native invasive species will be examined and discussed.

FOWS 6450 CONFLICT AND COLLABORATION IN NATURAL RESOURCE MANAGEMENT (3) DSL. 45. Overview of issues, theories, and approaches to conflict management and collaboration in natural resources. Topics include conflict management, collaborative processes, and negotiation; tools and frameworks for analyzing conflict; and evolving management approaches to natural resource conflict.

FOWS 6620 NATURAL RESOURCE FINANCE AND INVESTMENT (3) LEC. 3. Principles of corporate and real estate finance as applied to natural resources and the place of natural resources in individual and institutional portfolios. May count either FORY 5620 or FORY 6620.

FOWS 7150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3) LEC. 3. LAB. 1. Applications of spatial statistics in the natural resources. Three types of spatial data including point pattern data, geostatistical data and lattice (areal) data will be covered to introduce basic concepts, theories and methodology of spatial (spatial-tempo) data analyses and modeling.

FOWS 7200 DISEASE ECOLOGY (3) LEC. 3. Discusses the critical importance of relationships between human and animal diseases and the ecology of vectors, pathogens and the environment.

FOWS 7220 FOREST HISTORY OF ALABAMA AND THE SOUTHEASTERN UNITED STATES (3) LEC. 3. This course will focus on the natural, human and societal factors that influenced forests and land management in the southeastern United States from the 1700s to present. FOWS 7220 or FOWS 7226.

FOWS 7260 FOREST WETLANDS RESTORATION ECOLOGY (3) DSL. This course will cover the history and policy of wetlands destruction and restoration, wetland classification and inventory, techniques for assessing wetland functions, and techniques for forest wetlands restoration.

FOWS 7270 WETLANDS POLICY (3) LEC. 3. This course will cover historical development of wetland protection and will discuss current U.S. and international wetland policies.

FOWS 7300 CURRENT TOPICS IN ONE HEALTH (1) LEC. 1. The One Health concept refers to connections among health of people, animals and ecosystems and is used as a framework for addressing health related problems. Course explores the concept from the perspective of current and relevant health issues. Course may be repeated for a maximum of 2 credit hours.

FOWS 7400 INTRODUCTION TO PUBLIC HEALTH (3) DSL. 3. This is a survey course intended to provide an introduction to and overview of the wide-ranging field of Public Health.

FOWS 7480 ADVANCED NATURAL RESOURCE POLICY (3) LEC. 3. Pr. FORY 5400 or FORY 6400. Policy process and players, theory and evolution of property rights, public choice theory, land ethics, policy analysis, programs and statutory laws, forest policy in an international context.

FOWS 7500 OUTBREAKS TO PANDEMICS: EMERGING INFECTIOUS DISEASES IN A MODERN WORLD (2) DSL. This course explores modern and historical disease outbreaks, particularly zoonotic emerging infectious diseases. Students will understand key approaches necessary to contain and halt infectious diseases. Students will learn about multisectoral emergency responses to outbreaks and about the strengths and weaknesses of health systems during epidemics.

FOWS 7950 GRADUATE SEMINAR (1) SEM. 1. Students develop ability and confidence in making oral presentations based upon research and provide constructive criticism of their peers' presentations.

FOWS 7970 SPECIAL TOPICS (1-4) IND. Analysis of a problem in the natural resources, forestry, wildlife arena involving lectures, discussions, laboratory for field work. Department approval and agreement with faculty and students. Course may be repeated for a maximum of 12 credit hours.

Geospatial and Env Informatics Courses

GSEI 1200 INTRODUCTION TO GEOSPATIAL TECHNOLOGY (3) LEC. 2. LAB. 2. Introduction to geospatial technologies, spatial thinking, and job markets in these areas. Exploration of location-based services, global positioning systems, geographic information systems, remote sensing, virtual globes, and web based mapping. Skills and techniques for spatial thinking and environmental analysis.

GSEI 2070 INTRODUCTION TO ENVIRONMENTAL INFORMATICS (3) LEC. 2. LAB. 2. Pr. GSEI 1200. Introduction to the environment as a system of linked, interactive components. Application of information science to environmental management. Skills and techniques required for collecting, collating, archiving, modeling, analyzing, visualizing, and communicating information in support of natural resource management.

GSEI 5150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3) LEC. 3. Pr. (GSEI 1200 or GSEI 2070) and (WILD 5750). Applications of spatial statistics in natural resources. Introduction of basic concepts, theories, and methodologies of spatial and spatio-temporal data analyses and modeling. Topics include spatial correlation, spatial interpolation, detection of clusters/hotspots/patterns of interest, and spatial prediction.

GSEI 5360 ENVIRONMENTAL MODELING (3) LEC. 2. LAB. 1. Pr. FORY 5470 and FORY 5480 and GSEI 1200. Students will build models of environmental systems such as ecological, climatic, hydrologic, geochemical, and human systems, explore the basic concepts of systems modeling, and use models to test hypotheses and assumptions, evaluate system behavior, and predict changes in system behavior under different climate scenarios.

GSEI 5430 APPLICATIONS IN ENVIRONMENTAL INFORMATICS (3) LEC. 2. LAB. 1. Pr. GSEI 1200 and FORY 5470. This course emphasizes applications of earth observations to forestry, wildlife, environment and natural resources and covers both the technology and application of observing earth from space as well data acquired from airborne platforms.

GSEI 5800 PYTHON PROGRAMMING FOR THE ENVIRONMENT (4) LEC. 3. LAB. 2. Fundamental conceptual, methodological, and operational issues in Python programming with respect to environmental applications. Topics include Python programming concepts, scripting, and skills; data processing and management; data manipulation, visualization, and analysis; and connection to spatial data analysis.

GSEI 6150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3) LAB. 3. Applications of spatial statistics in natural resources. Introduction of basic concepts, theories, and methodologies of spatial and spatio-temporal data analyses and modeling. Topics include spatial correlation, spatial interpolation, detection of clusters/hotspots/patterns of interest, and and spatial prediction.

GSEI 6360 ENVIRONMENTAL MODELING (3) LEC. 2. LAB. 1. Students will build models of environmental systems such as ecological, climatic, hydrologic, geochemical, and human systems, explore the basic concepts of systems modeling, and use models to test hypotheses and assumptions, evaluate system behavior, and predict changes in system behavior under different climate scenarios.

GSEI 6430 APPLICATIONS ENVIRONMENTAL INFORMATICS (3) LEC. 2. LAB. 1. This course emphasizes applications of earth observations to forestry, wildlife, environment and natural resources and covers both the technology and application of observing earth from space as well data acquired from airborne platforms.

GSEI 6800 PYTHON PROGRAMMING FOR THE ENVIRONMENT (4) LEC. 3. LAB. 2. Fundamental conceptual, methodological, and operational issues in Python programming with respect to environmental applications. Topics include Python programming concepts, scripting, and skills; data processing and management; data manipulation, visualization, and analysis; and connection to spatial data analysis.

GSEI 7200 LAND PROCESSES AND CLIMATE INTERACTIONS (3) LEC. 2. LAB. 2. This is an advanced graduate level course designed to teach the modeling of land surface processes and study its impact on local, regional and global climate. Students will also perform global/regional climate model simulations using supercomputers.

GSEI 7500 DIGITAL EARTH AND BIG DATA (3) LEC. 2. LAB. 2. This is an advanced graduate-level course designed to teach the modeling of digital earth and study its impact on local, regional and global climate. Students will also perform global/regional geographic model simulations using supercomputers.

GSEI 7600 CLIMATE MODELING (3) LEC. 2. LAB. 2. Teaches modeling of the Earth's climate system. Students will also perform global climate model simulations using supercomputers, and analyze climate model outputs using NCAR Command Language.

Natural Resources Management Courses

NATR 2020 NATURAL RESOURCES FIELD METHODS (3) LEC. 2. LAB. 4. Sampling methods relevant to the evaluation of the environment. Topics include sampling methods, quality assurance procedures, and data management.

NATR 2050 PEOPLE AND THE ENVIRONMENT: AN INTRODUCTION TO CONSERVATION SOCIAL SCIENCES (3) LEC. 3. Introduction to the variety of social sciences used to understand the relationships of people and their environment. Students will develop a deeper and broader understanding of the challenges and potential solutions to natural resource issues facing society today.

NATR 2100 INTRO TO LANDSCAPE ECOLOGY (4) LEC. 3. LAB. 2. An introduction to the study of spatial patterns and interactions between ecosystems within a landscape, focusing on how these patterns influence ecological processes, biodiversity, and environmental change.

NATR 2200 CURRENT TOPICS IN ENVIRONMENTAL CONSERVATION AND MANAGEMENT (2) LEC. 2. Comprehensive examination of the scientific challenges associated with environmental conservation and management. Through an exploration of contemporary environmental issues, students will gain foundational knowledge of the ecological and biological factors contributing to these challenges. The course emphasizes the development of a robust scientific vocabulary pertinent to environmental conservation, enabling students to engage effectively in advanced studies and professional dialogues.

NATR 3320 ECOSYSTEM SERVICES IN COSTA RICA (3) AAB. Coreq. NATR 4250 and PARK 3630 and GEOG 3720. The environment provides many services critical to our survival and well-being, such as food and fuel, climate regulation, water purification, and recreational and aesthetic opportunities. In this class, students examine the environmental services that ecosystems provide, their connection to human well-being and livelihoods, and the market mechanism and payment programs designed to provide incentives for their maintenance. Costa Rica was one of the first countries to establish a payment program for Ecosystem Services.

NATR 4240 WATERSHED MANAGEMENT (3) LEC. 3. Introduction to watersheds, effects of land management on erosion and water quality, and mitigation techniques to reduce adverse effects.

NATR 4250 WATERSHED MANAGEMENT IN TROPICAL REGIONS (3) AAB. Coreq. GEOG 3720 and NATR 3320 and PARK 3630. This intensive 3-week course focuses on the principles and practices of watershed management in tropical regions, with a specific emphasis on Costa Rica's unique ecosystems. Students will gain a comprehensive understanding of the hydrological, ecological, and socio-economic factors that influence watershed dynamics in tropical environments. The course combines classroom lectures, field studies, and hands-on projects to provide a holistic learning experience.

NATR 4535 COASTAL ZONE MANAGEMENT (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037. Management of shorelines and flood plains, and current legislation. Water quality and ecosystem quality management. Taught at Dauphin Island Sea Laboratory.

NATR 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Independent Study. Course may be repeated for a maximum of 6 credit hours.

NATR 4970 SPECIAL TOPICS (1-4) LEC. Overview of natural resources, classification, chemistry, ecology and sustainable management. Department approval and agreement with faculty and student. Course may be repeated for a maximum of 8 credit hours.

NATR 5050 URBAN ECOLOGY (3) LEC. 3. Examination of urban ecosystems and the influence of urbanization on rural and forested lands. Junior standing. May count either NATR 5050 or NATR 6050.

NATR 5250 WETLAND ECOLOGY AND MANAGEMENT (3) LEC. 3. Pr. BIOL 3060 or FORY 4230. Wetland ecology in the southeastern U.S. with emphasis on soils, hydrology, biology, and policies and practices related to agriculture, forestry, wildlife.

NATR 5310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics: historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course.

NATR 5320 ECOSYSTEM SERVICES (3) LEC. 3. Ecosystem services are the benefits that people obtain from ecosystems. Human well-being, livelihoods, and markets are covered with emphasis on watershed, biodiversity, carbon, and tourism services.

NATR 5350 WATER RESOURCE MANAGEMENT AND POLICY (3) DSL. This course examines social contexts, ecological contexts, human behaviors, institutions, laws, and policies that guide water management practices. Impacts of critical issues, including climate change, demand, conflict, and pollution, on water resources and water management behaviors are discussed.

NATR 5430 HUMAN DIMENSIONS OF WILDLIFE AND NATURAL RESOURCES (3) LEC. 3. Forests, wildlife, wetlands, and wilderness - sustaining and managing our natural resources ultimately depends on understanding people. Students will investigate the paradigms and theoretical foundations regarding our values, beliefs, attitudes and behaviors concerning human-environment interactions.

NATR 5450 COASTAL LAW (3) DSL. Course will provide students with a firm understanding of the principles of coastal and ocean law and policy and the legal and regulatory structures that are in place to protect people and the environment.

NATR 5550 WATERSHED HYDROLOGY (3) LEC. 3. Departmental approval. In depth focus on components of the hydrologic cycle in forested landscapes and how changes in the landscape and management practices impact the hydrologic regime in the watershed.

NATR 5560 ENERGY LAW (3) LEC. 3. Core principles of energy law, including various legal and regulatory structures that protect people and the environment, particularly as applied to the production, distribution, and consumption of different forms of energy within the US and other regions of the world.

NATR 5630 CONSERVATION PLANNING (3) LEC. 3. Trains students in how to build plans for conservation and management of natural resources. Covers established processes associated with developing conservation plans while addressing human concerns. Includes how to establish measurable objectives, utilize data, frame problems, and determine uncertainty/risk.

NATR 5880 ECOLOGICAL ECONOMICS (3) LEC. 3. Foundations, principles and empirical application of ecological economics to address current social and economic issues.

NATR 6050 URBAN ECOLOGY (3) LEC. 3. Examination of urban ecosystems and the influence of urbanization on rural and forested lands. May count either FOWS 5050 or FOWS 6050.

NATR 6250 WETLAND ECOLOGY AND MANAGEMENT (3) LEC. 3. Pr. BIOL 3060. Wetland ecology in the southeastern U.S. with emphasis on soils, hydrology, biology, and policies and practices related to agriculture, forestry, wildlife.

NATR 6310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics. Historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course.

NATR 6320 ECOSYSTEM SERVICES (3) LEC. 3. Ecosystem services are the benefits that people obtain from ecosystems. Human well-being, livelihoods, and markets are covered with emphasis on watershed, biodiversity, carbon, and tourism services.

NATR 6350 WATER RESOURCE MANAGEMENT AND POLICY (3) DSL. This course examines social contexts, ecological contexts, human behaviors, institutions, laws, and policies that guide water management practices. Impacts of critical issues, including climate change, demand, conflict, and pollution, on water resources and water management behaviors are discussed.

NATR 6430 HUMAN DIMENSIONS OF WILDLIFE AND NATURAL RESOURCES (3) LEC. 3. Forests, wildlife, wetlands, and wilderness - sustaining and managing our natural resources ultimately depends on understanding people. Students will investigate the paradigms and theoretical foundations regarding our values, beliefs, attitudes and behaviors concerning human-environment interactions.

NATR 6450 COASTAL LAW (3) DSL. Course will provide students with a firm understanding of the principles of coastal and ocean law and policy and the legal and regulatory structures that are in place to protect people and the environment.

NATR 6550 WATERSHED HYDROLOGY (3) LEC. 3. In depth focus on components of the hydrologic cycle in forested landscapes and how changes in the landscape and management practices impact the hydrologic regime in the watershed.

NATR 6560 ENERGY LAW (3) LEC. 3. Core principles of energy law, including various legal and regulatory structures that protect people and the environment, particularly as applied to the production, distribution, and consumption of different forms of energy within the US and other regions of the world.

NATR 6630 CONSERVATION PLANNING (3) LEC. Trains students in how to build plans for conservation and management of natural resources. Covers established processes associated with developing conservation plans while addressing human concerns. Includes how to establish measurable objectives, utilize data, frame problems, and determine uncertainty/risk.

NATR 6880 ECOLOGICAL ECONOMICS (3) LEC. 3. Foundations, principles and empirical application of ecological economics to address current social and economic issues.

NATR 7250 SURVEYING AND INTERVIEWING FOR SCIENTISTS (3) LEC. 3. A research design and methods course aimed at interdisciplinary students working on research with one foot in the biological or ecological sciences, and one foot in the social sciences.

NATR 7300 NATURAL RESOURCE MANAGEMENT FUNDAMENTALS (3) DSL. This course is a foundational overview of natural resource management systems. Topics include history, trends, innovations, administration, law, policy, and social-ecological connections. Focus is on exploring core concepts that guide contemporary natural resource management practices.

NATR 7560 MODELING ENVIRONMENTAL CHANGE AT MULTIPLE SCALES (3) LEC. 3. LAB. 1. Pr. FORY 7550 and FORY 6480. Modeling fundamentals to solve environmental change problems at multiples scales driven by (i) climate variability/change and (ii) land use/cover change. Problems will be tackled at both temporal (event-based and continuous) and spatial (small and large watersheds) scales to predict streamflow and water quality and develop abatement strategies. Spring, odd years. Department Approval Required or Instructor Permission.

NATR 7930 DIRECTED STUDIES (1-3) IND. Departmental approval. Directed studies in subject matter not covered by an existing course or to supplement knowledge gained from existing course offerings. Course may be repeated for a maximum of 9 credit hours.

NATR 7970 SPECIAL TOPICS (1-4) IND. Analysis of a problem in the natural resources management area involving lectures, discussions, laboratory for field work. Department approval and agreement with faculty and students. Course may be repeated for a maximum of 12 credit hours.

NATR 7990 RESEARCH AND THESIS (1-15) RES. 0. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.

PARK Courses

PARK 1050 AMERICA'S NATIONAL PARKS (3) LEC. 3. Introduces America’s National Parks and the National Park Service from their origins to current day. Students will understand the places, politics, people, controversies, and conservation ethics embodied in the National Park system.

PARK 2010 INTRODUCTION TO NATURE-BASED RECREATION AND MANAGEMENT (3) LEC. 3. Introduction to fundamentals of nature-based recreation; recreationists' motivations, society benefits, and management of the outdoor recreational environment.

PARK 2020 INTRODUCTION TO COMMUNITY PARKS AND RECREATION (3) LEC. 3. This course is an introduction to all the elements for successful community parks, recreation, and sport-facility management, administration, and programming by public agencies.

PARK 3010 ENVIRONMENTAL INTERPRETATION (3) LEC. 3. Communication theory as management and public relations tool for natural resource management.

PARK 3050 SAFETY, RISK AND LEGAL ASPECTS OF PARKS, RECREATION, AND SPORT FACILITY MANAGEMENT (3) LEC. The delivery of safe services, facilities, and activities in areas designated as parks, recreation areas, and community sporting facilities is presented from a legal, risk management, and liability perspective.

PARK 3100 LEADERSHIP IN PARKS AND RECREATION (3) LEC. 3. Introduces leadership theories and practices as applied to parks and recreation. Students examine leadership and communication skills and tools to help develop positive relationships, attitudes, motivations, and group dynamics. Leadership in outdoor recreation and adventure is highlighted.

PARK 3350 PROGRAMMING IN PARKS AND RECREATION (3) LEC. 3. The parks and recreation programmer is responsible for the development and delivery of recreation, leisure, and sport programs and activities that provide opportunities and promote healthy lifestyles for all constituents. Students will be introduced to and learn how to develop a range of park and recreation programming, including activities such as ropes courses and backcountry travel, arts and crafts such as jewelry making and photography classes, health and wellness classes, dance, drama, art, and music summer camps, sports leagues, service learning, environmental education, and birdwatching trips.

PARK 3630 COSTA RICA PROTECTED AREA CONSERVATION MANAGEMENT (3) AAB. Coreq. NATR 4250 and NATR 3320 and GEOG 3720. This class will introduce the different protected area (PA) management categories (IUCN and other co-management approaches), focusing on examples of Costa Rican PAs to showcase these different approaches. Guest lectures and tours will allow students to experience firsthand how PA management schemes work in practice, and the challenges they may face, based on the diversity of social and ecological conditions unique to each PA.

PARK 3850 PROFESSIONAL PREPARATION IN PARKS AND RECREATION (1) LEC. 1. Assessment of career opportunities. Prepares students for their parks and recreation internship and post-graduation employment and career development.

PARK 3910 FIELD SKILLS PRACTICUM (3) PRA. SU. Departmental approval. Micro-credentials for leading outdoor adventure recreation. Hands-on training in tools and applications for Parks and Recreation Management. Sophomore standing or higher. PARK majors ONLY. Course instruction will extend into semester break.

PARK 4200 NATURE, RECREATION, AND HEALTH (3) LEC. 3. Nature is a prescription for better mental and physical health. This class explores the many ways that healthy parks and recreation areas can contribute to a healthier society.

PARK 4300 PARKS AND RECREATION ADMINISTRATION, FINANCE, AND MANAGEMENT (3) LEC. 3. Pr. (PARK 2010 or PARK 2020) and PARK 3050. Provides an advanced understanding of the administration and management critical to operating park, recreation, and community sports facilities. Topics include organizational structure, personnel management and supervision, working with community partners, interaction with customers, and managing personnel, finances, evaluation, and decision-making.

PARK 4310 SUSTAINABLE NATURE TOURISM (3) LEC. 3. Ecotourism, responsible tourism, wildlife tourism are all forms of nature tourism that can contribute positively to environmental conservation, community development, and cultural awareness, while maintaining viable businesses. A systems approach for sustainable nature tourism analysis is applied.

PARK 4400 PARK AND RECREATION FACILITIES AND INFRASTRUCTURE PLANNING AND MANAGEMENT (3) LEC. 3. Pr. (PARK 2010 or PARK 2020) and PARK 3050. This course introduces students to the management of park and recreation facilities (i.e., national or community parks, trails, interpretative centers, campgrounds, restrooms, and community sports facilities), emphasizing planning, support, and maintenance.

PARK 4500 SUSTAINABLE PLANNING AND DESIGN OF COMMUNITY PARKS AND RECREATION (3) LEC. 3. A planning approach for viewing parks, recreation, and community sports facilities and programs as an organizing system to promote community connections, health, sustainability, and resilience. Students develop practical grant writing skills for recreation project funding.

PARK 4920 INTERNSHIP IN PARKS AND RECREATION (2-12) INT. Departmental approval. Supervised work experience in a Parks and Recreation (PARK) setting for a minimum of 50 hours/credit hour. PARK major, 2.2 cumulative GPA, and senior standing required. Course may be repeated for a maximum of 12 credit hours.

PARK 5250 ACCESS AND PARTICIPATION IN PARKS AND RECREATION (3) LEC. 3. This course examines access-to and participation-in outdoor recreation based on differences in location, gender, age, income, race, ethnicity, and physical abilities. Supply and demand analysis and the recreation constraints model to participation are used to frame class analysis.

PARK 6250 ACCESS AND PARTICIPATION IN PARKS AND RECREATION (3) LEC. 3. This course examines access-to and participation-in outdoor recreation based on differences in location, gender, age, income, race, ethnicity, and physical abilities. Supply and demand analysis and the recreation constraints model to participation are used to frame class analysis.

Wildlife Sciences Courses

WILD 1050 INTRODUCTION TO FIREARMS, HUNTING, AND CONSERVATION (2) LEC. 2. Introduction to firearms, proper and safe use of firearms for hunting, how and why people hunt, the important social, economic, and biological role hunting plays in the conservation of wildlife. Course will provide students with basic technical knowledge of firearms and safe handling practices for completion of the Alabama Hunter Education program.

WILD 1100 WILDLIFE FOOD PLOT ESTABLISHMENT (2) LEC. 2. Fundamental concepts, issues, and concerns related to wildlife food plots and practical procedures for establishment of wildlife food plots.

WILD 1200 HUNTING AND FISHING THE WORLD (3) LEC. 3. Provides students with an introduction to the diversity of hunting and fishing opportunities available worldwide, the types of businesses that cater to these opportunities, and how these recreational activities contribute to game conservation and management.

WILD 1300 WILDLIFE: PEOPLE, ANIMALS, AND THEIR INTERACTIONS (3) LEC. 3. This course offers a general survey of wildlife, including basic ecology, characteristics of wildlife, their habitats, and methods of conserving species. Human interactions with wildlife, as well as the impacts of human activities on wildlife, will be explored.

WILD 1400 BIODIVERSITY IN A CHANGING WORLD (3) LEC. 3. The science of biodiversity focuses on understanding patterns and trends in the variability of life on Earth. This course explores how this diversity arose, the ecological forces that shape it, the consequences of its loss, and the steps we can take to conserve it.

WILD 2050 WILDLIFE CONSERVATION HISTORY AND LAW (3) LEC. 3. The history of wildlife conservation in North America, the conservation problems that have arisen since European settlement, and the laws and practices that have evolved to remedy them.

WILD 2310 BIOLOGY OF PLANTS IMPORTANT TO WILDLIFE (2) LEC. 1. LAB. 1. Introduction to taxonomy, structure, function, and distribution of plants that are important for wildlife species, with an emphasis on why those characteristics make them important.

WILD 2400 SPORTING FIREARMS AND ARCHERY (2) LEC. 2. Provides students with a thorough understanding of the role of sporting firearms and archery equipment in hunting and the wildlife enterprise management field, including the variety of equipment available and their effectiveness with different game species. WLEM students only.

WILD 2410 INTRODUCTION TO PISTOL (2) LLB. This course introduces the students to the basic knowledge, skills, and attitude necessary for owning and using a pistol safely. Through this course, the students will learn about pistol parts and operation, ammunition, gun safety, pistol shooting fundamentals, and pistol shooting activities. Instruction will primarily utilize air-powered pistols and move up to .22 rimfire pistols the last few weeks of class.

WILD 2420 INTRODUCTION TO ARCHERY (2) LEC/LLB. This course introduces the students to the basic knowledge, skills, and attitude necessary for owning and using archery equipment safely. Through this course, the students will learn about archery equipment and operation, archery safety, shooting fundamentals, and shooting activities. Instruction will primarily utilize Genesis (compound) and recurve bows.

WILD 3280 WILDLIFE ECOLOGY, CONSERVATION, AND MANAGEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Fundamentals of wildlife management theory, application, and administration.

WILD 3281 WILDLIFE MANAGEMENT LABORATORY (1) LAB. 3. Pr. P/C WILD 3280. Laboratory/Field experiences in wildlife management. Optional, hands-on course that explores the application of topics covered in WILD 3280.

WILD 3287 HONORS WILDLIFE ECOLOGY, CONSERVATION, AND MANAGEMENT (3) LEC. 3. Pr. Honors College. BIOL 1030 or BIOL 1037. Fundamentals of wildlife management theory, application, and administration.

WILD 3500 OUTDOOR SAFETY AND LIABILITY (1) LEC. 1. Exposes students to the safety and liability risks associated with outdoor activities that are common in the wildlife enterprise industry. Students will learn techniques to meet the needs of clientele, while maximizing revenue and minimizing risks.

WILD 3600 WILDLIFE ENTERPRISE FIELD TECHNIQUES (4) LEC. 3. LAB. 2. Pr. WILD 3280. Equip students majoring in wildlife enterprise management with the technical skills to complete a variety of tasks related to wildlife habitat and population management on private properties used in recreational or lodge enterprises.

WILD 3800 INTRODUCTION TO WILDLIFE MANAGEMENT IN SOUTHERN AFRICA (1) LEC. 1. Pr. WILD 2050 and WILD 3280. Provide students with knowledge of important wildlife management issues in southern Africa. Students will develop an understanding of pressing wildlife management issues in the region and learn how to apply that knowledge to future learning.

WILD 3810 STUDY ABROAD - WILDLIFE MANAGEMENT IN SOUTHERN AFRICA (3) AAB. 60. Pr. WILD 3800. Travel overseas to Swaziland and South Africa to engage in many of southern Africa's most pressing wildlife management issues.

WILD 3920 INTERNSHIP IN WILDLIFE ENTERPRISE MANAGEMENT (3) INT. This class is a supervised work experience in a Wildlife Enterprise Management (WLEM) setting for a minimum of 400 hours for at least 10 consecutive weeks and may be repeated for a maximum of 6 hours credit. The mission of WLEM is to prepare professionally competent individuals who will make a contribution to the Wildlife Enterprise Management industry.

WILD 4340 CONSERVATION GENETICS (3) LEC. 3. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. The science of how populations genetics have been affected by habitat loss, over-exploitation, or environmental change, with a focus on inheritance and evolution, and with the goal of informing conservation and management.

WILD 4400 PROBLEM SOLVING IN WILDLIFE SCIENCES (2) LEC. 2. Pr. (WILD 3280 or WILD 3287) and P/C WILD 5750. Applied training and tools used to solve problems in wildlife science.

WILD 4500 ADVANCED WILDLIFE ENTERPRISE MANAGEMENT (3) LEC. 3. Pr. (WILD 3280 or WILD 3287) and HOSP 2350. Integration and synthesis of the skills learned throughout the Wildlife Enterprise Management curriculum. Because wildlife enterprises are unique in the business world, students will learn to apply various material from previous courses to managing a wildlife enterprise.

WILD 4750 CONSERVATION BIOLOGY OF THE HAWAIIAN ISLANDS (3) FLD. 1. Pr. BIOL 3060 or WILD 3280 or WILD 3287 or FORY 4230 or FOWS 5220. Hawaii is the endangered species and invasive species capital of the world. As a model system, the course will focus on the management of threatened and endangered species and invasive species. Direct interaction with practitioners and visiting active management locations will be a key component. May need instructor permission.

WILD 4890 WILDLIFE POPULATION SCIENCE (3) LEC. 2. LAB. 2. Pr. (WILD 3280 or WILD 3287) and P/C WILD 5750 and BIOL 3060. WILD 3280 or WILD 3287 & WILD 5750 with a C or better; BIOL 3060. Principles of wildlife population dynamics, estimation of population parameters, and application of these principles and techniques to wildlife conservation and management.

WILD 4910 WILDLIFE SCIENCES SUMMER PRACTICUM (8) PRA. 8. Pr. (WILD 5750 and WILD 4400 and BIOL 3060 and FORY 3100) or (BIOL 5120) and (BIOL 5740 or BIOL 5750 or BIOL 5760 or FISH 5380). Training and tools for wildlife ecology, conservation, and management, with emphasis on applied problem-solving. Summer.

WILD 4920 WILDLIFE MANAGEMENT INTERNSHIP (4) PRA. 4. SU. Departmental approval. Practical job experience under joint supervision of the Internship advisor and appropriate state, federal, or private agency. Training will prepare student for potential career employment.

WILD 4930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

WILD 4970 SPECIAL TOPICS (1-4) AAB. Course may be repeated for a maximum of 8 credit hours.

WILD 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

WILD 5140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

WILD 5200 DISEASE ECOLOGY (3) LEC. 3. Pr. BIOL 1030. An ecological approach to traditional microbiology and parasitology by applying principles of population biology to understand disease dynamics in wildlife. Topics include: classification of infectious disease-causing agents, their life cycles, and transmission patterns; dynamics at the individual and host levels; ecologically informed strategies to control diseases; and current topics.

WILD 5280 AVIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. (WILD 3280 or WILD 3287 or WILD 3280 or WILD 3287) and BIOL 3060. Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants.

WILD 5290 MAMMALIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. (WILD 3280 or WILD 3287 or WILD 3280 or WILD 3287) and BIOL 3060. WILD 3280 or WILD 3287 (C or better) and BIOL 3060. Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps.

WILD 5300 CONSERVATION BIOLOGY OF THE HAWAIIAN ISLANDS (3) FLD. 3. Pr. BIOL 3060 or WILD 3280 or WILD 3287 or FORY 4230 or FOWS 5220. Hawaii is the endangered species and invasive species capital of the world. As a model system, the course will focus on the management of threatened and endangered species and invasive species. Direct interaction with practitioners and visiting active management locations will be a key component. May need instructor permission.

WILD 5350 CONSERVATION GENETICS (3) LEC. 3. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. The science of how populations genetics have been affected by habitat loss, over-exploitation, or environmental change, with a focus on inheritance and evolution, and with the goal of informing conservation and management.

WILD 5410 HUMAN-WILDLIFE CONFLICTS (3) LEC. 2. LAB. 1. Pr. WILD 3280. Familiarizes students with basic philosophy, biology, and techniques related to managing negative human wildlife interactions.

WILD 5430 ONE HEALTH PERSPECTIVES: EXPLORING THE HUMAN-WILDLIFE INTERFACE IN INDIA (3) AAB. 30. One Health is an interdisciplinary concept emphasizing the interconnectedness of human, animal, and environmental health. This course provides students with hands-on experience in exploring these connections through case studies, fieldwork, and discussions. Set in the biodiverse Western Ghats region of India, students will examine real-world scenarios to gain practical insights into how human activities, wildlife, and ecosystems interact, shaping health outcomes across species and environments.

WILD 5440 ONE HEALTH CONNECTIONS: HOW DO DISEASES SPREAD BETWEEN ANIMALS AND HUMANS? (2) LEC. 2. The linkages and connections between humans, animals, and the environment they share. Using real-world case studies, we discuss the myriad ways in which pathogens (disease-causing agents) are transmitted between humans and animals. The goal is to develop an understanding of the principles of One Health so that we are better equipped to deal with current and future disease risks and improve the health and security of our society.

WILD 5750 ANALYSIS FOR ENVIRONMENTAL AND HEALTH SCIENCES (4) LEC. 3. LAB. 2. Pr. STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010. Applied training in data analysis tools commonly used in environmental and health sciences.

WILD 5880 WILDLIFE HABITAT ASSESSMENT AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. (WILD 3280 or WILD 3287 or WILD 3280 or WILD 3287) and BIOL 3060. BIOL 3060 and C or better in WILD 3280 or WILD 3287. The wildlife value, management, and restoration of common southeastern habitats.

WILD 5950 SEMINAR (1) SEM. 1. Pr. BIOL 3060 or WILD 3280 or FORY 4230. Discussion of scientific publications from a selected area in wildlife sciences. Course may be repeated for a maximum of 6 credit hours.

WILD 6140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

WILD 6200 DISEASE ECOLOGY (3) LEC. 3. An ecological approach to traditional microbiology and parasitology by applying principles of population biology to understand disease dynamics in wildlife. Topics include: classification of infectious disease-causing agents, their life cycles, and transmission patterns; dynamics at the individual and host levels; ecologically informed strategies to control diseases; and current topics.

WILD 6280 AVIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280. Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants.

WILD 6290 MAMMALIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280. Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps.

WILD 6300 CONSERVATION BIOLOGY OF THE HAWAIIAN ISLANDS (3) FLD. 3. Pr. FOWS 6220. Hawaii is the endangered species and invasive species capital of the world. Using it as a model system, the focus will be on the management of threatened and endangered species and invasive species. Direct interaction with practitioners and visiting active management locations will be a key component of the course. Instructor permission.

WILD 6410 HUMAN-WILDLIFE CONFLICTS (3) LEC. 2. LAB. 1. This course is designed to familiarize students with the basic philosophy, biology, and techniques related to managing negative human wildlife interactions.

WILD 6750 ANALYSIS FOR ENVIRONMENTAL AND HEALTH SCIENCES (4) LEC. 3. LAB. 1. Applied training in data analysis tools commonly used in environmental and health sciences.

WILD 6880 WILDLIFE HABITAT ASSESSMENT AND MANAGEMENT (4) LEC. 3. LAB. 1. Pr. WILD 3280. C or better in WILD 3280. The wildlife value, management, and restoration of common southeastern habitats.

WILD 6950 SEMINAR (1) SEM. Discussion of scientific publications from a selected area in wildlife sciences. Course may be repeated for a maximum of 6 credit hours.

WILD 7100 APPLIED ECOLOGICAL MODELING (2) LEC. 2. Principles and techniques for modeling ecological systems in applied, management decision oriented contexts.

WILD 7150 ADVANCED ANALYSIS FOR ECOLOGICAL SCIENCES (4) LEC. 3. LAB. 2. Pr. STAT 7000 or AGRI 5010 or AGRI 5013 or AGRI 6010 or AGRI 6013 or WILD 5750 or WILD 6750. Departmental approval. Applied training in advanced analytical procedures commonly used in ecological sciences including modeling of survival, reproduction, habitat selection, population growth, density-dependence, and morphometrics.

WILD 7200 WILDLIFE NUTRITIONAL ECOLOGY (3) LEC. 3. Exploration of the basic nutrient requirements of free-ranging wildlife and comparison of requirements to related domestic species.

WILD 7250 WILDLIFE POPULATION ANALYSIS (3) LEC. 2. LAB. 3. Pr. P/C WILD 7150. Estimation of survival and success rates for wildlife and fisheries populations. Theoretical approaches for model selection and population modeling.

WILD 7300 STRUCTURED DECISION MAKING IN NATURAL RESOURCES MANAGEMENT (1-3) LEC. 2. LAB. 1. Structured Decision Making (SDM) is a common-sense framework for addressing decision problems amenable to logical decomposition and analysis. Through this course, students will become familiar with principles and tools of SDM and begin applying skills and concepts to conservation and management decision problems. This course will build a foundation that increasingly is essential for most professional biologists working in resource management positions or conducting applied field research. The intended audience of this course includes graduate students in wildlife, forestry, natural resources, biology, fisheries, or any other field who work with applied natural resource management issues. Course may be repeated for a maximum of 5 credit hours.

WILD 7310 CURRENT TOPICS IN WILDLIFE HEALTH (1) DSL. This course focuses on free-ranging wildlife and wildlife health topics within the broader context of One Health and functional ecosystems. Course may be repeated for a maximum of 2 credit hours.

WILD 7340 CONSERVATION GENETICS (3) LEC. 3. The science of how populations genetics have been affected by habitat loss, over-exploitation, or environmental change, with a focus on inheritance and evolution, and with the goal of informing conservation and management.

WILD 7400 DEVELOPING AGENT-BASED MODELS FOR WILDLIFE (3) LEC. 2. LAB. 1. Departmental approval. Course will use lecture and hands-on coding exercises designed to introduce students to agent-based models in wildlife sciences. The course lectures will include coding best practices such as organization, archiving, and version control, as well as wildlife and evolution-specific factors to consider when creating a models.

WILD 7450 TOOLS AND CHALLENGES FOR THE MODERN SCIENTIST (2) LEC. 2. Contemporary tools used and challenges encountered by modern scientists and how these factors have altered the process of science. Specific topics will be crowdsourced and tailored to students' interests, but examples include: diversity in science, reproducibility crisis, open science practices, version control, online teaching, artificial intelligence, work expectations, ethics of internships and volunteer positions, citizen science, modern computing power, cloud computing, self promotion, and mental health in academia

WILD 7650 INTRODUCTION TO BAYESIAN MODELING IN NATURAL RESOURCES (2) LEC. 1. LAB. 1. Pr. WILD 7150. or instructor approval. Bayesian hierarchical modeling of ecological data. Advantages and criticisms of such models. Use of software for hierarchical modeling.

WILD 7870 SPATIAL ECOLOGY (4) LLB. Explicit consideration for how ecological processes play out over space, and how space feeds back to influence ecological processes. The course is a combination of lectures, discussions, and hands-on lab-based learning to explore the theory, tools, and challenges underlying the spatial aspects of ecology. The course covers a breadth of topics rather than focusing on any one in-depth, although students are provided resources to dig deeper into issues of particular interest.

WILD 7930 DIRECTED STUDIES (1-3) IND/LEC. Departmental approval. Directed studies in subject matter not covered by an existing course or to supplement knowledge gained from existing course offerings. Course may be repeated for a maximum of 9 credit hours.

WILD 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Provides graduate students seeking the master's degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 12 credit hours.

WILD 7990 RESEARCH AND THESIS (1-12) MST. Credit to be arranged.

WILD 8930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 9 credit hours.

WILD 8970 SPECIAL TOPICS (1-4) RES. Departmental approval. Provides graduate students seeking the doctoral degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 12 credit hours.

WILD 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Environmental Conservation and Management (ENVC)

Sustainably managing for healthy, functioning ecosystems while improving human-well being requires skilled interdisciplinary leaders.

The Environmental Conservation and Management degree equips students to meet today’s conservation challenges by integrating ecological and social science with practical management skills. Our program prepares students to work across sectors—with communities, non-profits, government agencies, and private companies—to develop and implement conservation strategies that sustain ecosystems and enhance human wellbeing. With a strong emphasis on applied learning, students gain the knowledge and experience to lead in diverse contexts, whether their focus is wetlands, forestry, coastal resilience, biodiversity and protected areas, forest systems and working landscapes, or urban sustainability. Through a comprehensive blend of classroom instruction and field-based coursework, our graduates are prepared to make an impact.

Our Core Learning Objectives include:

- **Interdisciplinary Knowledge:** A foundation in ecological principles, environmental policy, and the human dimensions of conservation to understand and navigate complex environmental issues.
- **Applied Skills:** Training with multiple field methods, monitoring and evaluation, stakeholder engagement, and adaptive management—essential for planning and implementing effective conservation strategies.
- **Field Experience:** Opportunities for immersive, real-world learning through outdoor classrooms, field labs, and applied research projects across diverse landscapes and communities.
- **Collaborative Problem-Solving:** Exposure to collaborative frameworks and experiential learning that build communication, leadership, and team-based decision-making skills.
- **Career Readiness:** A strong bridge to careers in environmental consulting, land and water management, sustainability planning, nonprofit work, and public service through professional development and advisor mentorship.

The ENVC Major combines environmental, social science, and management coursework aligned with the program’s core learning objectives. To further tailor their academic training and prepare them for impactful professional careers, students complete a required minor that complements the interdisciplinary nature of the degree. Several minors have been designed specifically to complement the ENVC degree, including:

Social Science Minors:

- Conservation Social Sciences (p. 757)
- Environmental Law (p. 757)
- Nature-Based Recreation (p. 760)

Ecological Minors

- Coastal Management (p. 756)
- Forest Health (p. 758)
- Natural Resources Ecology (p. 759)
- Restoration Ecology (p. 760)
- Urban Forestry (p. 761)
- Watershed Sciences (p. 762)

Interdisciplinary Minors

- Tropical Conservation and Sustainable Development in Costa Rica (Study Abroad, summer) (p. 761)

Other minors at Auburn may also be paired with the ENVC major such as business, leadership, communications, one-health, fisheries, geography, or sustainability.

Freshman

Fall	Hours	Spring	Hours
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory	4	BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory	4
FOWS 1010 Introduction to Renewable Natural Resources	1	ENGL 1120 English Composition II	3
Fine Arts	3	History or Social Science[1]	3
History	3	**NATR 2020 Natural Resources Field Methods**	**3**
ENGL 1100 English Composition I	3	NATR 2050 People and the Environment: An Introduction to Conservation Social Sciences	3
NATR 2200 Current Topics in Environmental Conservation and Management	**2**		
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	Literature or Humanities[1]	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1040 Fundamental Chemistry II	3
PARK 3010 Environmental Interpretation	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
Literature[1]	3	ECON 2020 Principles of Microeconomics	3
FORY 5470 GIS Applications in Natural Resources	**2**	MATH 1130 Pre-Calculus Trigonometry	3
Free Elective	1	Humanities	3
	13		**16**

Junior

Fall	Hours	Spring	Hours
FORY 3100 Dendrology	**3**	Minor	6
Minor	3	**Restricted Management Elective[2]**	**3**
NATR 2100 Intro to Landscape Ecology	**4**	STAT 2510 Statistics for Biological and Health Sciences ***or*** 2010 Statistics for Social and Behavior Sciences	3
NATR 5310 Environmental Ethics	3	BIOL 3060 Ecology	4
	13		**16**

Senior

Fall	Hours	Spring	Hours
Minor	3	Minor	3
Restricted Management Elective[2]	**3**	**Restricted Management Elective[2]**	**3**

FOWS 5270 Natural Resource Policy	**3**	**NATR 5630 Conservation Planning**	**3**
BIOL 5090 Conservation Biology	**3**	UNIV 4AA0 Achieve the Creed	0
FORY 3010 Forest Soils	**3**	**NATR 5430 Human Dimensions of Wildlife and Natural Resources**	**3**
		Free Elective	3
	15		**15**

Total Hours: 120

1 Students must complete either a history or literature sequence.
2 See College for a current list of Restricted Electives.

Forestry (FORB)

The Forestry (FORB) degree prepares students for employment in any aspect of forest resource management, from forest industry lands where timber production is typically the primary objective to private non-industrial properties where land is managed for multiple uses to public lands where recreation or environmental protection is often the priority. The curriculum emphasizes sustainable forestry management practices' biological, ecological, environmental, social, economic, and ethical considerations.

The objectives of the forestry curriculum are to provide students with:

1. Fundamental knowledge regarding the resources that professional foresters typically manage, their multiple uses, and their sustainable management and conservation.
2. A general education integrating physical, social, and biological sciences to prepare the forester for the role of steward of public and private forest resources.
3. Training and skills needed for initial forestry employment, as well as for advancement to higher levels of managerial responsibility.

Forestry majors attend a nine-week summer practicum course between their sophomore and junior years as a comprehensive introduction that provides hands-on learning and field skills necessary for their education and future careers.

Forestry-Specific Requirements

The Professional Curriculum in Forestry (FORB) begins the summer prior to a student's junior year. The Forestry Practicum is held at the Solon Dixon Forestry Education Center near Andalusia, Alabama, for nine weeks each summer. Pre-Forestry (PFOR) students apply to this curriculum once a year during spring semester. Students ready to begin Forestry Practicum will be sent a "Summer Practicum Application Link" in the month of January to apply to the Forestry Practicum for the upcoming summer. To be considered for admission, a student must have completed or be currently enrolled in all prerequisite coursework, which must include the following courses: ENGL 1100 and ENGL 1120, BIOL 1020 and BIOL 1021, BIOL 1030 and BIOL 1031, STAT 2510 and MATH 1130. Completion of CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 are highly recommended prior to the start date. All students accepted to the program must attend a required orientation the first Monday in April.

Attention Transfer Students

If this will be your first semester at Auburn — you must be accepted to the University first and indicate you plan to start in the summer term. After you receive your admission acceptance to Auburn, contact the College of Forestry, Wildlife and Environment Student Services Office at 334-844-1050 to notify your intent to apply to practicum. Student Services will then review your transcripts and send you the "Summer Practicum Application Link." All transfer students accepted to the program must attend a required orientation on the first Monday in April.

Accreditation

The major is accredited by the Society of American Foresters (SAF). Prior to graduation, students who have completed the degree meet the requirements to participate in the SAF examination to become Registered Foresters (RF). Graduates who have passed the exam are awarded RF status by the SAF upon two years of employment.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	**3**	**BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory**	**4**
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory	**4**	**ENGL 1120 English Composition II**	**3**
FOWS 1010 Introduction to Renewable Natural Resources	1	**STAT 2510 Statistics for Biological and Health Sciences**	**3**
MATH 1130 Pre-Calculus Trigonometry (or higher)	**3**	History or Social Science[1, 2]	3
History[1, 2]	3		
	14		**13**

Sophomore

Fall	Hours	Spring	Hours
Literature[1, 2]	3	ECON 2020 Principles of Microeconomics	3
CHEM 1030 Fundamentals Chemistry I	3	FORY 5470 GIS Applications in Natural Resources	2
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
Fine Arts	3	CHEM 1040 Fundamental Chemistry II	3
COMM 1000 Public Speaking	3	FOWS 3950 Undergraduate Seminar	1
Social Science[1]	3	Humanities or Literature[1, 2]	3
	16		**13**

Total Hours: 56

Courses in bold type above are required for admission to Forestry (FORB) curriculum.

Curriculum in Professional Forestry (FORB)

Sophomore

Summer	Hours
The Forestry Summer Practicum is held at the Solon Dixon Forestry Education Center near Andalusia, Alabama.	
BIOP 3391 Forest and Manufacturing Operations	**1**
FORY 3060 Introduction to Forest Management Strategies	**1**
FORY 3050 Field Mensuration	**4**
FORY 3020 Forest Biology	**3**
FOEN 3040 Forest Surveying	**2**
	11

Junior

Fall	Hours	Spring	Hours
FORY 3100 Dendrology	**3**	**FORY 3200 Forest Tree Physiology**	**3**

FORY 3180 Forest Resource Sampling	**3**	**FORY 4190 Forest Biometrics**	**3**
FORY 3010 Forest Soils	**3**	**FORY 4230 Forest Ecology**	**3**
BIOP 1390 Introduction to Forest Products and Packaging	**3**	**FORY 5400 Forest Economics**	**3**
Restricted Electives	3	**FOEN 5700 Harvesting**	**3**
	15		**15**

Senior

Fall	Hours	Spring	Hours
FORY 5150 Forest Health	**3**	**FORY 4980 Senior Capstone Project**	**4**
FORY 5410 Forest Management and Administration	**3**	**FORY 5140 Forest Regeneration and Seedling Production**	**3**
FOWS 5270 Natural Resource Policy (or restricted elective)	**3**	Restricted Elective (or FOWS 5270 Natural Resource Policy)	3
FORY 5151 Forest Health Laboratory	**1**	Restricted Elective	3
FORY 5230 Silviculture	**4**	UNIV 4AA0 Achieve the Creed	0
	14		**13**

Total Hours: 68

Courses in bold type above are components of the Forestry major and must be completed with a 'C' or better.

1 SLO9 must be completed in one of the Humanities, Social Science, or History core courses.
2 Student must complete a sequence in either Literature or History.
3 3 hours must be completed from each of the 3 categories of restricted electives.

TOTAL HOURS - 124

Geospatial Information Science (GSEI)

The Geospatial Information Science (GSEI) degree prepares students to assess and make decisions about our environment using computer science and technologies such as geographic information systems (GIS), the global positioning system (GPS), satellite-based remote sensing, AI and machine learning, and drone imaging. Combining these tools with information technology, spatial science, data analysis, natural resources and ecological modeling, students will develop the ability to apply these tools for the sustainable management of natural resources and other decision-making related to land use and our environment.

The learning objectives of the program are to provide students with:

1. Technical skills in geospatial database design and analysis and the arrangement of things in space.
2. Ability to read, interpret, and generate maps and other geographic representations and extract, analyze, and present information from a spatial perspective.
3. Ability to think in spatial terms to explain what has occurred in the past as well as using geographic principles to understand the present and plan for the future.
4. Ability to apply critical thinking, problem-solving, and communication skills to solve problems in a professional setting.
5. Ability to synthesize and critique the impact and how we perceive the earth's environment using location-based services, global positioning systems (GPS), geographic information systems (GIS), remote sensing (RS), virtual globes, and web-based mapping.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
GEOG 1010 Global Geography	3	MATH 1610 Calculus I	4
Restricted Core Science Elective[2]	4	Core History or Social Science[1]	3
GSEI 1200 Introduction to Geospatial Technology	**3**	Restricted Core Science Elective II[2]	4
Free Elective	3		
	16		**14**

Sophomore

Fall	Hours	Spring	Hours
STAT 2510 Statistics for Biological and Health Sciences	3	**GSEI 2070 Introduction to Environmental Informatics**	**3**
History Core[1]	3	NATR 2020 Natural Resources Field Methods	3
Core Literature[1]	3	Core Literature or Humanities[1]	3
Free Elective	3	GEOG 1030 Global Systems Land/Water	4
Restricted Core Social Science Elective[3]	3	Free Elective	2
	15		**15**

Junior

Fall	Hours	Spring	Hours
FORY 5470 GIS Applications in Natural Resources	**2**	**FORY 5480 GIS Database Design and Analysis**	**2**
GEOG 5820 Aerial Photography and Remote Sensing	**4**	FORY 4230 Forest Ecology	3
ENGL 3040 Technical Writing	3	Core Fine Arts	3
COMM 1000 Public Speaking	3	**WILD 5750 Analysis for Environmental and Health Sciences**	**4**
GSEI 5800 Python Programming for the Environment[5]	4	**NATR 4240 Watershed Management**	**3**
	16		**15**

Senior

Fall	Hours	Spring	Hours
GSEI 5360 Environmental Modeling	**3**	FOWS 5270 Natural Resource Policy	3
GSEI 5430 Applications in Environmental Informatics	**3**	Free Elective	2
GEOG 5880 Advanced Geographic Information Systems	**3**	**GSEI 5150 Spatial Statistics for Natural Resources**	**3**
Restricted Applications Elective[4]	3	Restricted Applications Elective[4]	6
STAT 4000 Introduction to Data Science	3		
	15		**14**

Total Hours: 120

[1] Students must take a two-semester sequence in either literature or history.

2 Students must take an 8-credit sequence with labs in Biology (BIOL 1020/BIOL 1021/BIOL 1030/BIOL 1031), Physics (PHYS 1500/PHYS 1510), or Chemistry (CHEM 1030/CHEM 1031/CHEM 1040/CHEM 1041).
3 Students must take one of the following courses: ECON 2020, NATR 2050, or SUST 2000.
4 See College for list of possible courses that satisfy the Restricted Applications Elective.
5 Students may also take COMP 1210, STAT 5210, or GEOG 5890. If students take one of these courses, then they make take one additional hour of free elective.

Courses in bold are major courses and must be completed with a cumulative GPA of 2.0 or better.

Parks and Recreation Management (PARK)

The Bachelor of Science in Parks and Recreation Management (PARK) degree prepares students with training in the design, management, and administration of programs for federal, state, or community parks and recreation areas or to work with non-profit or private industries operating sports, tourism, and recreation facilities. Within the nature-based Park and Recreation Management path, students learn to manage national, state, or private parks and recreation areas suitable for outdoor activities, including hiking, camping, kayaking, fishing, hunting, and mountain biking, to name a few. Or, depending on a student's career goals, they can tailor their major for Community Parks and Recreation Management careers focused on administering facilities and leading programs in areas such as city trails and parks, community recreation centers, playgrounds, aquatic centers, and other sporting facilities.

Coursework for the major includes a two-week experiential field course where students gather as a cohort to focus on outdoor skills development where they can earn several micro-credentials, including Leave No Trace, Certified Interpretive Guide, and Wilderness First Aid, among others. Before their senior year, students are prepared for and complete supervised internships as part of their degree requirements.

The major is designed based on standards set forth by the Council on Accreditation of Parks, Recreation, Tourism, and Related Professions (COAPRT). After one year of employment, students who have completed the degree meet the requirements to participate in the examination to become Certified Park and Recreation Professionals (CPRP) by the National Recreation and Park Association (NRPA).

The learning objectives of the program are to provide students with:

1. Entry-level knowledge about the nature and scope of park and recreation professions and their associated industries; the techniques and processes used by professionals and workers in these industries; and the foundations of the profession in history, science, and philosophy.
2. Ability to design, implement, and evaluate services that facilitate human experiences in parks and recreation that embrace personal and cultural dimensions of diversity.
3. Entry-level knowledge about operations, strategic management, and administration in parks and recreation.
4. Demonstrated potential for success as professionals at supervisory or higher levels in parks and recreation.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
FOWS 1020 Science of Nature I & FOWS 1021 Science of Nature I Laboratory	4	FOWS 1030 Science of Nature II & FOWS 1031 Science of Nature II Laboratory	4
FOWS 1010 Introduction to Renewable Natural Resources	**1**	POLI 1090 American Government in Multicultural World	3
MATH 1130 Pre-Calculus Trigonometry	3	COMM 1000 Public Speaking	3
NATR 2050 People and the Environment: An Introduction to Conservation Social Sciences	3		
	14		**13**

Sophomore

Fall	Hours	Spring	Hours
History[2]	3	History or Social Science[2]	3
Literature[2]	3	HOSP 2600 Event Operations	3
Fine Arts	3	STAT 2510 Statistics for Biological and Health Sciences	3
Free Elective	3	**PARK 3050 Safety, Risk and Legal Aspects of Parks, Recreation, and Sport Facility Management**	**3**
PARK 2010 Introduction to Nature-Based Recreation and Management *or* 2020 Introduction to Community Parks and Recreation	**3**	PARK 3910 Field Skills Practicum[3]	3
	15		**15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
MKTG 3810 Foundations of Business Marketing	3	**PARK 3100 Leadership in Parks and Recreation**	**3**	PARK 4920 Internship in Parks and Recreation	8
POLI 3250 Introduction to Public Administration	3	**PARK 4310 Sustainable Nature Tourism *or* COMM 3400 Organizational Communication**	**3**		
Free Elective	3	**PARK 3350 Programming in Parks and Recreation**	**3**		
PARK 3010 Environmental Interpretation	**3**	Free Elective	3		
PARK 3850 Professional Preparation in Parks and Recreation	1	Humanities or Literature[2]	3		
	13		**15**		**8**

Senior

Fall	Hours	Spring	Hours
PARK 4200 Nature, Recreation, and Health	**3**	Restricted Elective[1]	3
Restricted Elective[1]	6	**NATR 5430 Human Dimensions of Wildlife and Natural Resources**	**3**
PARK 4300 Parks and Recreation Administration, Finance, and Management	**3**	**NATR 5630 Conservation Planning *or* PARK 4500 Sustainable Planning and Design of Community Parks and Recreation**	**3**
PARK 5250 Access and Participation in Parks and Recreation	**3**	**PARK 4400 Park and Recreation Facilities and Infrastructure Planning and Management**	**3**
	15		**12**

Total Hours: 120

1 Contact the College for a current list of Restricted Electives.
2 Students must take a sequence in either history or literature.
3 PARK 3910 is taught at the completion of the spring semester.

Sustainable Packaging (BIOP)

The Sustainable Packaging (BIOP) degree provides students with foundational knowledge and structure of both traditional forest products as well as emerging sustainable industry segments, an understanding of trade patterns and marketing, and the role of private industry and government organizations in development and trade, and the potential contribution of economic development.

The learning objectives of the program are to provide students with:

1. Understanding of the chemical, physical, and mechanical properties of solid wood and bio-based products and packaging materials.
2. Knowledge of the thermal, electric, and acoustic properties of bio-based products and packaging materials.
3. Understanding of the relationships between anatomical structure and the physical/mechanical behavior of materials.
4. Ability to identify commercially important sustainable materials and the durability of bio-based products and packaging materials.
5. Able to complete sustainable material lifecycle assessments considering resource and energy consumption as well as waste generation.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
MATH 1130 Pre-Calculus Trigonometry (or Higher)	3	STAT 2510 Statistics for Biological and Health Sciences	3
INDD 1120 Industrial Design in Modern Society	3	Core History or Social Science[1]	3
Core History	3	**BIOP 2120 Frontiers for Sustainable Biomaterials**	**3**
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
BIOP 2140 Fundamentals of Packaging Technology	3	CHEM 1040 Fundamental Chemistry II	3
BUAL 2650 Business Analytics II	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
CHEM 1030 Fundamentals Chemistry I	3	SUST 2000 Introduction to Sustainability	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	Core Fine Arts	3
ECON 2020 Principles of Microeconomics	3	Core Literature or Humanities[1]	3
Core Literature[1]	3	COMM 1000 Public Speaking	3
	16		**16**

Junior

Fall	Hours	Spring	Hours
BIOP 3390		BATM 2110 Digital Analytics in Agriculture and Technology	3
Free Elective	1	**BIOP 4060 Economics of Sustainable Biomaterials and Packaging**	**3**
BIOP 5070 Performance and Durability of Products and Packaging	3	**BIOP 4080 Business Management for Sustainable Biomaterials**	**3**

MATL 2220 Materials and the Environment ***or*** 2230 Mineral Resources: Processing and Availability	1	**BIOP 5050 Biomass Processing Chemistry**	**3**
MKTG 3810 Foundations of Business Marketing	3	**BIOP 4360 Sustainable Biomaterials Trade and Marketing**	**3**
SCMN 2150 Principles of Supply Chain Management	2		
	10		**15**

Senior

Fall	Hours	Spring	Hours
BIOP 4400 Sustainable Biomaterials & Product Development	**2**	**BIOP 4410 Sustainable Biomaterials & Product Development II**	**2**
BIOP 4840		**BIOP 5800 Biopolymers for Sustainable Biomaterials and Packaging**	**3**
BIOP 5250 Wood Composites for Biomaterials & Packaging	**3**	CSES 5400 Bioenergy and the Environment	3
ENVD 2040 Design, Invention and Society	3	SCMN 5720 Quality & Process Improvement	3
INSY 3020 Occupational Safety Ergonomics	3	MKTG 4340 Marketing and New Product Development	3
	11		**14**

Total Hours: 114

[1] Students must complete a sequence in either Literature or History.
Courses in bold are majors courses and must be completed with a 2.0 or better.

Wildlife Ecology and Management (WLDE)

The Wildlife Ecology and Management (WLDE) degree program provides a broad biological education that is specifically designed to meet the needs of students interested in careers involving wildlife ecology, management, and conservation. Graduates are employed within state or federal wildlife agencies, environmental consulting firms, private conservation organizations, and private land management companies.

The learning objectives of the program are to provide students with:

1. Knowledge of wild animal biology, behavior, and ecology, including their interactions with other species and their environment.
2. Understanding the strategies and methods for conserving wildlife populations and habitats, including habitat loss, fragmentation, invasive species, and climate change.
3. Knowledge of techniques for managing wildlife populations, including population monitoring, habitat management, and population control methods.
4. Understanding the broader environmental context in which wildlife populations exist, including ecosystem dynamics, biodiversity conservation, and environmental policy.
5. Knowledge about human and wildlife interactions, including conflicts over resources, conservation ethics, and human impacts on wildlife.

Students are required to participate in a six-week wildlife summer practicum taken the summer before their senior year. In addition to required lab courses, the summer practicum experience enables students to acquire practical skills in field research methods, such as wildlife survey techniques, animal tracking, and data collection.

The major is designed to prepare students to meet the standards to apply for and successfully attain certification as Associate Wildlife Biologists (AWB) by The Wildlife Society (TWS) upon graduation.

Freshman

Fall	Hours	Spring	Hours
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory	4	History or Social Science[1]	3
History[1]	3	ENGL 1120 English Composition II	3
WILD 2050 Wildlife Conservation History and Law[*,3]	**3**	Fine Arts	3
ENGL 1100 English Composition I	3	BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory	4
FOWS 1010 Introduction to Renewable Natural Resources[3]	**1**	Social Science	3
	14		**16**

Sophomore

Fall	Hours	Spring	Hours
Physical Science Elective	4	BIOL 3030 Evolution and Systematics	3
WILD 3280 Wildlife Ecology, Conservation, and Management *or* 3287 Honors Wildlife Ecology, Conservation, and Management[*,3]	**3**	CHEM 1040 Fundamental Chemistry II	3
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
MATH 1610 Calculus I	4	BIOL 3060 Ecology	4
CHEM 1031 Fundamental Chemistry I Laboratory	1	Literature or Humanities[1]	3
	15		**14**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
ENGL 3040 Technical Writing	3	Social Sciences	3	**WILD 4910 Wildlife Sciences Summer Practicum[*,3]**	**8**
STAT 2510 Statistics for Biological and Health Sciences	3	COMM 1000 Public Speaking[4]	3		
Taxon-specific Elective	4	**WILD 4400 Problem Solving in Wildlife Sciences[*,3]**	**2**		
FORY 3100 Dendrology[2]	3	Literature[1]	3		
		WILD 5750 Analysis for Environmental and Health Sciences[*,3]	**4**		
	13		**15**		**8**

Senior

Fall	Hours	Spring	Hours
WILD 5280 Avian Ecology and Management[*,3]	**2**	**FOWS 5270 Natural Resource Policy[*,3]**	**3**

WILD 4340 Conservation Genetics*,3	**3**	**WILD 5290 Mammalian Ecology and Management*,3**	**2**
Taxon-specific Elective	4	BIOL 5140 Plant Ecology	4
WILD 5880 Wildlife Habitat Assessment and Management*,3	**4**	UNIV 4AA0 Achieve the Creed	0
		WILD 4890 Wildlife Population Science*,3	**3**
		Natural Resource Elective/ROTC	3
	13		**15**

Total Hours: 123

1 Student must complete a sequence in either Literature or History.
2 Systematic Botany (BIOL 5120 - 4 hours in spring) may be substituted for Dendrology.
3 These courses are part of the WLDE major and must be completed with a cumulative GPA of 2.0 or better
4 Environmental Interpretation (FOWS 2010) may replace COMM 1000. However, an additional humanities core must then also be taken.

Courses with an asterisk (*) must be completed with a grade of “C” or better.

Wildlife Enterprise Management (WLEM)

The Wildlife Enterprise Management (WLEM) degree is a cross-disciplinary program providing graduates with basic principles of wildlife management, hospitality services, and business to prepare them to lead wildlife-focused outdoor excursions and manage hunting and fishing lodges, ranches, corporate retreat facilities, and other consumptive use facilities.

Collaboratively taught by faculty in the College of Forestry, Wildlife and Environment and the Colleges of Business and Human Sciences, the curriculum will provide students with:

1. Understanding of wildlife management principles as they apply to consumptive use enterprises.
2. Understanding of the ecological principles that lie at the foundation of conservation biology and ecotourism.
3. Baseline customer service skills, food and beverage production, and lodging skillsets.
4. Ability to effectively market and advertise a wildlife or outdoor enterprise.
5. Exposure to legal issues related to the operation of wildlife and outdoor enterprises.

Graduates of the major will qualify for a Business Minor offered by the Harbert College of Business.

Wildlife Enterprise Management

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
WILD 1200 Hunting and Fishing the World	**3**	MATH 1130 Pre-Calculus Trigonometry	3
Free Elective	3	CORE Social Science	3
WILD 2050 Wildlife Conservation History and Law	**3**	**HOSP 1010 Introduction to Hospitality Management**	**3**
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core History[1]	3	PHIL 1040 Business Ethics	3
Free Elective	3	BIOL 3060 Ecology	4
COMM 1000 Public Speaking	3	**HOSP 2350 Culinary Fundamentals**	**3**
WILD 3280 Wildlife Ecology, Conservation, and Management[2]	**3**	**HOSP 2300 Hospitality Law**	**3**
ECON 2030 Principles of Macroeconomics ***or*** BUSI 3250 International Business (m)	3	**WILD 2400 Sporting Firearms and Archery**	**2**
		WILD 3500 Outdoor Safety and Liability	**1**
	15		**16**

Junior

Fall	Hours	Spring	Hours
Core History[1]	3	FINC 3810 Foundations of Business Finance (m)	3
ACCT 2810 Fundamentals Of Accounting (m)	3	MNGT 3810 Management Foundations (m)	3
WLEM Restricted Elective	3	WLEM Restricted Elective	3
Free Elective	4	**HOSP 2500 Lodging Operations**	**2**
		HOSP 2501 Lodging Operations Lab	**1**
		WILD 3600 Wildlife Enterprise Field Techniques	**4**
	13		**16**

Senior

Fall	Hours	Spring	Hours
Core Fine Arts	3	Core Literature	3
Core Social Science	3	WLEM Restricted Elective	3
MKTG 3810 Foundations of Business Marketing (m)	3	WLEM Restricted Elective	3
HRMN 3420 Human Resource Management	**3**	**WILD 5290 Mammalian Ecology and Management**	**2**
WILD 5280 Avian Ecology and Management	**2**	**WILD 4500 Advanced Wildlife Enterprise Management**	**3**
	14		**14**

Total Hours: 120

1

2

Courses marked with (m) are part of the business minor and must be completed with a cumulative GPA of 2.0 or greater.

Wildlife Enterprise Management Restrictive Electives

The WLEM BS Degree program has considerable flexibility for students to focus their areas of interest. Thus, students can select any 12 credit hours worth of courses from the following list of Restricted Electives.

Code	Title	Hours
WILD 3810	Study Abroad - Wildlife Management in Southern Africa	3
WILD 3920	Internship in Wildlife Enterprise Management	3
WILD 4400	Problem Solving in Wildlife Sciences	2
WILD 5410	Human-Wildlife Conflicts	3

BIOL 5090	Conservation Biology	3
BIOL 5120	Systematic Botany	4
BIOL 5140	Plant Ecology	4
BIOL 5150	Population and Community Ecology	3
BIOL 5350	Behavioral Ecology	3
BIOL 5740	Herpetology	4
BIOL 5760	Mammalogy	4
CMJN 2100	Concepts in Communications and Journalism	3
ENFB 3140	Essentials of Entrepreneurship	3
JRSP 3410	Introduction to Sports Video Production	3
ENFB 4170	Managing Entrepreneurial Start-Ups	3
ENFB 4190	New Venture Creation	3
ENFB 4200	Business Plan for the New Venture	3
FISH 2020	Global and Regional Perspectives in Fisheries, Aquaculture, and Aquatic Sciences	2
FISH 5240	Hatchery Management	4
FISH 5510	Fisheries Biology and Management	4
FISH 5520	Small Impoundment Management	3
FLNG 1010	Elementary Foreign Language	4
FLNG 1020	Elementary Foreign Language	4
FORY 3500	Forestry for Small Woodland Owners	3
FORY 4230	Forest Ecology	3
FORY 5460	Forest Fire Management	3
FORY 5150	Forest Health	3
FORY 5230	Silviculture	4
PARK 4310	Sustainable Nature Tourism	3
MKTG 5350	Services Marketing	3
MKTG 5500	Digital Marketing	3
PARK 3010	Environmental Interpretation	3
PARK 2010	Introduction to Nature-Based Recreation and Management	3
NATR 5250	Wetland Ecology and Management	3

Wildlife Sciences — Pre-Veterinary Medicine (WLPV)

The Wildlife Sciences Pre-veterinary Medicine (WLPV) degree program prepares students with an interest in the outdoors and free-ranging wildlife populations with the necessary understanding of wildlife ecology, management, and conservation to be effective wildlife veterinarians. With this foundational knowledge students are prepared for veterinary school either at Auburn University or other institutions.

The learning objectives of the program are to provide students with:

1. Knowledge of wild animal biology, behavior, and ecology, including their interactions with other species and their environment.
2. Understanding the strategies and methods for conserving wildlife populations and habitats, including habitat loss, fragmentation, invasive species, and climate change.
3. Knowledge of techniques for managing wildlife populations, including population monitoring, habitat management, and population control methods.
4. Understanding the broader environmental context in which wildlife populations exist, including ecosystem dynamics, biodiversity conservation, and environmental policy.
5. Knowledge about human and wildlife interactions, including conflicts over resources, conservation ethics, and human impacts on wildlife.

In addition, students will receive: 1) Foundational coursework in biology, chemistry, physics, and mathematics required for admission to veterinary school; and 2) Additional coursework related to veterinary medicine, such as animal nutrition, pharmacology, pathology, and diagnostic techniques.

Students completing the first three years in the Wildlife Sciences, Pre-Veterinary Medicine Concentration meet the minimum requirements for admission to the College of Veterinary Medicine (CVM). Upon completion of the required curriculum, graduates may be admitted to the CVM prior to completion of the full four years. After completion of their freshman year in the CVM, students may obtain a Bachelor of Science in this concentration. All minimum requirements must be completed by the end of the spring semester preceding the date of admission to CVM. (See the College of Veterinary Medicine section for additional information.) Successful completion of the Doctor of Veterinary Medicine (DVM) degree qualifies graduates as veterinarians.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory	4	BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory	4
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1040 Fundamental Chemistry II	3
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
MATH 1610 Calculus I	4	STAT 2510 Statistics for Biological and Health Sciences	3
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2080 Organic Chemistry II	3
CHEM 2070 Organic Chemistry I	3	CHEM 2081 Organic Chemistry II Laboratory	1
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
WILD 2050 Wildlife Conservation History and Law*	**3**	**BIOL 3060 Ecology**	**4**
History [1]	3	History or Social Science [1]	3
	14		**15**

Junior

Fall	Hours	Spring	Hours
BCHE 3200 Principles of Biochemistry	3	**WILD 5750 Analysis for Environmental and Health Sciences***	**4**
WILD 3280 Wildlife Ecology, Conservation, and Management*	**3**	BIOL 3030 Evolution and Systematics	3
Fine Arts	3	Humanities or Literature[1]	3
BIOL 3000 Genetics	3	Science Elective[2]	4
BIOL 3001 General Genetics Laboratory	1		
NATR 2050 People and the Environment: An Introduction to Conservation Social Sciences ***or*** SUST 2000 Introduction to Sustainability	3		
	16		**14**

Senior

Fall	Hours	Spring	Hours
FORY 3100 Dendrology *or* BIOL 5120 Systematic Botany	**3**	**WILD 5290 Mammalian Ecology and Management *or* 5280 Avian Ecology and Management***	**2**
BIOL 4020 Vertebrate Biodiversity	**4**	**Policy Elective**	**3**
Habitat Elective	**3**	Social Science	3
Literature[1]	3	Free Elective	5
COMM 1000 Public Speaking	3	**Population Elective**	**3**
		UNIV 4AA0 Achieve the Creed	0
	16		**16**

Total Hours: 120

1 Student must complete a sequence in either Literature or History.
2 Select from ANSC 3400 Animal Nutrition,BIOL 3010 Comparative Anatomy, BIOL 3200 General Microbiology, BIOL 4100 Cell Biology, BIOL 5110 Parasitology, or BIOL 5500 Immunology

Courses with an asterisk (*) must be completed with a grade of “C” or better

Courses marked in **bold** are major's courses and must be completed with a cumulative GPA of 2.0 or better

Majors

Minors

Coastal Management Minor

Coastal Management Minor

Coastal lands and resources are under increasing pressure due to a variety of environmental and societal issues. Sea level rise, urbanization, energy production, tropical storms, and habitat loss are just some of the pressing issues facing coastal areas. There is an increasing need for professionals trained to manage natural resources in these areas. Through coursework in the Coastal Zone Management minor, students will gain a comprehensive understanding of the coastal environment and how management and policy are applied to natural resources. To complete this minor, students will be required to attend Dauphin Island Sea Laboratory (DISL) for one summer.

Core Courses 8 Hours required

Code	Title	Hours
NATR 4535	Coastal Zone Management	2
NATR 5450	Coastal Law	3
BIOL 3040	Biology of Marine Systems	3

Restricted Electives 7 Hours needed from the following courses listed:

Code	Title	Hours
BIOL 4015	Biology and Conservation of Marine Turtles	
BIOL 4025	Ecology of the Florida Everglades	
BIOL 4065	Marine Conservation Biology	
BIOL 4085	Hurricanes of the Gulf of Mexico	
BIOL 4095	Coastal Birds of Alabama	
BIOL 5425	Marine Botany	

Students taking this minor may also consider utilizing course offerings at the Dauphin Island Sea Laboratory pertaining to coastal management as fulfillment for the Restricted Electives. This would be allowed through Marine Environmental Science Consortium of Alabama, of which Auburn University is a member. Course examples include:

- Biotic Responses to Sea Level Change - 2 Hrs
- Coastal Wetlands Ecology - 4 Hrs
- Marine Restoration Ecology - 2 Hrs

Conservation Social Sciences Minor

Conservation social sciences are a subset of traditional social science disciplines that focus on conservation and environmental management. Each social science provides a different lens to understand our relationship with the environment.

A total of 15 hours is required. Classes that are part of a student's major must be replaced with other courses from the Restricted Electives list. Nine hours must be in courses listed as 3000 or above.

Code	Title	Hours
Conservation Social Sciences - Undergraduate Minor		
15 hours required for minor		
Core Courses (6 hours required)		
NATR 2050	People and the Environment: An Introduction to Conservation Social Sciences	3
NATR 5430	Human Dimensions of Wildlife and Natural Resources	3
Restricted Electives (9 hours from courses listed below)		
ANTH 3700	Environmental Anthropology	3
CPLN 5070	Environmental Planning	3
FORY 5470	GIS Applications in Natural Resources	2
GEOG 5510	Human-Environment Interaction	3
HIST 3550	American Environmental History	3
NATR 5310	Environmental Ethics	3
NATR 5880	Ecological Economics	3
PARK 3010	Environmental Interpretation	3
PARK 3100	Leadership in Parks and Recreation	3
WILD 2050	Wildlife Conservation History and Law	3

Environmental Law Minor

Environmental Law Minor

This minor will prepare students about issues related to the current laws governing environmental protection, natural resource management, sustainable development, land-use planning supporting the pursuit of law degree. 15 hours are required to complete the minor.

Core Courses 6 Hours required

Code	Title	Hours
FORY 5540	Environmental Law	3
FORY 5550	Property Law	3

Restricted Electives 9 Hours needed from the following courses listed:

Code	Title	Hours
AGEC 4070	Agricultural Law	3
FOWS 5270	Natural Resource Policy	3
FOWS 5450	Conflict and Collaboration in Natural Resources Management	3
NATR 5310	Environmental Ethics	3

NATR 5450	Coastal Law	3
NATR 5560	Energy Law	3
POLI 3300	Law and Society	3

Forest Health Minor

Healthy forests are a critical part of our nation's landscape. Our forests provide humans with several benefits including shelter, water, and food as well as wood for construction, furnishings, and basic necessities. Through coursework in the Forest Health minor, students will gain a comprehensive understanding of insect and disease management to maintain a sustainable forest.

Core Courses 12 Hours Required

Code	Title	Hours
FORY 5150	Forest Health	3
FORY 5151	Forest Health Laboratory	1
ENTM 3040	General Entomology	4
PLPA 3000	General Plant Pathology	4
Total Hours		**12**

Restricted Electives 3 Hours Select 1 Course

Code	Title	Hours
FORY 4230	Forest Ecology [1]	3
FORY 3200	Forest Tree Physiology [1]	3
FORY 3100	Dendrology [2]	3
BIOL 5120	Systematic Botany	4

1 Students in the NATR Curriculum are required to take one of these courses.

2 Students not in the NATR Curriculum are encouraged to take this course if they have not had any forest-tree identification in their undergraduate program.

Forest Resources Minor

This minor is available only to students in the forest emphasis of the forest engineering option of the biosystems engineering degree in the Samuel Ginn College of Engineering. Completion of the minor is required for Registered Forester eligibility in the State of Alabama.

Code	Title	Hours
FORY 4190	Forest Biometrics	3
FORY 4230	Forest Ecology	3
FORY 5400	Forest Economics	3
FORY 5410	Forest Management and Administration	3
FOWS 5270	Natural Resource Policy	3
WILD 3280	Wildlife Ecology, Conservation, and Management	3
FORY 5150	Forest Health	3
or FORY 5460	Forest Fire Management	
Total Hours		**21**

Forest Seedling Nursery Management Minor

This minor will prepare students to work in state, private and federal forest seedling nurseries with the production of conifer and hardwood bareroot and container seedlings used in the reforestation programs throughout North America. Successful graduates of this minor will become knowledgeable in the process of seedling production from seed collection, sowing, cultivation, irrigation, pest management, lifting, packing, storing and outplanting. Along with seedling cultivation, students will also become familiar with the business aspect of running a forest-tree seedling nursery.

Core Minor Courses

Code	Title	Hours
FORY 5140	Forest Regeneration and Seedling Production	3
HORT 2240	Plant Propagation	3
HORT 3000	Growth and Development of Horticultural Plants	3
ACCT 2810	Fundamentals Of Accounting	3
Total Hours		**12**

Restricted Elective Courses - Select any 1 of 3 options

Code	Title	Hours
HORT 5230	Nursery Management	4
SCMN 3710	Logs: Mngt of Fulfillment Proc	3
HRMN 3420	Human Resource Management	3

Natural Resources Ecology Minor

Code	Title	Hours
15 hours required for minor.		
Core Electives (7-8 hours required)		
NATR 2100	Intro to Landscape Ecology	
FORY 4230	Forest Ecology	
or BIOL 3060	Ecology	
Concentration Electives: at least 9 hours, with at least 1 course required from each of the 2 concentration areas		
Landscapes and Abiotic systems		
Study abroad course (Junior level or above) related to conservation. **		
BIOL 5090	Conservation Biology	
FORY 3010	Forest Soils	
NATR 4240	Watershed Management	
NATR 5250	Wetland Ecology and Management	
CSES 5400	Bioenergy and the Environment	
FISH 5220	Water Science	
GEOG 5210	Climatology	
Biotic Systems		
Study abroad course (3) (Junior level or above) on sustainable development, community development or society and the environment. **		
BIOL 5150	Population and Community Ecology	
BIOL 4010	Invertebrate Biodiversity	
BIOL 4020	Vertebrate Biodiversity	
BIOL 5140	Plant Ecology	
ENTM 5220	Insect Ecology	
FISH 5510	Fisheries Biology and Management	
FORY 5150	Forest Health	
FOWS 5210	Restoration Ecology	
FOWS 5240	Fire Ecology	
WILD 3280	Wildlife Ecology, Conservation, and Management	

Nature-Based Recreation Minor

Code	Title	Hours
15 hours required for minor.		
Core Electives (9 hours required)		**9**
PARK 4310	Sustainable Nature Tourism	3
PARK 2010	Introduction to Nature-Based Recreation and Management	3
PARK 3010	Environmental Interpretation [Required if major other than NATR]	3
OR		
WILD 1200	Hunting and Fishing the World [Required if major = NATR]	3
Concentration Electives: 6 hours total required		**6**
Conservation and Ecology		
BIOL 5090	Conservation Biology	
WILD 2050	Wildlife Conservation History and Law	
WILD 3280	Wildlife Ecology, Conservation, and Management	
Tourism Management		
GEOG 3300	International Travel and Tourism	
HOSP 1010	Introduction to Hospitality Management	
HOSP 2500/2501	Lodging Operations	
MKTG 3810	Foundations of Business Marketing	
MNGT 3810	Management Foundations	
Community, Planning & Development		
RSOC 3560	Environment, Society, and Justice	
RSOC 5640	Sociology of Community Development	
RSOC 5650	Sociology of Natural Resources and the Environment	
Study Abroad		
Study abroad up to 6 credits with courses on tourism, sustainable or community development. **		

Restoration Ecology Minor

This undergraduate minor is designed to advance the level of knowledge and skills for individuals interested or working in the areas of natural resource management, forest and wildlife management, environmental conservation, natural resource management consulting, or environmental education. This minor is designed to help students better understand natural processes in terrestrial ecosystems; provide information on processes and practices that are relevant to the restoration of these ecosystems; and enhance critical thinking and communication skills.

Code	Title	Hours
Restoration Ecology - Undergraduate Minor		
15 hours required for minor		
Core Courses (6 hours required)		
FOWS 5210	Restoration Ecology	3
FORY 4230	Forest Ecology	3
or BIOL 3060	Ecology	
Restricted Electives (9 hours from courses listed below)		
BIOL 5090	Conservation Biology	3
FORY 5150	Forest Health	3
FORY 5460	Forest Fire Management	3
FOWS 5230	Forest Stand Dynamics	3
FOWS 5240	Fire Ecology	3
FOWS 5250	Longleaf Pine Ecology, Management, and Restoration	3

FOWS 5260	Forest Wetlands Restoration Ecology	3
FOWS 5340	Invasion Ecology	3
NATR 4240	Watershed Management	3
NATR 5250	Wetland Ecology and Management	3
WILD 3280	Wildlife Ecology, Conservation, and Management	3
WILD 5140	Plant Ecology	4
WILD 5880	Wildlife Habitat Assessment and Management	4

Tropical Conservation and Sustainable Development Minor

Tropical areas host more than two-thirds of the world's biodiversity. Complementing the incredible plants and wildlife is the diversity of agricultural, business, and other livelihoods that individuals design to make a living in these landscapes. Costa Rica has long been known as a leader in conservation and sustainability and is known as the birthplace of ecotourism. Costa Rica has over 25% of its land in parks and protected areas, the majority of its electricity comes from hydroelectric power, and it was one of the first countries to institute a program of payments for ecosystem services to incentivize private land conservation. Both small-scale and industrial coffee farming, dairy and cattle production, sugarcane, and fruit crops cover much of the remaining landscape. Ecotourism has become one of the primary earners of foreign exchange.

In this minor, students will learn about environmental conservation and sustainable agricultural production in Costa Rica. All courses will highlight issues of conservation and sustainability in tropical systems. After completion of the program, students will have a detailed understanding of the diversity of topics, methods, and approaches to the conservation of tropical natural systems and sustainable production systems.

Code	Title	Hours
PARK 3630	Costa Rica Protected Area Conservation Management	3
NATR 3320	Ecosystem Services in Costa Rica	3.0
NATR 4250	Watershed Management in Tropical Regions	3
GEOG 3720	Study Abroad-Climate Change and Environment	3
CSES 3400	Sustainable Management of Tropical Soils	3

Urban Forestry Minor

This minor will prepare students to help cities meet the special challenges of managing natural resources in an urban environment. Urban forestry scientists will be involved in storm flow analysis, tree planting and care, grant proposals, and supervision of municipal employees.

Code	Title	Hours
15 hours required for Minor		
4 Core Electives (13 Hours Required)		**13**
LAND 2140	History, Theory, and Practice I	
HORT 3220	Arboriculture	
CPLN 5110	Sustainable Urbanism and Growth Management	
FORY 5650	Urban Forestry	
Restricted Electives. A minimum of 2 hours from one of the courses listed below.		**2**
CADS 2700	Introduction to Nonprofit Organizations	
ENTM 3040	General Entomology	
ENTM 5360	Landscape Entomology	
FORY 3100	Dendrology [1]	
FORY 5470	GIS Applications in Natural Resources	
LEAD 2000	Foundations of Leadership	
HORT 3200	Woody Landscape Plant Identification I	
POLI 2120	Urbanization and the City	
POLI 3250	Introduction to Public Administration	

POLI 3260	Organization Theory [3]	

Footnotes:

1 Students are encouraged to takes this course if they have not had any forest-tree identification in their undergraduate program.

2 Students are encouraged to take this course if they have not had any GIS courses in their undergraduate program.

3 Students must take PHIL 1090 as part of their Humanities Core requirement of the BS degree if they want to take this course as part of the Urban Forestry Minor.

Total Hours	**15**

Watershed Sciences Minor

Watershed science and management is an expanding field that involves managing the availability, quantity, and quality of water. Many major metropolitan areas and smaller cities rely on forested watersheds to purify the necessary drinking water for their populations. Many highly trained and dedicated professionals, knowledgeable in hydrology, climates, and water sciences, are needed in coming years to be certain this necessary commodity is provided to the United States and the world's growing populations.

Code	Title	Hours
15 hours required for minor.		
Core Courses (6 hours required)		
NATR 4240	Watershed Management	
NATR 5350	Water Resource Management and Policy	
Supporting Courses: 9 hours within or across concentrations		
Crops, Soils and Environmental Science		
CSES 2040	Basic Soil Science	
CSES 5000	Environmental Quality	
CSES 5080	Soil Resources and Conservation	
Fisheries and Allied Aquaculture		
FISH 5220	Water Science	
FISH 5520	Small Impoundment Management	
FISH 5320	Limnology	
Forestry, Wildlife and Environment		
NATR 5250	Wetland Ecology and Management	
FOWS 5270	Natural Resource Policy	
NATR 5550	Watershed Hydrology	
Geology and Geography		
GEOG 1030	Global Systems Land/Water	
GEOG 5210	Climatology	
GEOG 5220	Geomorphology	
GEOG 5550	Geography of Water Resources	

Note: Courses required for student major may not be used to satisfy concentration electives. This includes Restricted Elective Courses for the CFWE Natural Resource Management (NATR) students.

College of Human Sciences

SUSAN S. HUBBARD, *Dean*
ALLEAH CRAWFORD, *Associate Dean for Academic Affairs*
STEPHEN ERATH, *Associate Dean for Research and Graduate Studies*
LAURA DOWNEY, *Associate Dean for Extension*

The College of Human Sciences is a diverse, engaging learning environment where we produce tomorrow's leaders through education of the highest quality and a commitment to helping students make positive impacts on the world around us. We teach the art and science of design, food, nutrition, hospitality and relationships in a classroom that spans the globe. We discover sustainable solutions

to everyday problems, ignite creativity across disciplines and support our students by building the confidence and skills they need to change the world.

Founded on a belief in science for a quality life, Human Sciences' programs enable students to positively impact the health and well-being of individuals, families, and consumers. Beyond technical preparation, our graduates possess a broad worldview, a diverse understanding of the world in which they live and work, and a commitment to building a better world - one life at a time.

The College of Human Sciences includes the departments of Consumer and Design Sciences, the Horst Schulze School of Hospitality Management, Human Development and Family Science, and Nutritional Sciences. Programs of study leading to the bachelor of science degree can be planned within seven curricula in the College of Human Sciences. These curricula are designed with flexibility to meet the needs of students with a variety of academic interests and goals. Program-specific accreditations/approvals/endorsements/certifications have been attained for several programs.

Transfer Requirements

To transfer into the College of Human Sciences, a student must be eligible to take classes and pursue an Auburn degree. However, students need to be aware of GPA restrictions and other progression requirements as well as admission requirements for individual degree programs.

Graduation Requirements

To earn the bachelor’s degree from the College of Human Sciences, students must complete the hours and subject matter requirements of their curricula and must have a minimum grade-point average of 2.0 on all course work attempted at Auburn University, and in addition, a 2.0 cumulative grade-point average on all work attempted in the major.

Options in Cooperative Extension

Students enrolled in any of the majors in the college may prepare for a career in the Cooperative Extension System through election of certain courses as electives. Majors may fulfill the requirements of the Alabama Cooperative Extension System through scheduling of the following courses:

Code	Title	Hours
NTRI 2000	Nutrition And Health	3
HDFS 4670	Parent Education	3
NTRI 3560	Experimental Study of Foods	4
Select one of the following:		3-4
CADS 2400	Interior Material & Components	3
CADS 2750	Product Dev Technical Design	4
CADS 2600	Textiles	3

Graduate Work

The college offers work leading to the master of science degree and PhD degree in consumer and design sciences, human development and family science, nutrition, and hospitality management, and development practice.

Majors

- Apparel Merchandising, Design and Production Management — Apparel Merchandising Option (p. 796)
- Apparel Merchandising, Design and Production Management — Apparel Design and Production Management Option (p. 798)
- Global Studies in Human Sciences (p. 821)
- Hospitality Management — Culinary Science Option (p. 809)
- Hospitality Management — Event Management Option (p. 811)
- Hospitality Management — Hotel and Restaurant Management Option (p. 812)
- Human Development and Family Science (p. 823)
- Human Development and Family Science — Child Life Option (p. 824)
- Human Development and Family Science — Early Child Development (p. 825)
- Interior Design (p. 800)
- Nutrition — Nutrition/Dietetics Option (p. 838)

- Nutrition — Nutrition Science Option (pre-professional) (p. 835)
- Nutrition — Nutrition Wellness Option (p. 840)
- Philanthropy and Non-Profit Studies (p. 802)

Accelerated Bachelor's/Master's (ABM) Programs (p. 1468)

Minors

- Health and Human Development (p. 827)
- Honors International Minor in Human Sciences (p. 841)
- Human Development and Family Science (p. 828)
- Hunger Studies (p. 842)
- International Minor in Human Sciences (p. 843)
- Philanthropy and Nonprofit Studies (p. 803)

Undergraduate Certificates

- Health Equity Science (p. 829)
- Financial Planning (p. 799)

Graduate Programs

- Brewing Science and Operations — Graduate Certificate, MS (p. 1559)
- Child Life — MS (p. 1684)
- Consumer and Design Science — MS, PhD (p. 1583)
- Development Practice — MDP (p. 1634)
- Health Equity Science — Graduate Certificate (p. 1674)
- Hospitality Management — MS, PhD (p. 1681)
- Human Development and Family Science — Graduate Certificate, MS, PhD (p. 1683)
- Nutrition — MS, PhD (p. 1724)
- Post-Masters Healthcare Simulation — Graduate Certificate (p. 1797)

Consumer and Design Sciences Courses

CADS 1000 INTRODUCTION TO INTERIOR DESIGN (3) LEC. 3. Introduces theories of human behavior, physiology, and psychology; elements and principles of design; architectural form, space, and order; codes and regulations; profession of interior design.

CADS 1100 INTERIOR DESIGN STUDIO: DESIGN PRINCIPLES (3) LST/STU. 3. Pr. P/C CADS 1000. INDS (interior design) or INDX (pre-interior design) majors only. Fundamental principles of allied art and design disciplines. Two-dimensional and three-dimensional design projects, critical and creative thinking, application of color theory, composition, perspective, and craftsmanship.

CADS 1600 TEXTILE INDUSTRIAL COMPLEX (3) LEC. 3. Introduction to the composition, characteristics, and products of the network of fiber producers, textile manufacturers, dyers, finishers, apparel manufacturers, and retailers.

CADS 1700 GIVING AND SHARING (3) LEC. 3. Exploration of traditions of American philanthropy including a service-learning component. Students reflect on their giving experiences and apply philanthropic traditions to their own lives, service experiences, educational and professional goals, and visions for a better world.

CADS 1740 AESTHETICS FOR FASHION (3) LEC. 3. Elements and principles of design and their application in industries such as textiles, apparel, and retail.

CADS 2000 GLOBAL CONSUMER CULTURE (3) LEC. 3. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000 or CADS 2007.

CADS 2007 HONORS GLOBAL CONSUMER CULTURE (3) LEC. 3. Pr. Honors College. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000 or CADS 2007.

CADS 2040 CONSUMER FINANCIAL PLANNING (3) LEC. 2.5. Use of budgeting, credit, savings, investments, and retirement and estate planning to secure individual and family financial success using. Promote understanding and application of fundamentals of insurance, taxation, and personal finance tools.

CADS 2100 INTERIOR DESIGN STUDIO: SPACE PLANNING AND PROCESS (4) LEC/STU. 6. Pr. (CADS 1100). Coreq. CADS 2150. INDS (interior design) majors only, or with departmental approval. Introduction to the formal design process from concept through design development.

CADS 2150 PROJECT MANAGEMENT FOR INTERIOR DESIGNERS (1) LEC. 1. Coreq. CADS 2100. INDS (interior design) majors only, or with departmental approval. Principles of project management, disciplinary collaboration, and professional conduct within the context of the interior design studio workplace.

CADS 2200 INTERIOR DESIGN STUDIO: COMPUTER-AIDED DESIGN (3) LST. 6. Pr. (CADS 2100). Coreq. CADS 3200. INDS (interior design) majors only, or with departmental approval. Application of computer-aided design software, with a focus on developing construction drawings and documentation for interior spaces.

CADS 2300 HISTORY OF INTERIOR DESIGN I (3) LEC. 3. INDS (interior design) or INDX (pre-interior design) majors only, or with departmental approval. Historical survey of interior design and the decorative arts from antiquity through the mid-1800s.

CADS 2350 HISTORY OF INTERIOR DESIGN II (3) LEC. 3. Pr. CADS 2300. INDS (interior design) majors only, or with departmental approval. Historical survey of interior design and the decorative arts from the Industrial Revolution through present day.

CADS 2400 INTERIOR MATERIALS AND COMPONENTS (3) LEC. 3. Pr. CADS 1000 and CADS 1100. INDS (interior design) majors only, or with departmental approval. Introduction to interior surface finishes, textiles, materials, and components.

CADS 2500 INTERIOR DESIGN STUDIO: DESIGN COMMUNICATION (3) STU. 6. INDS (interior design) majors only, or with departmental approval. Development of design communication media and techniques.

CADS 2550 LIGHTING, MECHANICAL, AND ENVIRONMENTAL SYSTEMS (3) LST. Departmental approval. Introduction to the fundamentals of lighting, mechanical, electrical, and plumbing systems within the interior environment. INDS (interior design) majors only, or with

CADS 2600 TEXTILES (3) LEC. 3. Pr. CADS 1600. Natural and man-made fibers, yarns, fabrics, dyes and finishes for textiles for apparel and related products. AMDP major.

CADS 2700 INTRODUCTION TO NONPROFIT ORGANIZATIONS (3) LEC. 3. Introduction to mission, structure, and impact of nonprofit organizations at the local, state, national and international levels.

CADS 2740 ILLUSTRATION TECHNIQUES FOR APPAREL (3) LEC. 1. LAB. 4. Pr. CADS 1740 and CADS 1600. Creative approach to illustrating apparel through the use of varied media and development of illustrative style appropriate for portfolio presentations. APDP Major.

CADS 2750 PRODUCT DEVELOPMENT: TECHNICAL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2740 and CADS 2800. Apparel pattern development through drafting, flat pattern manipulation and draping; custom apparel production. APDP Major.

CADS 2760 VISUAL MERCHANDISING (4) LST. 6. Pr. CADS 1600 or CAHS 1600. History, equipment, application, and theory of display techniques in store and non-store settings.

CADS 2770 COMPUTER-AIDED DESIGN FOR APPAREL (4) LEC. 2, LST. 4. Pr. CADS 1600 and CADS 2740. Principles of aesthetics applied to apparel product development including computer aided design and other presentation techniques.

CADS 2800 APPAREL PRODUCTION MANAGEMENT (4) LEC. 3. LAB. 3. Pr. CADS 1600. Introduction to apparel industry terminology, technology, production methods, and engineering quality into apparel products.

CADS 2900 INNOVATION IN RETAIL AND CONSUMER EXPERIENCES (1) SEM. 1. A seminar on technology and innovations in the retail industry and their impact on consumer experiences and retail business processes.

CADS 3100 LIGHTING DESIGN/ENVIRONMENTAL SYSTEMS (4) LEC. 4. Pr. CADS 2200 and CADS 2400 and CADS 2500. Application of principles and processes of lighting, mechanical, and environmental systems to interior design.

CADS 3150 PROFESSIONAL DEVELOPMENT FOR APPAREL MERCHANDISING CAREER (1) LEC. 1. Pr. CADS 1600 and CADS 2800. Investigation of apparel merchandising careers and professional skill development.

CADS 3200 INTERIOR DESIGN STUDIO: RESIDENTIAL (4) LEC. 1, LST. 6. Pr. CADS 2100. Coreq. CADS 2200. Departmental approval. Development of residential interior design solutions with emphasis on programming and space planning. INDS (interior design) majors only.

CADS 3500 INTERIOR DESIGN PROFESSIONAL PRACTICE (3) LEC. 3. Pr. CADS 3100 and CADS 3200. Exploration of the interior design profession and standard practices.

CADS 3700 GENDER, WEALTH & PHILANTHROPY (3) LEC. 3. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700 or CADS 3707.

CADS 3707 HONORS GENDER, WEALTH AND PHILANTHROPY (3) LEC. 3. Pr. Honors College. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700 or CADS 3707.

CADS 3750 PRODUCT DEVELOPMENT: APPAREL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2750 and CADS 2800 and CADS 2770. Advanced design techniques, including couture production; portfolio and internship planning. ADMP major.

CADS 3800 CONSUMER DECISION MAKING FOR APPAREL AND FASHION PRODUCTS (3) LEC. 3. Pr. CADS 2000 or CADS 2003 or CADS 2007. Analysis of consumer decision making for apparel and fashion products and the factors that impact consumer decisions. AMDP major.

CADS 3810 SOCIAL MEDIA MANAGEMENT FOR APPAREL (3) LEC. 3. Topics in social media management and application of merchandising strategies for apparel businesses. Juniors & Seniors Only; APME and APDP only, ENFB Minor by departmental approval

CADS 3850 MERCHANDISE PLANNING AND CONTROL (3) LEC. 2. LAB. 2. Pr. (COMP 1000 or COMP 1003) and CADS 1600 and (ACCT 2810 or ACCT 2813) or Departmental approval. Application of principles of merchandise management and retail buying to the retailing of consumer goods and services.

CADS 3900 DIRECTED STUDIES (1-3) AAB/IND. SU. Departmental approval. Directed readings and/or individualized research project. Course may be repeated for a maximum of 6 credit hours.

CADS 3920 INDUSTRY EXPERIENCE (3) INT. 3. Pr. CADS 1600. Departmental approval. Supervised industry experience requiring students to spend time working in the industry under supervision. Course may be repeated for a maximum of 6 credit hours.

CADS 3940 STUDY TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) AAB/FLD. Departmental approval. Concentrated study in the U.S. or abroad. Course may be repeated for a maximum of 6 credit hours.

CADS 3970 SPECIAL TOPICS (1-4) LEC. Courses may be repeated for 9 hours. Departmental approval. Standing grade. Course may be repeated for a maximum of 9 credit hours.

CADS 4040 ESTATE PLANNING & PHILANTHROPY (3) LEC. 3. Pr. CADS 2040. CADS 4040 Estate Planning & Philanthropy (3). LEC. 3. Introduction to estate planning concepts and philanthropy strategies for preservation and transfer of family wealth and reflecting family financial and philanthropic goals. Includes legal, tax, financial, and non-financial factors and components.

CADS 4050 CONSUMER TAX PLANNING (3) LEC. 3. Pr. CADS 2040. Study of the impacts of taxation, including the federal income tax, on decisions made by individuals and families throughout the life cycle. Apply economic, legal, and management principles to the family tax planning process.

CADS 4060 RETIREMENT & BENEFITS PLANNING (3) LEC. 3. Pr. CADS 2040. CADS 4060 Retirement & Benefits Planning (3) LEC. 3. Introduction to retirement planning concepts, processes and issues, with attention to designing retirement strategies to meet diverse client needs.

CADS 4100 PHILANTHROPY & NONPROFIT STUDIES LECTURE SERIES (1) LEC. 1. Pr. CADS 2700 and (CADS 3700 or CADS 3707). Lecture series showcasing philanthropic and nonprofit leaders. Course may be repeated for a maximum of 2 credit hours.

CADS 4200 INTERIOR DESIGN SENIOR SEMINAR (1) LEC. 1. Pr. CADS 3200. INDS (interior design) majors only, or with departmental approval. Preparation for professional NCDIQ exam, with emphasis on IDFX fundamentals knowledge. Overview of content, test structure, and progress toward licensure. Review of requirements for practice across a variety of jurisdictions. Examination of the current job market and strategic planning for the first two years of professional practice.

CADS 4700 PORTFOLIO DEVELOPMENT FOR PHILANTHROPY AND NONPROFIT STUDIES (3) LEC. 3. Pr. CADS 2700 and CADS 2040 and CADS 3780. Portfolio development in print, digital, and web formats for students in Philanthropy and Nonprofit Studies.

CADS 4740 CONSUMER FINANCIAL MANAGEMENT APPLICATIONS (3) LEC. 3. Pr. CADS 4040 and CADS 4050 and CADS 4060 and FINC 3200 and FINC 3640. CADS 4740 Consumer Financial Management Applications (3) LEC. 3. Capstone consumer financial planning applying comprehensive planning concepts, processes and issues to development of a complete family financial plan.

CADS 4750 PRODUCT DEVELOPMENT: SPECIALIZED DESIGN (3) STU. 6. Pr. CADS 3750. Specialized design development concepts, techniques, and applications for target markets including children's wear, performance wear, and bridal markets.

CADS 4800 APPAREL ENGINEERING (4) LEC. 3. LAB. 3. Pr. CADS 2800. Coreq. CADS 3750. Planning and problem solving throughout the apparel production process, including methods engineering, time study, costing, CAD. AMDP major.

CADS 4850 ADVANCED EXCEL FOR MERCHANDISING DATA ANALYTICS (3) LEC. 3. LAB. 0. Pr. P/C CADS 3850 or P/C CADS 3853. Advanced techniques of Microsoft Excel for data analytics in merchandising and retail decision making.

CADS 4900 UNDERGRADUATE TEACHING ASSISTANT EXPERIENCE (1-3) LEC/LST. Student must have previously earned an "A" in the course s/he is assisting with. Departmental approval. Student participation as an undergraduate teaching assistant (UTA) for the Consumer and Design Sciences course under the supervision of a faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4910 PRACTICUM IN PHILANTHROPY AND NONPROFIT ORGANIZATIONS (3) PRA. 3. Pr. (CADS 2700 or CADS 2703) and (CADS 3700 or CADS 3703 or CADS 3707). Departmental approval. Supervised practicum experience with a philanthropic or nonprofit organization.

CADS 4920 PHILANTHROPY AND NONPROFIT STUDIES INTERNSHIP (9) INT. Pr. CADS 3780 or CADS 4040. Departmental approval. Supervised 10 week professional internship. 2.0 GPA. Junior standing.

CADS 4930 APPAREL MERCHANDISING, DESIGN AND PRODUCTION MANAGEMENT INTERNSHIP (9) INT. Pr. CADS 3850 or CADS 3750 or CADS 3853. Departmental approval. Supervised 10 week professional internship. 2.0 GPA. Junior standing.

CADS 4950 INTERIOR DESIGN INTERNSHIP (9) INT. Pr. CADS 5100. Departmental approval. Supervised 10 week professional internship. 2.0 GPA. Junior standing.

CADS 4960 SPECIAL PROBLEMS IN DESIGN (1-4) LEC. Departmental approval. A) Apparel, B) Interior Design, C) Visual Merchandising, D) Textile Design. Creative solution of design problems. Course may be repeated for a maximum of 9 credit hours.

CADS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Pr. Honors College. Departmental approval. Readings in specialized topics. Course may be repeated for a maximum of 6 credit hours.

CADS 4980 UNDERGRADUATE RESEARCH IN CONSUMER AND DESIGN SCIENCES (1-3) IND/LEC. SU. Pr. 3.50 GPA. Departmental approval. Participation as an undergraduate research assistant (URA) for a Consumer and Design Sciences research project under the supervision of a CADS faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4997 HONORS THESIS (3) IND. 3. SU. Pr. Honors College. CADS 4967. Departmental approval. Research in specialized topics.

CADS 5100 INTERIOR DESIGN STUDIO: COMMERCIAL (4) LEC/STU. 6. Pr. CADS 3200 and CADS 2550 and CADS 2400. INDS (interior design) majors only, or with departmental approval. Development of commercial interior design solutions with emphasis on contemporary issues in workplace design.

CADS 5150 GLOBAL ISSUES IN INTERIOR DESIGN (3) LEC. 6. Coreq. CADS 5350. INDS (interior design) majors only or with Departmental approval. Explores the impact of designed products, places, and processes within the interior environment on global health and quality of life.

CADS 5200 INTERIOR DESIGN PORTFOLIO (3) LEC. 3. Pr. CADS 2100 and CADS 2200. INDS (interior design) majors only, Development of a professional interior design portfolio and collateral documentation.

CADS 5300 INTERIOR DESIGN STUDIO: HOSPITALITY (4) LEC/STU. 6. Pr. CADS 5100. INDS (interior design) majors only, or with departmental approval. Development of hospitality design solutions with emphasis on industry trends and practice-based approaches. May count either CADS 5300 or CADS 6300.

CADS 5310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 5350 INTERIOR DESIGN STUDIO: ADVANCED DESIGN PROJECT (4) LEC. 1, LST/STU. 6. Pr. CADS 5400. INDS (interior design) majors only, or with departmental approval. Response to a complex interior design challenge through application of design process, resulting in an advanced solution informed by pre-design research. May count for either CADS 5350 or 6350.

CADS 5400 INTERIOR DESIGN STUDIO: DESIGN FOR HEALTH AND WELLNESS (4) LEC/STU. 6. Pr. CADS 5100 and P/C CADS 5150. INDS (interior design) majors only or with departmental approval. Development of interior design solutions for health, wellness, and quality of life. May count either CADS 5400 or 6400.

CADS 5450 HISTORY OF COSTUME (3) LEC. 3. Pr., Core History or departmental approval. AMDP major. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 5450 and CADS 6450.

CADS 5460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. P/C; Core History, Core Literature or departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460.

CADS 5500 APPAREL MERCHANDISING PORTFOLIO (2) LEC. 2. Pr. (CADS 3850 or CADS 3853) and P/C CADS 3150. Portfolio Development in print and digital formats for merchandising students. Departmental approval may be needed.

CADS 5510 DIGITAL RETAILING FOR APPAREL (3) LEC. 3. Pr. CADS 3850 or CADS 3853. Application of various digital retailing and merchandising concepts and strategies for apparel businesses. CADS 3850 or 3853; Juniors & Seniors Only; APME and APDP Only; ENFB Minor by departmental approval

CADS 5600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (AFRI 2000 or ANTH 1000 or ANTH 1003 or ANTH 1007 or COUN 2000 or ECON 2030 or ECON 2033 or ECON 2037 or GEOG 1010 or GEOG 1013 or GEOG 1017 or GSHS 2000 or NATR 2050 or POLI 1050 or POLI 1057 or POLI 1090 or POLI 1093 or POLI 1097 or PSYC 2010 or PSYC 2013 or PSYC 2017 or SOCY 1000 or SOCY 1003 or SOCY 1007 or SOCY 1100 or SUST 2000 or UNIV 2720 or UNIV 2727) or Departmental approval. The role of fiber, textile, and apparel industries in the international economy. AMDP major.

CADS 5610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Pr. (CADS 2000 or CADS 2003 or CADS 2007) and (CADS 3850 or CADS 3853). Strategies for successful global business expansion for textile and apparel retailers. Credit granted for only one of: CADS 5610, CADS 6610, MKTG 4330.

CADS 5700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 5730 HISTORY OF TEXTILES (3) LEC. 3. Pr., Core History or departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 5750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. CADS 3750 and CADS 4800. Team driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750.

CADS 5760 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Pr. CADS 1600 and (CADS 1740 or CADS 2760). Theories explaining fashion dynamics and techniques for forecasting change, with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 5760 and CADS 6760. AMDP major.

CADS 5770 PORTFOLIO DEVELOPMENT FOR APPAREL DESIGN (4) LST. 4. Pr. P/C CADS 3750 and P/C CADS 4800. Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, digital, and web formats for apparel design students.

CADS 5780 INTERNATIONAL PHILANTHROPY (3) LEC. 3. Introduction to the role of international philanthropy in addressing global poverty and how philanthropic practices and behaviors are embedded in cultural contexts. Explores best practices in cross-border philanthropy and volunteering, supporting the development of cross-cultural competencies.

CADS 5790 GRANTMAKING FOR PHILANTHROPISTS (3) LEC. 3. Introduction to philanthropic grantmaking institutions including mission development, needs assessment, proposal analysis, and site visits. Incorporates student philanthropy via development of grant-making strategies and best practices in individual giving.

CADS 5850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Pr. CADS 3850 or CADS 3853. Problem-solving and decision making strategies for retailing apparel, textiles, and other consumer products. Credit will not be given for both CADS 5850 and CADS 6850. AMDP major.

CADS 5860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Pr. CADS 5850. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 6100 INTERIOR DESIGN STUDIO: COMMERCIAL (4) LEC/STU. 6. INDS (interior design) majors only, or with departmental approval. Development of commercial interior design solutions with an emphasis on contemporary issues in workplace design. May count for either CADS 5100 or 6100.

CADS 6150 GLOBAL ISSUES IN INTERIOR DESIGN (3) LEC. 3. CADS graduate students only, or with departmental approval. Explores the impact of designed products, places, and processes within the interior environment on global health and quality of life.

CADS 6200 INTERIOR DESIGN PORTFOLIO (3) LEC. 3. CADS graduate students only, or with departmental approval. Development of a professional interior design portfolio and collateral documentation.

CADS 6300 INTERIOR DESIGN STUDIO: HOSPITALITY (4) LEC/STU. 6. CADS graduate students only, or with departmental approval. Development of hospitality design solution with emphasis on industry trends and practice-based approaches.

CADS 6310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 6350 INTERIOR DESIGN STUDIO: ADVANCED DESIGN PROJECT (4) LEC/STU. 6. CADS graduate students only, or with departmental approval. Response to a complex interior design challenge through application of design process, resulting in an advanced solution informed by pre-design research. May count for either CADS 5350 or 6350.

CADS 6400 INTERIOR DESIGN STUDIO: DESIGN FOR HEALTH AND WELLNESS (4) LEC/STU. 6. Departmental approval. Development of interior design solutions for health, wellness, and quality of life. Graduate standing.

CADS 6450 HISTORY OF COSTUME (3) LEC. 3. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 6450 and CADS 5450. Departmental approval. Graduate standing.

CADS 6460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. Departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460. Graduate standing.

CADS 6500 APPAREL MERCHANDISING PORTFOLIO (2) LEC. 2. Pr. CADS 5850 or CADS 5860. Portfolio development in print and digital formats for merchandising students.

CADS 6510 DIGITAL RETAILING FOR APPAREL (3) LEC. 3. Application of various digital retailing and merchandising concepts and strategies for apparel businesses. Graduate standing or departmental approval needed.

CADS 6600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Departmental approval. The role of fiber, textile, and apparel industries in the international economy. Credit will not be given for both CADS 5600 and CADS 6600. Graduate standing.

CADS 6610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Strategies for successful global business expansion for textile and apparel retailers. Credit given for only one of: CADS 5610, CADS 6610, MKTG 4330. Departmental approval.

CADS 6700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 6730 HISTORY OF TEXTILES (3) LEC. 3. Departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 6750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Team-driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750. Departmental approval. Graduate standing.

CADS 6760 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Departmental approval. Theories explaining fashion dynamics and techniques for forecasting change with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 6760 and CADS 5760.

CADS 6770 PORTFOLIO DEVELOPMENT FOR APPAREL DESIGN (4) LST. 4. Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, digital and web formats for an apparel design focus. Departmental approval needed. May count either CADS 5770 or CADS 6770.

CADS 6780 INTERNATIONAL PHILANTHROPY (3) LEC. 2.5. Introduction to the role of international philanthropy in addressing global poverty and how philanthropic practices and behaviors are embedded in cultural contexts. Explores best practices in cross-border philanthropy and volunteering, supporting the development of cross-cultural competencies.

CADS 6790 GRANTMAKING FOR PHILANTHROPISTS (3) LEC. 3. Introduction to philanthropic grantmaking institutions including mission development, needs assessment, proposal analysis, and site visits. Incorporates student philanthropy via development of grant-making strategies and best practices in individual giving.

CADS 6850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Departmental approval. Problem-solving and decision making strategies for retailing, apparel, textiles, and other consumer products. Credit will not be given for both CADS 6850 and CADS 5850.

CADS 6860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 7040 PROTOCOL FOR GRADUATE STUDY (1) LEC. 1. SU. Departmental approval. Introduction to policies, practices, and expectations for successful completion of the graduate degree.

CADS 7050 RESEARCH METHODS IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. CADS 7060. Research and investigation methods appropriate to the study of consumer and design sciences.

CADS 7060 SURVEY OF CONSUMER AND DESIGN SCIENCES RESEARCH (3) LEC. 3. Presentation and discussion of a broad array of research topics to support literature review development.

CADS 7100 ENVIRONMENTAL DESIGN THEORIES AND APPLICATIONS (3) LEC. 3. Theories, methodologies, and current issues relevant to interior design; sociological, psychological, ecological, and post-modern perspectives. Departmental approval for Pre-requisites.

CADS 7200 AESTHETICS THEORY IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. P/C CADS 7050. Review of theories of aesthetics focusing on aesthetic experience and response as a function of object, perceiver, and situational properties. Graduate standing.

CADS 7530 SUSTAINABILITY THEORY AND APPLICATIONS (3) LEC. 3. Pr. P/C CADS 7050. Departmental approval. Overview of current sustainability theories, research, and methodologies from the perspectives of different fields of study. Evaluation of literature and practices in the apparel and textile industrial complex, interior design practice, and related products and services through people, processes, and the environment. Development and presentation of original scholarly or creative design work within sustainability frameworks.

CADS 7670 SOCIAL PSYCHOLOGICAL THEORIES IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. P/C CADS 7050. Examination of theories that explain the social-psychological aspects of consumer behavior related to apparel and design sciences.

CADS 7690 CONSUMER THEORY IN APPAREL AND INTERIORS (3) LEC. 3. Pr. CADS 7050. Departmental approval. Overview of various theories used in consumer research with an emphasis on their application in apparel, merchandising, design, and interiors.

CADS 7900 DIRECTED STUDIES (1-3) IND. SU. Course may be repeated for a maximum of 6 credit hours.

CADS 7910 SUPERVISED TEACHING IN CONSUMER AND DESIGN SCIENCES (1) AAB/IND. 1. SU. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

CADS 7920 GRADUATE INTERNSHIP (3) INT. 3. Departmental approval. Supervised professional experience in the United States or internationally.

CADS 7930 ADVANCED DESIGN PROJECTS (1-6) IND. SU. Departmental approval. Independent execution of advanced design work. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Course may be repeated for a maximum of 6 credit hours.

CADS 7940 STUDY/TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) FLD. SU. Departmental approval. Concentrated study/travel in the U.S. or internationally. Course may be repeated for a maximum of 6 credit hours.

CADS 7950 SEMINAR (1) SEM. 1. SU. Departmental approval. Research presentations and discussion. Course may be repeated for a maximum of 3 credit hours.

CADS 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Directed readings in textiles, apparel, interiors and retailing. Course may be repeated for a maximum of 6 credit hours.

CADS 7970 SPECIAL TOPICS IN DESIGN (1-6) RES. Departmental approval. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Independent execution of advanced design work. Course may be repeated for a maximum of 6 credit hours.

CADS 7980 GRADUATE PROJECT (1-3) RES. Departmental approval. In-depth, integrative research in a particular project related to apparel, textiles, interiors or consumer behavior. Course may be repeated for a maximum of 6 credit hours.

CADS 7990 RESEARCH AND THESIS (1-10) AAB/MST. Course may be repeated with change in topics.

CADS 8100 BRANDING RESEARCH AND THEORIES IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. CADS 7050. Critical examination of theories and methodological issues in branding research and application in the fields of consumer and design sciences.

CADS 8950 INDUSTRY ISSUES SEMINAR (1) LEC. 1. SU. Research presentations and discussions on issues facing consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8960 CURRENT ISSUES IN CONSUMER AND DESIGN SCIENCES (1-3) LEC. 1-3. Departmental approval. Examination of current issues in consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Topics related to various aspects of consumer and design sciences. Course may be repeated for a maximum of 9 credit hours.

CADS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Global Studies/Human Sciences Courses

GSHS 2000 GLOBAL STUDIES HUMAN SCIENCES (3) LEC. 3. An introduction to global studies with emphasis on topics relevant to Human Sciences majors.

GSHS 2007 HONORS GLOBAL STUDIES HUMAN SCIENCES (3) LEC. 3. Pr. Honors College. An introduction to global studies with emphasis on topics relevant to Human Sciences majors.

GSHS 3000 GLOBAL STUDIES IN HUMAN SCIENCES LECTURE SERIES (1) LEC. 1. Pr. GSHS 2000. Coreq. GSHS 3010. Invited speakers and lectures will explore global studies topics from a human sciences perspective.

GSHS 3010 PROFESSIONAL DEVELOPMENT IN GLOBAL STUDIES (2) LEC. 2. Pr. GSHS 2000. Coreq. GSHS 3000. Job-seeking and career development skills for Global Studies Professionals, based upon individual needs.

GSHS 3970 SPECIAL TOPICS GLOBAL STUDIES IN HUMAN SCIENCES (1-3) LEC. 1-3. Departmental approval. Study of topics of special interest beyond the current GSHS course offerings. Course may be repeated for a maximum of 9 credit hours.

GSHS 4920 GLOBAL STUDIES INTERNSHIP (12) INT. Pr. GSHS 2000 and GSHS 3000 and GSHS 3010. Supervised professional internship. Senior standing and 2.25 GPA.

GSHS 4980 RESEARCH GLOBAL STUDIES IN HUMAN SCIENCES (1-6) RES. 1-6. Pr. GSHS 2000 and GSHS 3000. Research in Global Studies in Human Sciences Course may be repeated for a maximum of 6 credit hours.

GSHS 4997 HONORS THESIS (1-6) LEC. 1-6. SU. Pr. GSHS 2000 and GSHS 3000 and GSHS 3010 and GSHS 4920. Honors thesis course for Global Studies in Human Sciences majors. Course may be repeated for a maximum of 6 credit hours.

GSHS 5000 GLOBAL STUDIES IN HUMAN SCIENCES CAPSTONE (3) LEC. 3. Pr. GSHS 2000 and GSHS 3000 and GSHS 4920 and GSHS 3010. A capstone course designed to bring global studies issues that are relevant to the human sciences field into focus through problem-based learning.

GSHS 5050 DESIGN THINKING IN GLOBAL STUDIES IN HUMAN SCIENCES (3) LEC. 3. Pr. (GSHS 2000 or GSHS 2007) and GSHS 3000 and GSHS 3010. Application of design thinking methodology to understand global issues in the Human Sciences.

GSHS 6050 DESIGN THINKING IN GLOBAL STUDIES IN HUMAN SCIENCES (3) LEC. 3. Application of design thinking methodology to understand global issues in the Human Sciences.

GSHS 6920 GRADUATE INTERNSHIP IN DEVELOPMENT PRACTICE (1-3) INT. Departmental Approval. Supervised professional internship. Course may be repeated for a maximum of 3 credit hours.

GSHS 7040 PROTOCOL FOR MDP GRADUATE STUDY (1) LEC. 1. SU. Departmental approval. Introduction to policies, practices, and expectations for successful completion of the graduate degree.

GSHS 7850 RESEARCH SEMINAR FOR MDP PROGRAM (1) LEC. 1. SU. Departmental approval. Current topics in development research.

GSHS 7950 APPLIED RESEARCH IN DEVELOPMENT (1) RES. 1. Departmental approval. Applied research in development.

GSHS 7980 INTEGRATED DEVELOPMENT PROJECT (3) LEC. 3. Departmental approval. Integrates knowledge gained from MDP courses and applies that knowledge to address an issue in development.

Hospitality Management Courses

HOSP 1010 INTRODUCTION TO HOSPITALITY MANAGEMENT (3) LEC. 3. Overview of the hotel, restaurant, club, and travel industries and their interaction.

HOSP 1050 FOOD SAFETY AND SANITATION (1) LEC. 1. HOSP Major, or Departmental approval. Introduction to food sanitation and safety practices in foodservice operations.

HOSP 2000 PRINCIPLES OF SERVICE MANAGEMENT (3) LEC. 3. This course will address the key performance indicators service professionals and their front line personnel in the broad services sector and the hospitality industry in particular, must address in an effort to set themselves apart competitively as well as grow and sustain market share.

HOSP 2300 HOSPITALITY LAW (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010). or Departmental Approval. Legal systems and laws relevant to the management of restaurants, hotels, private clubs and other hospitality operations.

HOSP 2350 CULINARY FUNDAMENTALS (3) LEC. 2. LAB. 4. HOSP Major, WLEM, or Departmental approval. Introduction to fundamental culinary skills, methods and techniques used in the production of a variety of culinary dishes.

HOSP 2400 FOOD PRODUCTION AND SERVICE (2) LEC. 2. Pr. HOSP 1010 and (HOSP 1050) and (HOSP 2350). Coreq. HOSP 2401. Food Production and Service - Lecture Component will introduce students to the theoretical concepts surrounding front- and back-of-the-house across different foodservice establishments. Students will be guided to understand the current challenges and trends in the foodservice industry.

HOSP 2401 FOOD PRODUCTION AND SERVICE LAB (1) LAB. 5.5. Pr. (HOSP 1010) and (HOSP 1050) and (HOSP 2350). Coreq. HOSP 2400. Food Production and Service (Lab Component) will introduce students to the operational experience and skillsets surrounding front- and back-of-the-house across different foodservice establishments. This variety of hands-on learning experiences aims to provide a comprehensive understanding of food production and service in diverse settings.

HOSP 2500 LODGING OPERATIONS (2) LEC. 2. LAB. 0. Coreq. HOSP 2501. Lodging operations management, with emphasis on guest cycle.

HOSP 2501 LODGING OPERATIONS LAB (1) LEC. 0. LAB. 3, LAB. 0. Pr. P/C HOSP 2500. Coreq. HOSP 2500. This course offers students hands-on, practical experience in a real hotel environment. Participants will actively engage in various shifts across key departments, including front office operations, housekeeping, and laundry services.

HOSP 2600 EVENT OPERATIONS (3) LEC. 3. An analysis of each component pertinent to the planning and operations of a hospitality event. Topics such as strategic planning, event design, logistics, staging, marketing, and event evaluation will be discussed.

HOSP 2910 HOSPITALITY PRACTICUM (1) PRA. Pr. HRMT 1010 or HOSP 1010. Hospitality Major Only. Rotational perspective on the management and operation of the Auburn University Hotel and Conference Center.

HOSP 2940 PROFESSIONAL DEVELOPMENT IN HOSPITALITY (2) LEC. 2. Introduces the concepts of career planning and preparation for the hospitality industry. Hospitality Management Major.

HOSP 3200 HOSPITALITY FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (ACCT 2810 or ACCT 2813 or ACCT 2817 or ACCT 2110 or ACCT 2113 or ACCT 2117). Hospitality Management Major only. Financial systems and statements in the hospitality industry.

HOSP 3400 HOSPITALITY MARKETING (3) LEC. 3. Pr. (P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317). Junior standing and Hospitality Major Only or Departmental approval. Service marketing concepts and issues as applied to the global hospitality industry.

HOSP 3450 ADVANCED CULINARY ARTS (3) LEC. 2. LAB. 5. Pr. HOSP 1010 and HOSP 2350. HOSP Major or Departmental Approval. This course is an in-depth study of intermediate and advanced level processes in contemporary culinary arts and food production.

HOSP 3460 MANAGING EVENTS IN THE LIVE ENTERTAINMENT INDUSTRY (3) LEC. Pr. HOSP 2600. Departmental approval. This course is designed to expose students to live entertainment sub-sector of the events industry by focusing on the management, marketing and venue operations of three major business segments, specifically, spectator sports, live concerts, and performing arts. Through a series of lectures, invited speaker seminars, group discussions, and real-world case studies, students will learn a variety of concepts including stakeholder management, financing, logistics, sponsorship, marketing, contract negotiations and rider management among other related topics.

HOSP 3750 BAKING AND PATISSERIE (3) LEC. 2. LAB. 6. Pr. HOSP 2350. HOSP Major or Departmental Approval. This course includes the study of bakery and patisserie methods and principles, emphasizing classical and contemporary plated desserts and baked goods.

HOSP 3800 HOSPITALITY INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HRMT 1010 or HOSP 1010. Hospitality Major only or Departmental Approval. Strategic and operational issues surrounding introduction of technology in hospitality. Must be minimum of Junior standing.

HOSP 4200 HOSPITALITY FACILITIES MANAGEMENT (2) LEC. 2. LAB. 0. Pr. (HOSP 2500 and HOSP 2501). Design and operation of hospitality facilities.

HOSP 4201 HOSPITALITY FACILITIES MANAGEMENT LAB (1) LEC. 0. LAB. 3, LAB. 0. Pr. (HOSP 2500) and HOSP 2501. Laboratory course for HOSP 4200.

HOSP 4300 FOOD AND BEVERAGE MANAGEMENT (2) LEC. 2. Pr. (HOSP 2400 and HOSP 2401). Coreq. HOSP 4301. Food and Beverage Management (Lecture Component) will introduce students to the theoretical concepts surrounding front-and-back-of-the-house in a commercial restaurant operation.

HOSP 4301 FOOD AND BEVERAGE MANAGEMENT LAB (1) LAB. 5.5. Pr. HOSP 2400 and (HOSP 2401). Coreq. HOSP 4300. •Food and Beverage Management (Lab Component) will introduce students to the operational (hands-on experience) concepts surrounding front- and back-of-the-house in a commercial restaurant operation. This course consists of two components: weekly-basis lectures and weekly-basis labs

HOSP 4350 ADVANCED RESTAURANT MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400) and (HRMT 4300 or HOSP 4300). Advanced concepts and managerial issues of restaurant management.

HOSP 4480 GLOBAL GASTRONOMY (3) LEC. 2. LAB. 5. Pr. (HRMT 2400 or HOSP 2400) and HOSP 3450 and HOSP 3750. HOSP Major or Departmental Approval. The study of classical cooking skills associated with the preparation and service of international and ethnic cuisines. Additionally, food will be explored from a historical, cultural, economic and geopolitical perspective in each of the regions/countries studied.

HOSP 4500 STRATEGIC HOSPITALITY MANAGEMENT (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010) and (MNGT 3100 or MNGT 3103 or MNGT 3107 or MNGT 3810). Hospitality Major only or Departmental Approval. Development and implementation of strategic management in hospitality.

HOSP 4510 SPECIAL EVENTS (3) LEC. 3. Pr. HRMT 2600 or HOSP 2600. This course teaches students all the intricacies of special events. Students learn about the different types of special events and how different they are from each other. Students should be able to plan, organize and manage. Hospitality Major Only. Junior and Senior Standing.

HOSP 4570 GLOBAL HOSPITALITY (3) LEC. 3. Contemporary issues confronting the global hospitality industry. Management and marketing operations emphasized. Seniors only, HOSP and GSHS majors only.

HOSP 4600 BEVERAGE APPRECIATION (3) LEC. 3. 21 Years Old. Junior standing. Hospitality Major Only or Departmental Approval. Production, selection, service, and sensory evaluation of alcoholic and non-alcoholic beverages.

HOSP 4700 HOSPITALITY PROPERTY DEVELOPMENT & MANAGEMENT (3) LEC. 3. Pr. HOSP 2500 or HRMT 2500. This course introduces students to the complex world of resort management while also providing an understanding of the hotel/resort product development cycle from development to opening and management. It explores management responsibilities for project development, construction, supervision, pre-opening requirements, and operations. Senior only.

HOSP 4920 INTERNSHIP IN HOSPITALITY (4) INT. 4. Pr. 2.20 GPA. Departmental approval. HOSP major, 2.2 cumulative GPA, senior Standing, and 600 hours (during the collegiate experience) of work experience in hospitality. Application of principles and theories of hospitality in a professional hospitality setting.

HOSP 4930 DIRECTED STUDIES IN HOSPITALITY MANAGEMENT (1-3) LEC. Departmental approval. Directed Studies in Hospitality Management Pr., School Approval. Advanced individual research and study in Hospitality Management under the direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

HOSP 4970 SPECIAL TOPICS IN HOSPITALITY MANAGEMENT (3) LEC. 3. Departmental approval. Special Topics in Hospitality Management Pr., School Approval. A course addressing unique and/or current issues not covered in a regularly scheduled course.

HOSP 4980 UNDERGRADUATE RESEARCH AND STUDY (1-3) IND. Departmental approval. Undergraduate Research and Study Course may be repeated for a maximum of 3 credit hours.

HOSP 5380 STUDY TRAVEL IN HOSPITALITY (1-12) AAB/LLB. Departmental approval. Concentrated study in hospitality management in the US or international locations. Course may be repeated for a maximum of 12 credit hours.

HOSP 5460 THE EVENT EXPERIENCE - STRATEGIC DESIGN AND TECHNICAL PRODUCTION (3) LEC. 2. LAB. 4. Pr. HOSP 4510. This course familiarizes students with key points involved in the process of event design and technical production for a real-world event fundraiser. Students will evaluate a venue’s challenges and assets to execute the most fitting, and feasible, event design concept based on client needs and budgetary considerations. Additionally, students will consider the right audiovisual needs from a technical production vantage point to elevate the event attendee experience, award ceremony, and auction. Must be Senior Standing.

HOSP 5461 CATERING AND EVENT MANAGEMENT LABORATORY (2) LAB. 2. Pr. HOSP 5460 or HRMT 5460. Departmental approval. Provides students with a leadership practical experience in the planning, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 5530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Junior standing. Hospitality Major only or departmental approval. Role of quality service in attaining and retaining customers with emphasis on organizational strategic mission. May count HOSP 5530 or 6530.

HOSP 5540 CONFERENCE COORDINATION (3) LEC. 3. Pr. HOSP 1010 or HRMT 1010. Junior standing. Systems for managing conference coordination. May count HOSP 5540 or 6540.

HOSP 5550 CLUB MANAGEMENT (3) LEC. 3. Pr. HOSP 1010 or HRMT 1010. Junior standing. Examination of unique features, opportunities and problems associated with club management. Credit will not be given for HOSP 5550 and HOSP 6550.

HOSP 5590 RECREATIONAL FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. HRMT 2400 or HOSP 2400 or Departmental approval. Methods and systems of managing foodservice operations recreational facilities. Credit is not allowed for both HOSP 5590 and HOSP 6590.

HOSP 6380 STUDY TRAVEL IN HOSPITALITY (1-6) AAB/LLB. Departmental approval. Concentrated study in hospitality management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

HOSP 6460 CATERING AND EVENT MANAGEMENT (1) LEC. 1. Departmental approval. Exploring advanced management topics in catering and event planning including risk, liability, crisis and other challenges faced by the industry.

HOSP 6461 CATERING AND EVENT MANAGEMENT (2) LAB. 4. Pr. HRMT 6460 or HOSP 6460. Departmental approval. Provides students with a leadership practical experience in the planing, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 6530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Departmental approval. This course introduces students to the important role that quality service plays in attaining and retaining customers in the pursuit of an organizations strategic mission. Credit will not be given for HOSP 6530 and HOSP 5530.

HOSP 6540 CONFERENCE COORDINATION (3) LEC. 3. Departmental approval. Systems for the management of the conference coordination segment of the hospitality industry. Credit will not be given for HOSP 6540 and HOSP 5540.

HOSP 6550 CLUB MANAGEMENT (3) LEC. 3. Departmental approval. Unique features, opportunities, and problems associated with resort and club management. Credit will not be given for HOSP 6550 and HOSP 5550.

HOSP 6590 RECREATIONAL FOODSERVICE MANAGEMENT (3) LEC. 3. Departmental approval. Methods and systems of managing foodservice operations in recreational facilities. Credit will not be given for both HOSP 6590 and HOSP 5590.

HOSP 7000 HOSPITALITY ENTERPRISE (3) LEC. 3. Emphasizes aspects of hospitality enterprise including developmental, motivational, financial and human resource issues through contemporary academic literature.

HOSP 7010 ADVANCED TOURISM ANALYSIS (3) LEC. 3. This course acquaints students with selected theories, methods, techniques, current issues, practices, and principles that govern tourism behavior.

HOSP 7050 ADVANCED HOSPITALITY OPERATIONS (3) LEC. 3. This course familiarizes students with theory, research and methodological issues, current issues, practices, and principles in hospitality operations. Students will be exposed to a broad range of academic research and practice-oriented readings such as case studies and book chapters in the area of customer relations management, service quality, sustainable operations and corporate social responsibility, strategic management, human resource management, financial management, etc. Must be in Graduate Standing.

HOSP 7060 HUMAN RESOURCE MANAGEMENT IN HOSPITALITY ORGANIZATIONS (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course is designed to provide students with a deep understanding of HR practices within the hospitality industry. It covers key topics such as recruitment, training, performance management, employee relations, compensation, HR theories, and contemporary HR issues specific to hospitality organizations.

HOSP 7070 FINANCE AND REVENUE MANAGEMENT IN HOSPITALITY INDUSTRY (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course offers a comprehensive understanding of finance and revenue management in the hospitality industry. Key topics include revenue management, financial statement analysis, sustainability in financial performance, risk management, fraud and ethics, and cross-cultural challenges. Students will learn to interpret financial data, address hospitality industry-specific challenges, and make strategic decisions to improve efficiency and profitability in hospitality operations.

HOSP 7090 CONSUMER BEHAVIOR IN HOSPITALITY AND TOURISM (3) LEC. 3. This course aims to explore and critically examine current debates, critical reflections of contemporary ideas, controversies and pertinent queries relating to the rapidly expanding discipline of consumer behavior in hospitality and tourism. Must be a student enrolled in the HOSP graduate program.

HOSP 7100 THE BUSINESS OF BREWING (3) DSL/LEC. 3.

HOSP 7110 BREWING MATERIALS (3) DSL/LEC. 3. This course provides students with an introduction to all types of brewing ingredients including grain, hops, and adjuncts. Baccalaureate degree and 21 years of age.

HOSP 7120 SCIENCE OF BREWING I (3) DSL/LEC. 3. Theoretical and applied brewing science, recipe formulation yeast biology and genetics part I. Baccalaureate degree and 21 years of age.

HOSP 7130 SCIENCE OF BREWING II (3) DSL/LEC. 3. Theoretical and applied brewing science, recipe, formulation, yeast biology and genetics part 2. Baccalaureate Degree, 21 years of age.

HOSP 7140 FACILITIES AND OPERATIONS (3) LEC. 3. This course will focus on the facilities required to produce a high quality, safe and sanitary product. Baccalaureate Degree, 21 years of age.

HOSP 7150 BREWING MICROBIOLOGY (3) LEC. 3. Pr. (HOSP 7116 or HOSP 7110) and (HOSP 7126 or HOSP 7120) and (HOSP 7136 or HOSP 7130). Brewing Microbiology discusses the microbes that are essential to successful beer production and processing, and the ways they can pose hazards in terms of spoilage and sensory quality. The course examines the properties and management of these microorganisms in brewing, along with tactics for reducing spoilage and optimizing beer quality.

HOSP 7160 APPLIED ENGINEERING IN BREWING (3) LEC. 3. This course will be an introduction of basic engineering principles and how they can be applied to the brewing process. These principles will then be applied in the practice of basic engineering scale-up with emphasis on larger scale brewing equipment and processes.

HOSP 7170 BEER DISTRIBUTION SYSTEMS (3) LEC. 3. Brewery supply chain management in the context of suppliers, distributors, retailers, and customers. Focus on components of production/packaging, impact of supply chain disruption, distribution pathways, and the three-tier system.

HOSP 7180 QUALITY MANAGEMENT AND BREWING ANALYTICS (3) LEC. 3. Quality Management and Brewing Analytics examines the establishment of quality management programs in the brewery and the various sensory and analytical approaches to assessing overall beer quality.

HOSP 7500 GLOBAL HOSPITALITY STRATEGY (3) LEC. 3. Departmental approval. The course addresses the strategic issues and unique challenges encountered by international hospitality endeavors.

HOSP 7750 ADVANCED LODGING MANAGEMENT (3) LEC. 3. LAB. 0, LEC. 0. A high-level examination of the main elements involved in the successful management of a lodging business including rooms division, food and beverage, sales and marketing, revenue management, accounting, housekeeping, and engineering maintenance. The course provides students with relevant research addressing the latest trends affecting the operations of the lodging business.

HOSP 7910 PRACTICUM IN BREWING SCIENCE (3) DSL/PRA. SU. Application of principles and theories of brewing in an industry setting.

HOSP 7920 PROFESSIONAL INTERNSHIP IN HOSPITALITY MANAGEMENT (1-3) INT. SU. Departmental approval. Application and analysis of principles and theories of hospitality in a professional hospitality setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 3 credit hours.

HOSP 7960 SPECIAL PROBLEMS (1-3) DSL/IND. An independent research experience under the supervision of a faculty member from the Hospitality Management Program to allow pursuit of specific interests in hospitality and tourism usually not covered in other course offerings. Graduate standing. Course may be repeated for a maximum of 6 credit hours.

HOSP 7980 NON-THESIS RESEARCH (1-4) RES. 1-4. Individual masters research. May be repeated for credit. Course may be repeated with change in topics. No more than six hours may be counted toward meeting degree requirements. Must be a HOSP major. Course may be repeated for a maximum of 6 credit hours.

HOSP 7990 RESEARCH AND THESIS (1-4) RES. 1-4. Individual masters research. May be repeated for credit. Course may be repeated with change in topics. No more than four hours may be counted toward meeting degree requirements. Must be a HOSP major.

HOSP 8020 NEW FACULTY DEVELOPMENT IN HOSPITALITY (2) SEM. 2. SU. The course aims to engage graduate students in a discussion about the normative graduate education experience, faculty expectations on productivity around this experience, career preparation and placement, and navigating the promotion and tenure process. Must be a HOSP Graduate student or have Departmental Approval.

HOSP 8860 CURRENT ISSUES IN HOSPITALITY MANAGEMENT (3) LEC. 3. Analysis of current issues in the hospitality industry with emphasis on management.

HOSP 8870 ADVANCED HOSPITALITY MANAGEMENT RESEARCH AND APPLICATIONS (3) LEC. 3. Comprehensive review of the academic research process in the context of hospitality management.

HOSP 8880 THEORETICAL DEVELOPMENTS FOR HOSPITALITY (3) LEC. 3. The nature of hospitality theory and its development.

HOSP 8910 SUPERVISED TEACHING (1) IND. 1. Individual teaching experience under the supervision of a faculty member in hospitality management. Exploration of a variety of instructional methods and active learning strategies as well as related educational issues, such as grading, classroom management, and student motivation.

HOSP 8970 GRANTSMANSHIP FOR HOSPITALITY AND TOURISM RESEARCH (3) LEC. 3. This course will provide students with the necessary skills to develop a competitive grant proposal. It will also cover information about grants development, including identifying various funding resources, writing a request for funding letter, planning a budget, evaluating the quality of a proposal, developing collaborations, and implementing strategies for research. NDHM graduate students or Departmental Approval.

HOSP 8990 RESEARCH AND DISSERTATION (1-10) DSR. 1-10. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics. Must be HOSP major.

Human Dev Family Studies Courses

HDFS 1800 FUNDAMENTALS IN HDFS: BUILDING PROFESSIONAL SKILLS FOR CAREER GROWTH AND EXPLORATION (2) LEC. 2. Introduction to HDFS as a profession, career pathways, ePortfolio development, and foundational professional writing skills.

HDFS 1810 INTRODUCTION TO THE FIELD OF CHILD LIFE (1) LEC. 1. Students will be introduced to the field of child life, including but not limited to the realities of child life, clinical requirements for certification, document preparation, alternative contexts for child life, and general child life skills.

HDFS 2000 MARRIAGE AND FAMILY IN A GLOBAL CONTEXT (3) LEC. 3. Examination of marriage and family systems, including their interface with the broader socio-cultural context.

HDFS 2010 LIFESPAN HUMAN DEVELOPMENT IN FAMILY CONTEXT (3) LEC. 3. This course examines human development from prenatal life through late adulthood, emphasizing biological, cognitive, and psychosocial processes, theory, and research methods.

HDFS 2020 RESEARCH METHODS FOR DEVELOPMENTAL AND FAMILY SCIENCE (3) LEC. 3. The focus of this course is on the methods used to conduct research in human developmental and family sciences.

HDFS 2030 APPLIED PROFESSIONAL SKILLS IN HDFS (2) LEC. 2. Pr. P/C HDFS 1800. Development and application of professional skills essential for careers in Human Development and Family Science (HDFS). Emphasis on communication, ethical decision-making, leadership, teamwork, and professional development. Includes practical experiences, career planning, and strategies for success in various professional settings.

HDFS 2040 ANALYTICS FOR THE SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. (MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617). Introduction to basic data analysis (by Excel) used in social and behavioral science research, including descriptive and inferential techniques and elements of research design.

HDFS 2050 ISSUES AND TRENDS IN EARLY CHILD DEVELOPMENT (3) LEC. 3. This course will examine the history of the field of early care and education, specifically in regard to young children. Theorists such as Montessori, Dewey, Piaget and Vygotsky will be discussed. Modern approaches such as Reggio Emilia, High Scope, Forest Schools and Open Schools will be examined. Students will learn about laws pertaining to young children as well as avenues for advocacy. Emphasis will be placed on the importance of building family and community relationships as well as becoming a professional in the early childhood field.

HDFS 2100 THE SCIENCE OF HUMAN CONNECTIONS (3) LEC. 3. From childhood bonds to lifelong partnerships, this course delves into the science of relationships and family dynamics through a developmental and theoretical lens.

HDFS 2200 MENTAL HEALTH AWARENESS (3) LEC. This course will improve students' mental health literacy, help students be able to better and more quickly respond to their own and their social networks' mental health concerns, and identify resources across local, regional, and national domains. It is designed to provide introductory knowledge of mental health issues and their effects on systems (e.g. family, educational, judicial), learn about the sociocultural history of mental health.

HDFS 3010 CHILD DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA. Social, emotional, cognitive, language, and physical development from conception to adolescence, with a special focus on development within the family and other sociocultural contexts.

HDFS 3030 ADOLESCENT DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA. HDFS 2010 or HDFS 2013. Analysis of adolescent development with emphasis on family context and developmental outcomes employing an ecological framework. Prerequisites: 2.25 GPA. HDFS 2010

HDFS 3040 HUMAN SEXUALITY (3) LEC. 3. Pr. HDFS 2000 or (SOCY 1000 or SOCY 1007) or (PSYC 2010 or PSYC 2017). This course examines the multifaceted dimensions of human sexual development, familial dynamics, and societal influences that shape our understanding of sexuality from infancy to late adulthood.

HDFS 3050 ADULT DEVELOPMENT AND AGING (3) LEC. 3. Exploration of the transformations in physical, cognitive, social and emotional functioning in adulthood, with an emphasis on the second half of this period of life.

HDFS 3060 PATTERNS OF FAMILY INTERACTION (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000 or HDFS 2003. Examination of family process and interaction, emphasizing major conceptual frameworks of family development.

HDFS 3080 DEVELOPMENT OF INTERPERSONAL RELATIONSHIPS (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000 or HDFS 2003. This course will focus on the development of social competence and interpersonal relationships. We will cover models of socialization in the family, peer experiences and relationships from childhood through early adulthood, behaviors associated with social acceptance and rejection, emotional and social-cognitive underpinnings of social competence, and supportive communication through the lifespan.

HDFS 3110 INFANT AND TODDLER DEVELOPMENT (3) LEC. 3. Pr. P/C HDFS 2010 or P/C HDFS 2013. Infant and toddler development from pre-birth through 36 months, with a focus on theory, research, and practice.

HDFS 3130 PEER RELATIONSHIPS IN CHILDHOOD AND SOCIAL SKILLS TRAINING (3) LEC. 2. LAB. 3. Departmental approval. This class will focus on theory and research on peer relationships. Students will be able to use the theory and research to work directly with children to improve their conduct and social skills. Students will discuss assigned, primary source readings and work in teams with a small group of elementary school children to improve the children's social understanding and behavior. This course includes field experience.

HDFS 3460 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN (3) LEC. 3. Pr. P/C HDFS 3010. Coreq. HDFS 3461. This course uses previously gained child development knowledge and applies it to teacher-child relationships and interactions with young children. Students will learn to take their knowledge of child development and apply it in a preschool classroom at the Auburn University Early Learning Center.

HDFS 3461 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN LAB (1) LAB. 3. Pr. P/C HDFS 3010. Coreq. HDFS 3460. Laboratory Class for HDFS 3460

HDFS 3470 LEARNING EXPERIENCES FOR YOUNG CHILDREN (3) LEC. 3, FLD/LEC. 1. Pr. HDFS 3460. Coreq. HDFS 3471. Child development knowledge applied to preschool curriculum planning.

HDFS 3471 LEARNING EXPERIENCES FOR YOUNG CHILDREN LAB (1) LAB. 3. Pr. HDFS 3010 and HDFS 3460 and HDFS 3461. Coreq. HDFS 3470. Laboratory Class for HDFS 3470

HDFS 3500 HOSPITALIZED CHILDREN AND THEIR FAMILIES (3) LEC. 3. Pr. P/C HDFS 3010. Sophomore standing in HDFS major or a major in a related field. Theories and research about children and their families in hospital settings. Course is taught by Certified Child Life Specialist through a child life lens.

HDFS 3510 THERAPEUTIC PLAY (3) LEC. 3. Pr. P/C HDFS 3010. Theories and research on play, play's use in many contexts, and the many therapeutic qualities of play will be discussed. Course is taught by Certified Child Life Specialist through a child life lens.

HDFS 3520 CLINICAL INTRODUCTION FOR CHILD LIFE (3) LEC. 3. LAB. 0, SEM. 0. Application of child life clinical skills and preparation for Association of Child Life Professionals (ACLP) internship. Course is taught by Certified Child Life Specialist through a child life lens. Junior standing in HDFS - Child Life major.

HDFS 3700 FAMILY LIFE EDUCATION (3) LEC. 3. Learning how to help families build knowledge and skills, focusing on their strengths to function at their optimal levels. Exploring how to help create strong, healthy families.

HDFS 3910 PRACTICUM (1-6) PRA. SU. Pr., Departmental approval. Directed experience in a professional setting. A) Human Development; B) Family Studies; C) Marriage and Family Therapy. Course may be repeated for a maximum of 6 credit hours.

HDFS 3930 SERVICE LEARNING IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-6) AAB/LEC. Application of HDFS-relevant knowledge to real-life situations through active participation in a directed community service experience. A.) Auburn University Early Learning Center; B.) Harris Early Learning Center of Birmingham; C.) Other Community Placements. Course may be repeated for a maximum of 6 credit hours.

HDFS 3940 CHILD LIFE PRACTICUM (3) PRA. Pr. P/C HDFS 4500. Directed experience in a healthcare setting under the supervision of a certified child life specialist. Application and Interview process required. Departmental approval required.

HDFS 3980 UNDERGRADUATE RESEARCH AND STUDY (1-5) AAB/LEC. SU. Directed research under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

HDFS 4380 STUDY AND TRAVEL IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (2-12) AAB/FLD. Pr. CADS 2000 or NTRI 2000 or HDFS 2100 or HOSP 2000. Departmental approval. Provide students with opportunities to reach beyond the classroom to study topics relevant to human development and family science abroad. Course may be repeated for a maximum of 12 credit hours.

HDFS 4470 ADVANCED LEARNING EXPERIENCES FOR YOUNG CHILDREN (3) LEC. 3, FLD/LEC. 1. Pr. HDFS 3010 and HDFS 3460 and HDFS 3470 and HDFS 3461 and HDFS 3471. Coreq. HDFS 4471. This course uses previously gained knowledge about child development and teacher-child relationships and interactions with young children to create playful learning environments and activities for young children and their families in a preschool classroom at the Auburn University Early Learning Center and Early Head Start.

HDFS 4471 ADVANCED LEARNING EXPERIENCES FOR YOUNG CHILDREN LAB (1) LAB. 4. Pr. HDFS 3010 and HDFS 3460 and HDFS 3470 and HDFS 3461 and HDFS 3471. Coreq. HDFS 4470. Laboratory course for HDFS 4470. Child development knowledge applied to preschool curriculum planning with 6 hours a week of supervised participation at Auburn University Early Learning Center.

HDFS 4520 DYING, DEATH AND BEREAVEMENT (3) LEC. 3. In this course students will explore the multidimensional aspects of dying, death, and bereavement from various perspectives, encompassing psychological, sociological, cultural, and ethical dimensions. This course is based on the premise that death education helps one to live more fully and serve others in a more meaningful way.

HDFS 4640 SYSTEMS OF CARE FOR INDIVIDUALS WITH DISABILITIES ACROSS THE LIFESPAN (3) LEC. 3. Pr. HDFS 2010 or PSYC 3120. This course examines disability and systems of care across the lifespan, with a focus on the impact of disability and services on individuals and families.

HDFS 4660 RESOURCE MANAGEMENT FOR INDIVIDUALS, COUPLES, AND FAMILIES (3) LEC. 3. An understanding of the decisions individuals and families make about developing and allocating resources.

HDFS 4670 PARENT EDUCATION (3) LEC. 3. Pr. HDFS 3010 or HDFS 3030 or HDFS 3050. The purpose of this course is to prepare you to work with parents and caregivers using theory and research-based knowledge of parent-child relationships. This will be accomplished through a variety of lectures, presentations, individual research papers, and group projects. Although completing this course will not make you a "Parent educator", this course will provide you with a basis for further development of parent education knowledge and skills.

HDFS 4680 FAMILY IN CROSS-CULTURAL PERSPECTIVE (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000 or HDFS 2003. Examination of family function and family systems across diverse cultural groups.

HDFS 4700 GENDER ROLES AND CLOSE RELATIONSHIPS (3) LEC. 3. Pr. HDFS 2000 or SOCY 1000 or SOCY 1007 or PSYC 2010 or PSYC 2017 or COUN 2000. This course explores gender, gender roles, gender identity and the intersections of gender, gender roles, and gender identity with race, ethnicity, privilege, culture, and class.

HDFS 4910 PROFESSIONAL DEVELOPMENT II AND CAPSTONE (2) LEC. 2. Pr. HDFS 1800 and HDFS 2030 and P/C HDFS 2040. Professional Development aimed at student preparation for graduate school and career. The cumulation of the professional development courses requires an in-depth examination and advanced design of the professional, outward-facing ePortfolio.

HDFS 4920 INTERNSHIP IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (12) AAB/INT. Pr. HDFS 4910. HDFS major with current background check, all required coursework for the major complete, a grade of C or better in all HDFS major core classes at the 3000-level or higher, and an overall minimum GPA of 2.25. Internship applications must be submitted 2 semesters in advance. A computer and internet access is required.

HDFS 4930 INTERNSHIP IN CHILD LIFE (12) INT. Pr. HDFS 4910. Departmental approval. HDFS major with current background check, all required coursework for the major complete, a grade of C or better in all child life option core classes at the 3000-level or higher, and an overall minimum GPA of 3.0. Students who enroll in this course must complete their internship under the supervision of a certified child life specialist. Internship applications must be submitted 2 semesters in advance. A computer and internet access are required.

HDFS 4940 INTERNSHIP IN EARLY CHILD DEVELOPMENT TOWARD CERTIFICATION (12) INT. Departmental approval. Pr. HDFS 3460 and HDFS 3470 and HDFS 4470 and HDFS 4910. Intensive capstone teaching experience of at least 450 hours. HDFS major with all required coursework for the major complete, a grade of C or better in all Early Child Development option core classes at the 3000-level or higher, ALSDE background check, and an overall minimum GPA of 2.75. Students who enroll in this course will complete requirements for Ed TPA. Internship applications must be submitted 2 semesters in advance. A computer and internet access are required.

HDFS 4950 ADVANCED SEMINAR (3) LEC. 3. Pr., Departmental approval. Topical seminar in HDFS. A) Advanced Research B) Child Development; C) Family Studies; D) Marriage and Family Therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 4960 SPECIAL PROBLEMS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-3) IND. SU. Supervised readings in one or more topical areas. Course may be repeated for a maximum of 3 credit hours.

HDFS 4980 ADVANCED UNDERGRADUATE RESEARCH IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-5) IND. Pr., Departmental approval. Junior standing. Conduct research under the direction of a human development and family studies faculty member on a topic of mutual interest. Course may be repeated for a maximum of 5 credit hours.

HDFS 4997 HONORS THESIS (2-6) IND. SU. Pr. Honors College. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

HDFS 5200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Junior standing. Application of research to the development and evaluation of programming for children and families.

HDFS 5300 HDFS AND SOCIAL POLICY (3) LEC. 3. Junior standing. Examination and critique of social policies from a family perspective.

HDFS 5400 PROGRAM DESIGN FOR COMMUNITIES, SCHOOLS, AND FAMILIES (3) SEM. 3. Program design for schools, communities, and families is a course designed to help students learn about program design approaches used to improve the lives of people. Students will learn the basics of the program planning process, the complexity of assessing need, evaluation, and program implementation to targeted populations of people.

HDFS 5930 SOCIETY AND HEALTH (3) LEC. 3. This course provides an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HDFS 5930 or HUSC 5930.

HDFS 5950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) SEM. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs.

HDFS 5970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Pr., Junior standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 6200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Graduate standing. Application of research to the development and evaluation of programming for children and families.

HDFS 6300 HDFS AND SOCIAL POLICY (3) LEC. 3. Graduate standing. Examination and critique of social from a family perspective.

HDFS 6400 PROGRAM DESIGN FOR COMMUNITIES, SCHOOLS, AND FAMILIES (3) SEM. 3. Program design for communities, schools, and families is a course designed to teach the basics of the program planning process, the complexity of assessing need, program evaluation, and program delivery to targeted populations of people.

HDFS 6930 SOCIETY AND HEALTH (3) LEC. 3. This course provide an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HDFS 6930 or HUSC 6930.

HDFS 6950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) LEC. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs.

HDFS 6970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Pr., Graduate standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 7010 CHILD AND ADOLESCENT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical examination of research on development from birth through adolescence.

HDFS 7020 ADULT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical evaluation of research on development in the adult and aging periods of the life cycle.

HDFS 7030 LIFESPAN DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical examination of research on human development from infancy through adulthood.

HDFS 7040 FAMILY PROCESSES (3) LEC. 3. An orientation to family theories and their role in contemporary studies of family processes.

HDFS 7050 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Pr., Departmental approval. Survey of principles and methods for studying individuals, dyadic relationships and families.

HDFS 7060 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY SCIENCE II (3) LEC. 3. Pr. HDFS 7050. Pr., Departmental approval. Survey of principles and advanced methods for studying individuals, dyadic relationships, and families.

HDFS 7070 RESEARCH LITERACY IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Research literacy course informs students' as research consumers to identify, understand, discuss, and evaluate different types of research methods and statistical analyses, to communicate the findings of such research to others, and to use findings of quality research to impact future academic research and professional policy and practice.

HDFS 7100 PSYCHOSOCIAL CARE OF MEDICALLY AND EMOTIONALLY VULNERABLE CHILDREN (3) LEC. 3. Departmental approval. Child development theories, the impact of hospitalization on children and families, the impacts of trauma on development and coping, and common child life interventions are explored.

HDFS 7110 PLAY AND THERAPEUTIC INTERVENTIONS IN CHILD LIFE (3) LEC. 3. Child development theory, play theory, adaptive play, and therapeutic interventions are explored in the context of helping children cope with stressors such as hospitalization, bereavement, and trauma. Undergraduate degree in child life, child development, human development and family studies, or another related field.

HDFS 7120 INTRODUCTION TO CAPSTONE FOR ADVANCED STANDING CHILD LIFE STUDENTS (3) LEC. This course will prepare students to complete their capstone project, which will be completed during their last semester of graduate school. This course will focus on peer-to-peer learning, supervision of undergraduate and graduate learners, and community applications for child life programming. Specifically, clinical conversation among peers will be a core focus of the course.

HDFS 7130 CHILD LIFE PROGRAM DEVELOPMENT AND EVALUATION (3) LEC. 3. Methods of creating and implementing Child Life programs; documenting and assessing program activities; and supervising child life students and professionals will be discussed. Department Approval.

HDFS 7140 DEATH, DYING AND BEREAVEMENT FOR CHILD LIFE SPECIALISTS (3) LEC. 3. LAB. 0. Pr. HDFS 7100. Exploring children's understanding of death, and the child life specialist's role in caring for the bereaved family.

HDFS 7600 MARRIAGE AND FAMILY THERAPY THEORY I (3) LEC. 3. Pr., Departmental approval. Overview of theoretical and historical foundations, classic and contemporary therapy models, and integrative frameworks for marriage and family therapy.

HDFS 7601 MARRIAGE AND FAMILY THERAPY THEORY LABORATORY I (1) LAB. 3. Pr., Departmental approval. Basic clinical skills and self-of-the-therapist issues.

HDFS 7610 MARRIAGE AND FAMILY THERAPY THEORY II (3) LEC. 3. Pr., Departmental approval. Current theory and conceptual issues in the practice of marriage and family therapy.

HDFS 7620 MARRIAGE AND FAMILY THERAPY CLINICAL ISSUES I: FAMILY SYSTEMS (3) LEC. 3. Pr., Departmental approval. Advanced study of conceptual models and clinical approaches utilized in treating family systems.

HDFS 7621 MARRIAGE AND FAMILY THERAPY LABORATORY II (1) LAB. 1. Coreq. HDFS 7620. Pr., Departmental approval. Application of clinical models in a supervised setting.

HDFS 7630 MARRIAGE AND FAMILY THERAPY CLINICAL ISSUES II: INDIVIDUALS (3) LEC. 3. Pr., Departmental approval. Assessment and treatment of children, adolescents, adults, and sexuality issues from a systemic perspective.

HDFS 7631 MARRIAGE AND FAMILY THERAPY LABORATORY III (1) LAB. 3. Coreq. HDFS 7630. Departmental approval. Application of clinical skills with families, couples and individuals.

HDFS 7640 MARRIAGE AND FAMILY THERAPY CLINICAL ISSUES III: COUPLES (3) LEC. 3. Pr., Departmental approval. Conceptual, assessment and clinical approaches utilized in treating couples.

HDFS 7650 MARRIAGE AND FAMILY THERAPY PROFESSIONAL ISSUES (3) LEC. 3. Pr., Departmental approval. Professional, ethical, and legal issues associated with the practice of marriage and family therapy.

HDFS 7660 SYSTEMIC IMPACT OF ILLNESS, MEDFT, & PSYCHOPHARMACOLOGY (3) LEC. 3. Three components related to the practice of marriage and family therapy in healthcare settings: 1.) Systemic Impact and Treatment of Illness, (2) Treatment in Collaborative Health Care teams, and (3) Psychopharmacology.

HDFS 7670 INDIVIDUAL, COUPLE, AND FAMILY DYNAMICS OF ADDICTION, RECOVERY, AND TREATMENT (3) LEC. 3. An overview of the scope of the dynamics of addiction treatment and recovery in individuals, couples, and families. This course focuses on both substance use disorders and process addictions and will deal directly with preferred treatments of these issues in individual and systemic therapy.

HDFS 7680 SYSTEMIC ASSESSMENT, DIAGNOSIS, & TREATMENT OF PSYCHOPATHOLOGY (3) LEC. 3. This course will examine current research, theory, and clinical best practices for assessing and diagnosing psychopathology in the context of individual, couple, and family therapy.

HDFS 7850 GRADUATE CHILD LIFE PRACTICUM (3) PR1. 9. Pr. P/C HDFS 7100. Supervised clinical experience under the supervision of a Certified Child Life Specialist.

HDFS 7900 DIRECTED STUDIES (1-3) AAB/IND. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage & Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7910 PRACTICUM (1-9) AAB/PRA. SU. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy; G) Teaching. Course may be repeated for a maximum of 9 credit hours.

HDFS 7920 MARRIAGE AND FAMILY THERAPY INTERNSHIP (3) INT. Pr., Departmental approval. Clinical practice of marriage and family therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7930 SEMINAR IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-3) SEM. Pr., Departmental approval. A) Infancy/Childhood; B) Adolescence/Young Adulthood; C) Adulthood/Aging; D) Family as a Microsystem; E) Family and Mesosystem; F) Family in the Macrosystem; G) Child and Family Program Planning and Evaluation. Course may be repeated for a maximum of 16 credit hours.

HDFS 7940 DIRECTED FIELD EXPERIENCE (1-9) AAB/FLD. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7950 INTERNSHIP IN CHILD LIFE (12) INT. 3. Pr. HDFS 7010 and HDFS 7040 and HDFS 7070 and HDFS 7100 and HDFS 7110 and HDFS 7130 and HDFS 7140 and HDFS 7850. Supervised on-the-job experiences, along with rigorous evaluations of student’s work.

HDFS 7970 SPECIAL TOPICS IN HDFS (1-4) LEC. 1-4. Students will learn about key issues in sleep research, especially with those related to family functioning and social/emotional, behavioral, and physical health. Students will have assigned readings to prepare them for discussions during the lectures. Course may be repeated for a maximum of 18 credit hours.

HDFS 7990 RESEARCH AND THESIS (1-10) AAB/MST.

HDFS 8010 RELATIONSHIP DEVELOPMENT AND PROCESS IN CHILDHOOD AND ADOLESCENCE (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in childhood adolescence.

HDFS 8020 RELATIONSHIP DEVELOPMENT AND PROCESS IN ADULTHOOD (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in adulthood and aging.

HDFS 8040 LONGITUDINAL DATA ANALYSIS (3) LEC. 3. Pr. HDFS 7060. This class addresses many of the ways longitudinal data can be modeled statistically from both multilevel and structural equation modeling frameworks. This class will cover the theoretical and mathematical concepts underlying longitudinal data analysis with a primary focus on application.

HDFS 8050 ADVANCED RESEARCH METHODS: COVARIANCE STRUCTURE ANALYSIS (3) LEC. 3. Pr. HDFS 7060. In-depth examination of research methods, designs, and data analytic strategies commonly used in child and family research.

HDFS 8060 MULTILEVEL MODELING (3) LEC. 3. Pr. HDFS 7060. In depth examination of multilevel modeling as an analytic strategy for research in nested data structures.

HDFS 8070 MEDIATION AND MODERATION ANALYSIS (3) LEC. 3. Pr. HDFS 7060. Methods for evaluating mediation and moderation hypotheses by addressing both study designs and statistical analyses.

HDFS 8080 MIXTURE MODELING (3) SEM. Pr. HDFS 7060. Methodological advances in latent variable analysis have provided promising avenues for researchers interested in answering questions about latent (unobserved) classes and profiles. These two analytic techniques will be the focus of this course.

HDFS 8090 QUALITATIVE METHODS IN THE SOCIAL SCIENCES (3) LEC. 3. This course prepares graduate students to conduct and evaluate qualitative research in social science disciplines.

HDFS 8970 ADVANCED SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-3) LEC. Departmental approval. Study of advanced topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 8990 RESEARCH AND DISSERTATION (1-10) DSR.

Human Sciences, General Courses

HUSC 1010 INTRODUCTION TO HUMAN SCIENCES (2) LEC. 2. An introduction course to provide an understanding of the discipline of Human Sciences, history, and career opportunities.

HUSC 1940 STUDY AND TRAVEL IN HUMAN SCIENCES: PRE-DEPARTURE (0) LEC. .5. Department approval. Pre-departure training for College of Human Sciences Study Abroad programs. Course may be repeated for a maximum of 1 credit hours.

HUSC 2000 HUNGER: CAUSES, CONSEQUENCES, AND RESPONSES (3) LEC. 3. Examine hunger as a complex issue of sustainable human development. Topics include causes and consequences of domestic and global hunger and potential solutions. Credit will not be given for both HUSC 2000 and HUSC 2007.

HUSC 2007 HONORS HUNGER: CAUSES, CONSEQUENCES, AND RESPONSES (3) LEC. 3. Pr. Honors College. Examine hunger as a complex issue of sustainable human development. Topics include causes and consequences of domestic and global hunger and potential solutions. Credit will not be given for both HUSC 2000 and HUSC 2007.

HUSC 2500 LIFE DESIGN & DEVELOPMENT (3) LEC. 3. LAB. 0, LEC. 0. Examine how design thinking can help create a life that is both meaningful and fulfilling, regardless of who or where you are. Students will be able to apply design thinking mindsets to themselves, their community, and the world around them.

HUSC 2940 STUDY ABROAD IN HUMAN SCIENCES (1-6) AAB. Departmental approval. This course introduces incoming students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required.

HUSC 3380 CHS AT AU IN ITALY (2) LEC. 2. Pr. HUSC 1940. Orientation, team building and post-program reflection for students participating in the Joseph S. Bruno Auburn Abroad program in Ariccia, Italy. 2.25 GPA, 19 or older and admission to the JSBAII program required. Department approval.

HUSC 3970 SPECIAL TOPICS IN HUMAN SCIENCES (1-3) LEC. 1-3. Special Topics in Human Sciences Course may be repeated for a maximum of 6 credit hours.

HUSC 4000 HUNGER STUDIES CAPSTONE (3) LEC. 3. Pr. HUSC 2000 or HUSC 2003 or HUSC 2007. Examination of global and domestic hunger issues from multidisciplinary perspectives.

HUSC 4010 CHS AT AU IN ITALY: INTEGRATED GLOBAL STUDIES (6) LEC. 6. Pr. HUSC 3380. Departmental approval. Coreq. HUSC 3380 and HUSC 4380 and HUSC 4940. Multi-faceted cultural experience focused on individuals/families in the context of history and Italian culture. 2.25 GPA, 19 or older and admission to the JSBAII program.

HUSC 4017 HONORS CHS AT AU IN ITALY: INTEGRATED GLOBAL STUDIES (6) LEC. 6. Pr. Honors College. HUSC 3380. Departmental approval. Coreq. HUSC 3380 and HUSC 4380 and HUSC 4940. Multi-faceted cultural experience focused on individuals/families in the context of history and Italian culture. 2.25 GPA, 19 or older and admission to the JSBAII program.

HUSC 4380 CHS AT AU IN ITALY: STUDY AND TRAVEL (2) AAB/FLD. 2. Pr. HUSC 3380. Coreq. HUSC 4940 and HUSC 4010 and HUSC 3380. Broaden world views, increase cultural awareness, and demonstrate an ability to function globally or in a global environment through the Auburn Abroad in Italy program. 2.25 GPA required. Students must be 19 or older and accepted into the JSBAII program.

HUSC 4387 HONORS CHS AT AU IN ITALY: STUDY AND TRAVEL (2) AAB/FLD. 2. Pr. Honors College. HUSC 3380. Coreq. HUSC 4010 and HUSC 3380 and HUSC 4940. Broaden world views, increase cultural awareness, and demonstrate an ability to function globally or in a global environment through the Auburn Abroad in Italy program. 2.25 GPA required. Students must be 19 or older and accepted into the JSBAII program.

HUSC 4480 GLOBAL STUDY TRAVEL IN HUMAN SCIENCES (1-12) AAB. Sophomore/Junior/Senior Standing or Departmental approval application required. Student international study travel to study topics relevant to human sciences and quality of life issues. Course may be repeated for a maximum of 12 credit hours.

HUSC 4940 CHS AT AU IN ITALY: DIRECTED FIELD EXPERIENCES (6) AAB/FLD. 6. Pr. HUSC 3380. Coreq. HUSC 4380 and HUSC 3380 and HUSC 4010. Supplemental lectures for HUSC 4010 provided through field trips and participation in Italian culture experiences. 2.25 GPA required. Student must be 19 years old or older and admitted to the JSBAII program.

HUSC 4947 HONORS CHS AT AU IN ITALY: DIRECTED FIELD EXPERIENCES (6) AAB/FLD. 6. Pr. Honors College. HUSC 3380. Coreq. HUSC 4010 and HUSC 3380 and HUSC 4380. Supplemental lectures for HUSC 4010 provided through field trips and participation in Italian culture experiences. 2.25 GPA required. Student must be 19 years old or older and admitted to the JSBAII program.

HUSC 4980 UNDERGRADUATE RESEARCH IN HUMAN SCIENCES (1-3) LAB. 1-3, RES. 1-3. Undergraduate research in the human sciences Course may be repeated for a maximum of 6 credit hours.

HUSC 5930 SOCIETY AND HEALTH (3) LEC. 45. This course provide an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HUSC 5930 or HDFS 5930.

HUSC 5940 STUDY AND TRAVEL IN HUMAN SCIENCES (1-12) AAB/LEC. Pr. 2.25 GPA. Provide students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required; additional requirements may apply. Course may be repeated for a maximum of 12 credit hours.

HUSC 5950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) LEC. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs. May count either HUSC 5950 or HDFS 5950.

HUSC 6930 SOCIETY AND HEALTH (3) LEC. 45. This course provides an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HUSC 6930 or HDFS 6930.

HUSC 6940 STUDY AND TRAVEL IN HUMAN SCIENCES (1-6) AAB/LEC. Provide students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required; additional requirements may apply. Course may be repeated for a maximum of 6 credit hours.

HUSC 6950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) SEM. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs. May count either HUSC 6950 or HDFS 6950.

HUSC 7910 CHS STUDY ABROAD PROGRAM ADMINISTRATION PRACTICUM (1-6) AAB/PRA. 1-6. SU. Departmental approval. Graduate status and acceptance as a GTA for a CHS Study Abroad Program. Directed practical experience administering an undergraduate study abroad program. 2.25 GPA required. Students must be 19 or older.

Nutrition Courses

NTRI 1010 INTRODUCTION TO THE PRE-HEALTH PROFESSIONS (1) LEC. 1. This course is designed to expose College of Human Sciences Pre-Health students to the different components of the pre-professional application process. This course will uncover the opportunities offered to students to enhance his/her ability to gain experiences that demonstrate core competencies of health professions. This course provides opportunities to explore and develop these competencies required for professional programs through discussion, activities, reading, writing, and collaboration.

NTRI 2000 NUTRITION AND HEALTH (3) LEC. 3. Principles of human nutrition and food choices related to the health of individuals. Credit will not be given for both NTRI 2000 and NTRI 2007.

NTRI 2007 HONORS NUTRITION AND HEALTH (3) LEC. 3. Pr. Honors College. Principles of human nutrition and food choices related to the health of individuals. Topics similar to NTRI 2000 but covered in greater depth with classroom discussion of controversial topics. Credit will not be given for both NTRI 2000 and NTRI 2007.

NTRI 2010 BASIC SPORTS NUTRITION (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) or (NTRI 2000 or NTRI 2007). An introductory course on the relationship between nutrition and sports performance. Topic areas to be covered include energy, carbohydrates, protein/amino acids, fluids, vitamins, minerals, body weight and supplement use as they directly relate to sports performance. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 2070 CAREERS IN NUTRITION, DIETETICS AND WELLNESS (1) LEC. 1. Pr. (NTRI 2000 or NTRI 2007). Professional roles and responsibilities in nutrition, dietetics, and wellness with emphasis on careers professional development and conduct. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 3560 EXPERIMENTAL STUDY OF FOODS (4) LEC. 3. LAB. 3. Pr. (NTRI 2000 or NTRI 2007) and (BIOL 1020 or BIOL 1027) and CHEM 1030 or departmental approval. Experimental approach to the chemistry to food including composition, preparation, recipe modification, food quality, sanitation, processing, and food laws. A C or better is required in all pre-requisite courses to enroll in the course .

NTRI 3750 NUTRITION EDUCATION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2017) and (NTRI 2000 or NTRI 2007). How to design, deliver, and evaluate the types of educational interventions and programs conducted by most of nutrition educators in a variety of settings such as work, community programs, clinic, food banks, family programs, and/or schools. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 3940 COMMUNITY SERVICE (3-9) LEC. 1. LAB. 6. Departmental approval. Application of NTRI-related knowledge to real-life situations through participation in directed community service experiences. A) nutrition; B) hospitality; C) general NTRI. Course may be repeated for a maximum of 9 credit hours.

NTRI 4090 PROFESSIONAL ISSUES IN DIETETICS AND NUTRITION (1) LEC. 1. SU. Pr. NTRI 2070. NTDI or departmental approval. Senior standing. Professional issues and trends affecting dietetics and nutrition practice; planning for professional advancement; includes externship. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4560 FOOD SYSTEMS OPERATIONS (2) LEC. 2. Pr. NTRI 2000 or Departmental approval. Principles for managing resources required in planning, purchasing, preparing and serving high quality food in food service operations. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4561 FOOD SYSTEMS OPERATIONS LAB (2) LAB. 4. Pr. NTRI 2000 or departmental approval. Coreq. NTRI 4560. Laboratory experience in food service operations. Food safety certification is included. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4580 FOOD AND CULTURE (2) LEC. 2. Departmental approval. Cultural and social factors affecting food habits and nutritional status of populations throughout the world.

NTRI 4620 PUBLIC HEALTH NUTRITION (3) LEC. 3. Pr. NTRI 4820 and NTRI 4830. Population-focused approaches that facilitate healthy diets through policy development and environmental changes. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4820 MACRONUTRIENT METABOLISM (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2007) and BCHE 3180 and P/C BIOL 2510 or departmental approval. Physiological and biochemical basis for energy-yielding nutrients; structure, function, dietary requirements, digestion, absorption, transport and metabolism of macronutrients. A C or better is required in all pre-requisite courses to enroll in the course

NTRI 4830 MICRONUTRIENT METABOLISM (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2007) and BCHE 3180 and P/C BIOL 2510. Metabolism, dietary needs, deficiency symptoms and food sources of vitamins and minerals in humans. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4930 DIRECTED STUDIES (1-8) AAB/IND. Departmental approval. Independent reading or research in a content area of special interest; supervised by a faculty member. Course may be repeated for a maximum of 8 credit hours.

NTRI 4970 SPECIAL TOPICS (1-3) LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. A course offering unique or current issues not covered in a regularly scheduled course. Course may be repeated for a maximum of 6 credit hours.

NTRI 4980 UNDERGRADUATE RESEARCH AND STUDY (1-9) IND. Departmental approval. Directed research under faculty supervision. Course may be repeated for a maximum of 9 credit hours.

NTRI 4997 HONORS THESIS (1-3) IND. SU. Pr. Honors College. Departmental approval. Research in specialized topics. Course may be repeated for a maximum of 3 credit hours.

NTRI 5020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. NTRI 4820 and NTRI 4830. NTDI or departmental approval Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. NTRI 5020 or NTRI 6020. NTDI or departmental approval. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5040 GLOBAL NUTRITION AND HUNGER (3) LEC. 3. Pr. (NTRI 2000). This course explores the complex and interconnected issues of global nutrition and hunger. Students will examine the causes, consequences, and potential solutions to malnutrition and food insecurity around the world. Departmental approval required.

NTRI 5047 GLOBAL NUTRITION AND HUNGER (3) LEC. 3. Pr. (NTRI 2000). This course explores the complex and interconnected issues of global nutrition and hunger. Students will examine the causes, consequences, and potential solutions to malnutrition and food insecurity around the world. Department approval.

NTRI 5100 NUTRITION IN DISEASE PREVENTION (3) LEC. 3. Pr. P/C NTRI 4820 and P/C NTRI 4830. The functions, safety, and efficacy of selected nutrients and herbs in the prevention and/or treatment of selected diseases/conditions. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5380 STUDY/TRAVEL IN NUTRITIONAL SCIENCES (1-6) AAB/FLD. Pr. BIOL 1030. Departmental approval. Concentrated study in nutritional sciences in international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 5560 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. P/C NTRI 4560 and P/C NTRI 4561. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 5560 and NTRI 6560. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5760 NUTRITION COUNSELING (2) LEC. 2. Pr. P/C NTRI 3750 and (P/C NTRI 5030 or P/C NTRI 6030) or departmental approval. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760. A C or better is required in all pre-requisite courses to enroll in the course NTDI

NTRI 5820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4830 and NTRI 4820. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 5820 and NTRI 6820. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5830 NUTRITIONAL GENOMICS (3) LEC. 3. Pr. NTRI 4820 and NTRI 4830. Principles of nutrient-gene interactions and how these interactions influence human health and disease. May count either NTRI 5830 or NTRI 6830. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5910 CLINICAL PRACTICUM IN DIETETICS (1) PRA. 3. SU. NTDI or department approval. Application of the practice of dietetics in a clinical or community setting.

NTRI 6020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. NTRI 4820. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. NTRI 5020 or NTRI 6020 or departmental approval. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030. A "C" or better is required in all pre-requisite courses to enroll in the course. NTDI

NTRI 6040 GLOBAL NUTRITION AND HUNGER (3) LEC. 3. This course explores the complex and interconnected issues of global nutrition and hunger. Students will examine the causes, consequences, and potential solutions to malnutrition and food insecurity around the world. Department approval.

NTRI 6100 NUTRITION IN DISEASE PREVENTION (3) LEC. 3. Pr. (NTRI 5820 or NTRI 6820) and (NTRI 5830 or NTRI 6830). The functions, safety, and efficacy of selected nutrients herbs in the prevention and/or treatment of selected diseases/conditions. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6380 STUDY/TRAVEL IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) AAB/FLD. Departmental approval. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 6560 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. NTRI 4560 and NTRI 4561. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 6560 and NTRI 5560. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6760 NUTRITION COUNSELING (2) LEC. 2. Pr. P/C NTRI 3750 and (P/C NTRI 5030 or P/C NTRI 6030). Coreq. NTRI 6030 and NTRI 5030. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4820 and NTRI 4830. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 6820 and NTRI 5820. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6830 NUTRITIONAL GENOMICS (3) LEC. 3. Pr. NTRI 4820. Principles of nutrient-gene interactions and how these interactions influence human health and disease. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 7010 ADVANCED PRACTICUM IN DIETETICS (1-9) DSL/LEC. SU. DPD verification statement. Enrollment in Masters in Nutrition Program or department approval. Supervised practical experience in clinical, food service, and community settings for development of entry-level skills for the registered dietitian. Course may be repeated for a maximum of 9 credit hours.

NTRI 7020 ADVANCED NUTRITION AND DIET THERAPY (3) DSL/LEC. Explores complex medical nutrition therapies and the role of diet in disease prevention and management. Emphasizing evidence-based approaches, students will develop skills in nutrition assessment, intervention design, and evaluating outcomes, preparing them for advanced practice and research in clinical settings. Department approval.

NTRI 7030 LEADERSHIP AND MANAGEMENT IN NUTRITIONAL SCIENCES (3) LEC. 3. This course provides an in-depth examination of leadership and management principles specific to the the various areas within nutritional sciences. Students will develop the skills necessary to lead teams, manage resources, and navigate complex organizational systems. Topics include financial management, leadership styles, communication, team building, decision-making, and strategic planning within various nutrition-related settings. Department approval.

NTRI 7050 METHODS OF RESEARCH (3) LEC. 3. Departmental approval. Research methods and designs applicable to disciplines represented in nutrition.

NTRI 7280 LABORATORY METHODS IN FOOD SCIENCE AND NUTRITION (3) LEC. 2. LAB. 3. Departmental approval. Modern laboratory techniques and instruments used in human nutrition and food science research.

NTRI 7500 MINERALS (3) LEC. 3. Departmental approval. Sources, digestion, absorption, transport, function and metabolism of major and trace minerals in the human body.

NTRI 7510 VITAMINS (3) LEC. 3. Departmental approval. Advanced study of metabolism, requirements, interactions and deficiencies of the fat and water soluble vitamins as related to humans.

NTRI 7520 MACRONUTRIENTS: INTEGRATION AND METABOLISM (4) LEC. 4. Advanced study of energy metabolism, digestion, absorption, transport and integrative metabolism of macronutrients.

NTRI 7530 HUMAN NUTRIENT METABOLISM (4) LEC. 4. Advanced study of nutrition and metabolism, as related to humans. Department approval. Credit will not be given for both NTRI 7530 or NTRI 7536 once developed, or BCHE 6180 and BCHE 6190, and/or BCHE 7200.

NTRI 7620 SPORTS AND PERFORMANCE NUTRITION (3) LEC. 3. In-depth exploration of the principles and practices of sports and performance nutrition, including the role of macronutrients and micronutrients, supplements, and ergogenic aids in energy production, muscle recovery, and injury prevention. Strategies to meet the nutritional needs for different types of athletes and ways to maintain movement, performance, muscle mass, bone health, and mobility throughout the lifespan will also be discussed.

NTRI 7850 RESEARCH SEMINAR FOR MASTER'S PROGRAM (1) DSL/SEM. 1. Departmental approval. Current topics in nutrition, dietetics and hospitality management presented by M.S. graduate students.

NTRI 7910 PRACTICUM IN NUTRITION AND DIETETICS (1-12) PRA. SU. Departmental approval. Application of principles and theories of nutrition in a professional setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 12 credit hours.

NTRI 7930 ADVANCED INDEPENDENT STUDY (1-6) DSL/IND. Departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

NTRI 7960 SPECIAL PROBLEMS (1-5) DSL/IND. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 10 credit hours.

NTRI 7980 NONTHESIS RESEARCH (1-6) AAB. SU. Departmental approval. In-depth work in a particular project related to hotel and restaurant management. Course may be repeated for a maximum of 6 credit hours.

NTRI 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

NTRI 8850 RESEARCH SEMINAR FOR DOCTORAL PROGRAM (1-2) SEM. Departmental approval. Required for doctoral students in nutrition and hospitality management. Advanced topics in nutrition and food science presented by doctoral students. Course may be repeated for a maximum of 2 credit hours.

NTRI 8910 SUPERVISED TEACHING (1) AAB/IND. 1. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

NTRI 8970 ADVANCED TOPICS IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) DSL/LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. Course may be repeated for a maximum of 6 credit hours.

NTRI 8990 RESEARCH AND DISSERTATION (1-10) AAB/DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

Department of Consumer and Design Sciences

The Department of Consumer and Design Sciences focuses on consumers' interactions with their immediate and near environment. Three majors are offered: 1) apparel merchandising, design and production management, 2) interior design, and 3) philanthropy and nonprofit studies. These curricula focus on principles of consumer behavior and design, management, product development and marketing science, technology, and philanthropies and nonprofits. Majors in these curricula may lead to careers in business, design practices, and nonprofits that apply knowledge to developing, evaluating and offering consumer goods and services, interpreting consumers' wants and needs, informing and advising consumers and designing environmental spaces. A senior-level internship is required in all curricula. Accelerated BS/MS programs are available in AMDP and INDS. Please contact department for additional information.

Apparel Merchandising, Design and Production Management

Apparel Merchandising, Design and Production Management is a professional curriculum with two options leading to a B.S.: 1) Apparel Merchandising (APME) and 2) Product Design and Production Management (APDP). Diversity within the major allows students to select such varied fields as apparel design, apparel production management, retail sales and/or management, apparel merchandising, retail buying, fashion journalism, and consumer-producer relations. A professionally supervised internship is required. The program is endorsed by the American Apparel and Footwear Association.

Academic Standards and Policies

To complete graduation requirements, students in both AMDP options must earn a grade of C or higher on all required courses in the major and in all CADS prerequisite courses for the major's required courses. These courses are indicated in bold print in the curriculum models.

Interior Design

Interior Design (INDS) is a four-year B.S program accredited by the Council for Interior Design Accreditation (CIDA). The curriculum focuses on the design of the near environment, the aesthetic and functional aspects of space planning, furnishings and materials, lighting and mechanical equipment, and the integration of these aspects of the built environment to fit the needs of the user. A

professionally supervised internship is required. Student work from courses in the major may be retained by the program for accreditation and exhibit purposes.

Academic Standards and Policies

Freshman and transfer students admitted to Auburn University, as well as internal transfer students from within Auburn University, who desire to major in interior design, College of Human Sciences, will be admitted to pre-interior design (INDX). The pre-interior design students must complete the first year of pre-interior design course work, i.e., CADS 1000 and CADS 1100 with a grade of "C" or better in order to be evaluated for possible admission into the interior design curriculum. Admission into the interior design program (sophomore-senior levels) is limited to a class size of 40 students per year. Admission is based on a portfolio review by the interior design faculty of the work completed in the pre-interior design course work. Most course work in the major must be taken in sequence; transfer students should anticipate that additional semesters of study may be required to complete the program. To complete graduation requirements, INDS students must earn a grade of C or higher on all required courses in the major and in all CADS prerequisite courses before being allowed to proceed to the next course in the sequence. These courses are indicated in bold print in the curriculum model.

Philanthropy and Nonprofit Studies

The B. S. in Philanthropy and Nonprofit Studies will address the growing need to educate the next generation of philanthropic and nonprofit leaders. The nonprofit sector is steadily expanding. There is an increasing need for highly prepared professionals to lead nonprofits and promote philanthropic goals. As government programs and funding evolve in scope and size, there is a heightening demand for efficient and effective nonprofit organizations to enable and promote an expanding range of philanthropic activities that benefit local, regional, national, and international populations. Our society increasingly depends on nonprofits because the impacts of philanthropic acts address crucial societal needs.

Both individuals' and families' full implementation of philanthropic goals is enabled through financial planning. A significant component of the philanthropy and nonprofit studies major is the incorporation of personal financial planning that builds philanthropic goals into the plan. This component contributes to individuals' quality of life and to potential careers advising individuals in their planning or directly raising funds for nonprofits. Through the B.S. in PNPS, students will blend coursework with experiential learning through a practicum and internship. Additionally, students' awareness of and involvement in philanthropy will be built through guest lectures from nonprofit organizations.

Majors

- Apparel Merchandising, Design and Production Management — Apparel Merchandising Option (p. 796)
- Apparel Merchandising, Design and Production Management — Product Design and Production Management Option (p. 798)
- Interior Design (p. 800)
- Philanthropy and Non-Profit Studies (p. 802)

Undergraduate Certificates

- Financial Planning (p. 799)

Courses

CADS 1000 INTRODUCTION TO INTERIOR DESIGN (3) LEC. 3. Introduces theories of human behavior, physiology, and psychology; elements and principles of design; architectural form, space, and order; codes and regulations; profession of interior design.

CADS 1100 INTERIOR DESIGN STUDIO: DESIGN PRINCIPLES (3) LST/STU. 3. Pr. P/C CADS 1000. INDS (interior design) or INDX (pre-interior design) majors only. Fundamental principles of allied art and design disciplines. Two-dimensional and three-dimensional design projects, critical and creative thinking, application of color theory, composition, perspective, and craftsmanship.

CADS 1600 TEXTILE INDUSTRIAL COMPLEX (3) LEC. 3. Introduction to the composition, characteristics, and products of the network of fiber producers, textile manufacturers, dyers, finishers, apparel manufacturers, and retailers.

CADS 1700 GIVING AND SHARING (3) LEC. 3. Exploration of traditions of American philanthropy including a service-learning component. Students reflect on their giving experiences and apply philanthropic traditions to their own lives, service experiences, educational and professional goals, and visions for a better world.

CADS 1740 AESTHETICS FOR FASHION (3) LEC. 3. Elements and principles of design and their application in industries such as textiles, apparel, and retail.

CADS 2000 GLOBAL CONSUMER CULTURE (3) LEC. 3. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000 or CADS 2007.

CADS 2007 HONORS GLOBAL CONSUMER CULTURE (3) LEC. 3. Pr. Honors College. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000 or CADS 2007.

CADS 2040 CONSUMER FINANCIAL PLANNING (3) LEC. 2.5. Use of budgeting, credit, savings, investments, and retirement and estate planning to secure individual and family financial success using. Promote understanding and application of fundamentals of insurance, taxation, and personal finance tools.

CADS 2100 INTERIOR DESIGN STUDIO: SPACE PLANNING AND PROCESS (4) LEC/STU. 6. Pr. (CADS 1100). Coreq. CADS 2150. INDS (interior design) majors only, or with departmental approval. Introduction to the formal design process from concept through design development.

CADS 2150 PROJECT MANAGEMENT FOR INTERIOR DESIGNERS (1) LEC. 1. Coreq. CADS 2100. INDS (interior design) majors only, or with departmental approval. Principles of project management, disciplinary collaboration, and professional conduct within the context of the interior design studio workplace.

CADS 2200 INTERIOR DESIGN STUDIO: COMPUTER-AIDED DESIGN (3) LST. 6. Pr. (CADS 2100). Coreq. CADS 3200. INDS (interior design) majors only, or with departmental approval. Application of computer-aided design software, with a focus on developing construction drawings and documentation for interior spaces.

CADS 2300 HISTORY OF INTERIOR DESIGN I (3) LEC. 3. INDS (interior design) or INDX (pre-interior design) majors only, or with departmental approval. Historical survey of interior design and the decorative arts from antiquity through the mid-1800s.

CADS 2350 HISTORY OF INTERIOR DESIGN II (3) LEC. 3. Pr. CADS 2300. INDS (interior design) majors only, or with departmental approval. Historical survey of interior design and the decorative arts from the Industrial Revolution through present day.

CADS 2400 INTERIOR MATERIALS AND COMPONENTS (3) LEC. 3. Pr. CADS 1000 and CADS 1100. INDS (interior design) majors only, or with departmental approval. Introduction to interior surface finishes, textiles, materials, and components.

CADS 2500 INTERIOR DESIGN STUDIO: DESIGN COMMUNICATION (3) STU. 6. INDS (interior design) majors only, or with departmental approval. Development of design communication media and techniques.

CADS 2550 LIGHTING, MECHANICAL, AND ENVIRONMENTAL SYSTEMS (3) LST. Departmental approval. Introduction to the fundamentals of lighting, mechanical, electrical, and plumbing systems within the interior environment. INDS (interior design) majors only, or with

CADS 2600 TEXTILES (3) LEC. 3. Pr. CADS 1600. Natural and man-made fibers, yarns, fabrics, dyes and finishes for textiles for apparel and related products. AMDP major.

CADS 2700 INTRODUCTION TO NONPROFIT ORGANIZATIONS (3) LEC. 3. Introduction to mission, structure, and impact of nonprofit organizations at the local, state, national and international levels.

CADS 2740 ILLUSTRATION TECHNIQUES FOR APPAREL (3) LEC. 1. LAB. 4. Pr. CADS 1740 and CADS 1600. Creative approach to illustrating apparel through the use of varied media and development of illustrative style appropriate for portfolio presentations. APDP Major.

CADS 2750 PRODUCT DEVELOPMENT: TECHNICAL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2740 and CADS 2800. Apparel pattern development through drafting, flat pattern manipulation and draping; custom apparel production. APDP Major.

CADS 2760 VISUAL MERCHANDISING (4) LST. 6. Pr. CADS 1600 or CAHS 1600. History, equipment, application, and theory of display techniques in store and non-store settings.

CADS 2770 COMPUTER-AIDED DESIGN FOR APPAREL (4) LEC. 2, LST. 4. Pr. CADS 1600 and CADS 2740. Principles of aesthetics applied to apparel product development including computer aided design and other presentation techniques.

CADS 2800 APPAREL PRODUCTION MANAGEMENT (4) LEC. 3. LAB. 3. Pr. CADS 1600. Introduction to apparel industry terminology, technology, production methods, and engineering quality into apparel products.

CADS 2900 INNOVATION IN RETAIL AND CONSUMER EXPERIENCES (1) SEM. 1. A seminar on technology and innovations in the retail industry and their impact on consumer experiences and retail business processes.

CADS 3100 LIGHTING DESIGN/ENVIRONMENTAL SYSTEMS (4) LEC. 4. Pr. CADS 2200 and CADS 2400 and CADS 2500. Application of principles and processes of lighting, mechanical, and environmental systems to interior design.

CADS 3150 PROFESSIONAL DEVELOPMENT FOR APPAREL MERCHANDISING CAREER (1) LEC. 1. Pr. CADS 1600 and CADS 2800. Investigation of apparel merchandising careers and professional skill development.

CADS 3200 INTERIOR DESIGN STUDIO: RESIDENTIAL (4) LEC. 1, LST. 6. Pr. CADS 2100. Coreq. CADS 2200. Departmental approval. Development of residential interior design solutions with emphasis on programming and space planning. INDS (interior design) majors only.

CADS 3500 INTERIOR DESIGN PROFESSIONAL PRACTICE (3) LEC. 3. Pr. CADS 3100 and CADS 3200. Exploration of the interior design profession and standard practices.

CADS 3700 GENDER, WEALTH & PHILANTHROPY (3) LEC. 3. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700 or CADS 3707.

CADS 3707 HONORS GENDER, WEALTH AND PHILANTHROPY (3) LEC. 3. Pr. Honors College. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700 or CADS 3707.

CADS 3750 PRODUCT DEVELOPMENT: APPAREL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2750 and CADS 2800 and CADS 2770. Advanced design techniques, including couture production; portfolio and internship planning. ADMP major.

CADS 3800 CONSUMER DECISION MAKING FOR APPAREL AND FASHION PRODUCTS (3) LEC. 3. Pr. CADS 2000 or CADS 2003 or CADS 2007. Analysis of consumer decision making for apparel and fashion products and the factors that impact consumer decisions. AMDP major.

CADS 3810 SOCIAL MEDIA MANAGEMENT FOR APPAREL (3) LEC. 3. Topics in social media management and application of merchandising strategies for apparel businesses. Juniors & Seniors Only; APME and APDP only, ENFB Minor by departmental approval

CADS 3850 MERCHANDISE PLANNING AND CONTROL (3) LEC. 2. LAB. 2. Pr. (COMP 1000 or COMP 1003) and CADS 1600 and (ACCT 2810 or ACCT 2813) or Departmental approval. Application of principles of merchandise management and retail buying to the retailing of consumer goods and services.

CADS 3900 DIRECTED STUDIES (1-3) AAB/IND. SU. Departmental approval. Directed readings and/or individualized research project. Course may be repeated for a maximum of 6 credit hours.

CADS 3920 INDUSTRY EXPERIENCE (3) INT. 3. Pr. CADS 1600. Departmental approval. Supervised industry experience requiring students to spend time working in the industry under supervision. Course may be repeated for a maximum of 6 credit hours.

CADS 3940 STUDY TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) AAB/FLD. Departmental approval. Concentrated study in the U.S. or abroad. Course may be repeated for a maximum of 6 credit hours.

CADS 3970 SPECIAL TOPICS (1-4) LEC. Courses may be repeated for 9 hours. Departmental approval. Standing grade. Course may be repeated for a maximum of 9 credit hours.

CADS 4040 ESTATE PLANNING & PHILANTHROPY (3) LEC. 3. Pr. CADS 2040. CADS 4040 Estate Planning & Philanthropy (3). LEC. 3. Introduction to estate planning concepts and philanthropy strategies for preservation and transfer of family wealth and reflecting family financial and philanthropic goals. Includes legal, tax, financial, and non-financial factors and components.

CADS 4050 CONSUMER TAX PLANNING (3) LEC. 3. Pr. CADS 2040. Study of the impacts of taxation, including the federal income tax, on decisions made by individuals and families throughout the life cycle. Apply economic, legal, and management principles to the family tax planning process.

CADS 4060 RETIREMENT & BENEFITS PLANNING (3) LEC. 3. Pr. CADS 2040. CADS 4060 Retirement & Benefits Planning (3) LEC. 3. Introduction to retirement planning concepts, processes and issues, with attention to designing retirement strategies to meet diverse client needs.

CADS 4100 PHILANTHROPY & NONPROFIT STUDIES LECTURE SERIES (1) LEC. 1. Pr. CADS 2700 and (CADS 3700 or CADS 3707). Lecture series showcasing philanthropic and nonprofit leaders. Course may be repeated for a maximum of 2 credit hours.

CADS 4200 INTERIOR DESIGN SENIOR SEMINAR (1) LEC. 1. Pr. CADS 3200. INDS (interior design) majors only, or with departmental approval. Preparation for professional NCDIQ exam, with emphasis on IDFX fundamentals knowledge. Overview of content, test structure, and progress toward licensure. Review of requirements for practice across a variety of jurisdictions. Examination of the current job market and strategic planning for the first two years of professional practice.

CADS 4700 PORTFOLIO DEVELOPMENT FOR PHILANTHROPY AND NONPROFIT STUDIES (3) LEC. 3. Pr. CADS 2700 and CADS 2040 and CADS 3780. Portfolio development in print, digital, and web formats for students in Philanthropy and Nonprofit Studies.

CADS 4740 CONSUMER FINANCIAL MANAGEMENT APPLICATIONS (3) LEC. 3. Pr. CADS 4040 and CADS 4050 and CADS 4060 and FINC 3200 and FINC 3640. CADS 4740 Consumer Financial Management Applications (3) LEC. 3. Capstone consumer financial planning applying comprehensive planning concepts, processes and issues to development of a complete family financial plan.

CADS 4750 PRODUCT DEVELOPMENT: SPECIALIZED DESIGN (3) STU. 6. Pr. CADS 3750. Specialized design development concepts, techniques, and applications for target markets including children's wear, performance wear, and bridal markets.

CADS 4800 APPAREL ENGINEERING (4) LEC. 3. LAB. 3. Pr. CADS 2800. Coreq. CADS 3750. Planning and problem solving throughout the apparel production process, including methods engineering, time study, costing, CAD. AMDP major.

CADS 4850 ADVANCED EXCEL FOR MERCHANDISING DATA ANALYTICS (3) LEC. 3. LAB. 0. Pr. P/C CADS 3850 or P/C CADS 3853. Advanced techniques of Microsoft Excel for data analytics in merchandising and retail decision making.

CADS 4900 UNDERGRADUATE TEACHING ASSISTANT EXPERIENCE (1-3) LEC/LST. Student must have previously earned an "A" in the course s/he is assisting with. Departmental approval. Student participation as an undergraduate teaching assistant (UTA) for the Consumer and Design Sciences course under the supervision of a faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4910 PRACTICUM IN PHILANTHROPY AND NONPROFIT ORGANIZATIONS (3) PRA. 3. Pr. (CADS 2700 or CADS 2703) and (CADS 3700 or CADS 3703 or CADS 3707). Departmental approval. Supervised practicum experience with a philanthropic or nonprofit organization.

CADS 4920 PHILANTHROPY AND NONPROFIT STUDIES INTERNSHIP (9) INT. Pr. CADS 3780 or CADS 4040. Departmental approval. Supervised 10 week professional internship. 2.0 GPA. Junior standing.

CADS 4930 APPAREL MERCHANDISING, DESIGN AND PRODUCTION MANAGEMENT INTERNSHIP (9) INT. Pr. CADS 3850 or CADS 3750 or CADS 3853. Departmental approval. Supervised 10 week professional internship. 2.0 GPA. Junior standing.

CADS 4950 INTERIOR DESIGN INTERNSHIP (9) INT. Pr. CADS 5100. Departmental approval. Supervised 10 week professional internship. 2.0 GPA. Junior standing.

CADS 4960 SPECIAL PROBLEMS IN DESIGN (1-4) LEC. Departmental approval. A) Apparel, B) Interior Design, C) Visual Merchandising, D) Textile Design. Creative solution of design problems. Course may be repeated for a maximum of 9 credit hours.

CADS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Pr. Honors College. Departmental approval. Readings in specialized topics. Course may be repeated for a maximum of 6 credit hours.

CADS 4980 UNDERGRADUATE RESEARCH IN CONSUMER AND DESIGN SCIENCES (1-3) IND/LEC. SU. Pr. 3.50 GPA. Departmental approval. Participation as an undergraduate research assistant (URA) for a Consumer and Design Sciences research project under the supervision of a CADS faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4997 HONORS THESIS (3) IND. 3. SU. Pr. Honors College. CADS 4967. Departmental approval. Research in specialized topics.

CADS 5100 INTERIOR DESIGN STUDIO: COMMERCIAL (4) LEC/STU. 6. Pr. CADS 3200 and CADS 2550 and CADS 2400. INDS (interior design) majors only, or with departmental approval. Development of commercial interior design solutions with emphasis on contemporary issues in workplace design.

CADS 5150 GLOBAL ISSUES IN INTERIOR DESIGN (3) LEC. 6. Coreq. CADS 5350. INDS (interior design) majors only or with Departmental approval. Explores the impact of designed products, places, and processes within the interior environment on global health and quality of life.

CADS 5200 INTERIOR DESIGN PORTFOLIO (3) LEC. 3. Pr. CADS 2100 and CADS 2200. INDS (interior design) majors only, Development of a professional interior design portfolio and collateral documentation.

CADS 5300 INTERIOR DESIGN STUDIO: HOSPITALITY (4) LEC/STU. 6. Pr. CADS 5100. INDS (interior design) majors only, or with departmental approval. Development of hospitality design solutions with emphasis on industry trends and practice-based approaches. May count either CADS 5300 or CADS 6300.

CADS 5310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 5350 INTERIOR DESIGN STUDIO: ADVANCED DESIGN PROJECT (4) LEC. 1, LST/STU. 6. Pr. CADS 5400. INDS (interior design) majors only, or with departmental approval. Response to a complex interior design challenge through application of design process, resulting in an advanced solution informed by pre-design research. May count for either CADS 5350 or 6350.

CADS 5400 INTERIOR DESIGN STUDIO: DESIGN FOR HEALTH AND WELLNESS (4) LEC/STU. 6. Pr. CADS 5100 and P/C CADS 5150. INDS (interior design) majors only or with departmental approval. Development of interior design solutions for health, wellness, and quality of life. May count either CADS 5400 or 6400.

CADS 5450 HISTORY OF COSTUME (3) LEC. 3. Pr., Core History or departmental approval. AMDP major. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 5450 and CADS 6450.

CADS 5460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. P/C; Core History, Core Literature or departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460.

CADS 5500 APPAREL MERCHANDISING PORTFOLIO (2) LEC. 2. Pr. (CADS 3850 or CADS 3853) and P/C CADS 3150. Portfolio Development in print and digital formats for merchandising students. Departmental approval may be needed.

CADS 5510 DIGITAL RETAILING FOR APPAREL (3) LEC. 3. Pr. CADS 3850 or CADS 3853. Application of various digital retailing and merchandising concepts and strategies for apparel businesses. CADS 3850 or 3853; Juniors & Seniors Only; APME and APDP Only; ENFB Minor by departmental approval

CADS 5600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (AFRI 2000 or ANTH 1000 or ANTH 1003 or ANTH 1007 or COUN 2000 or ECON 2030 or ECON 2033 or ECON 2037 or GEOG 1010 or GEOG 1013 or GEOG 1017 or GSHS 2000 or NATR 2050 or POLI 1050 or POLI 1057 or POLI 1090 or POLI 1093 or POLI 1097 or PSYC 2010 or PSYC 2013 or PSYC 2017 or SOCY 1000 or SOCY 1003 or SOCY 1007 or SOCY 1100 or SUST 2000 or UNIV 2720 or UNIV 2727) or Departmental approval. The role of fiber, textile, and apparel industries in the international economy. AMDP major.

CADS 5610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Pr. (CADS 2000 or CADS 2003 or CADS 2007) and (CADS 3850 or CADS 3853). Strategies for successful global business expansion for textile and apparel retailers. Credit granted for only one of: CADS 5610, CADS 6610, MKTG 4330.

CADS 5700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 5730 HISTORY OF TEXTILES (3) LEC. 3. Pr., Core History or departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 5750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. CADS 3750 and CADS 4800. Team driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750.

CADS 5760 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Pr. CADS 1600 and (CADS 1740 or CADS 2760). Theories explaining fashion dynamics and techniques for forecasting change, with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 5760 and CADS 6760. AMDP major.

CADS 5770 PORTFOLIO DEVELOPMENT FOR APPAREL DESIGN (4) LST. 4. Pr. P/C CADS 3750 and P/C CADS 4800. Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, digital, and web formats for apparel design students.

CADS 5780 INTERNATIONAL PHILANTHROPY (3) LEC. 3. Introduction to the role of international philanthropy in addressing global poverty and how philanthropic practices and behaviors are embedded in cultural contexts. Explores best practices in cross-border philanthropy and volunteering, supporting the development of cross-cultural competencies.

CADS 5790 GRANTMAKING FOR PHILANTHROPISTS (3) LEC. 3. Introduction to philanthropic grantmaking institutions including mission development, needs assessment, proposal analysis, and site visits. Incorporates student philanthropy via development of grant-making strategies and best practices in individual giving.

CADS 5850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Pr. CADS 3850 or CADS 3853. Problem-solving and decision making strategies for retailing apparel, textiles, and other consumer products. Credit will not be given for both CADS 5850 and CADS 6850. AMDP major.

CADS 5860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Pr. CADS 5850. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 6100 INTERIOR DESIGN STUDIO: COMMERCIAL (4) LEC/STU. 6. INDS (interior design) majors only, or with departmental approval. Development of commercial interior design solutions with an emphasis on contemporary issues in workplace design. May count for either CADS 5100 or 6100.

CADS 6150 GLOBAL ISSUES IN INTERIOR DESIGN (3) LEC. 3. CADS graduate students only, or with departmental approval. Explores the impact of designed products, places, and processes within the interior environment on global health and quality of life.

CADS 6200 INTERIOR DESIGN PORTFOLIO (3) LEC. 3. CADS graduate students only, or with departmental approval. Development of a professional interior design portfolio and collateral documentation.

CADS 6300 INTERIOR DESIGN STUDIO: HOSPITALITY (4) LEC/STU. 6. CADS graduate students only, or with departmental approval. Development of hospitality design solution with emphasis on industry trends and practice-based approaches.

CADS 6310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 6350 INTERIOR DESIGN STUDIO: ADVANCED DESIGN PROJECT (4) LEC/STU. 6. CADS graduate students only, or with departmental approval. Response to a complex interior design challenge through application of design process, resulting in an advanced solution informed by pre-design research. May count for either CADS 5350 or 6350.

CADS 6400 INTERIOR DESIGN STUDIO: DESIGN FOR HEALTH AND WELLNESS (4) LEC/STU. 6. Departmental approval. Development of interior design solutions for health, wellness, and quality of life. Graduate standing.

CADS 6450 HISTORY OF COSTUME (3) LEC. 3. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 6450 and CADS 5450. Departmental approval. Graduate standing.

CADS 6460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. Departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460. Graduate standing.

CADS 6500 APPAREL MERCHANDISING PORTFOLIO (2) LEC. 2. Pr. CADS 5850 or CADS 5860. Portfolio development in print and digital formats for merchandising students.

CADS 6510 DIGITAL RETAILING FOR APPAREL (3) LEC. 3. Application of various digital retailing and merchandising concepts and strategies for apparel businesses. Graduate standing or departmental approval needed.

CADS 6600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Departmental approval. The role of fiber, textile, and apparel industries in the international economy. Credit will not be given for both CADS 5600 and CADS 6600. Graduate standing.

CADS 6610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Strategies for successful global business expansion for textile and apparel retailers. Credit given for only one of: CADS 5610, CADS 6610, MKTG 4330. Departmental approval.

CADS 6700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 6730 HISTORY OF TEXTILES (3) LEC. 3. Departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 6750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Team-driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750. Departmental approval. Graduate standing.

CADS 6760 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Departmental approval. Theories explaining fashion dynamics and techniques for forecasting change with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 6760 and CADS 5760.

CADS 6770 PORTFOLIO DEVELOPMENT FOR APPAREL DESIGN (4) LST. 4. Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, digital and web formats for an apparel design focus. Departmental approval needed. May count either CADS 5770 or CADS 6770.

CADS 6780 INTERNATIONAL PHILANTHROPY (3) LEC. 2.5. Introduction to the role of international philanthropy in addressing global poverty and how philanthropic practices and behaviors are embedded in cultural contexts. Explores best practices in cross-border philanthropy and volunteering, supporting the development of cross-cultural competencies.

CADS 6790 GRANTMAKING FOR PHILANTHROPISTS (3) LEC. 3. Introduction to philanthropic grantmaking institutions including mission development, needs assessment, proposal analysis, and site visits. Incorporates student philanthropy via development of grant-making strategies and best practices in individual giving.

CADS 6850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Departmental approval. Problem-solving and decision making strategies for retailing, apparel, textiles, and other consumer products. Credit will not be given for both CADS 6850 and CADS 5850.

CADS 6860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 7040 PROTOCOL FOR GRADUATE STUDY (1) LEC. 1. SU. Departmental approval. Introduction to policies, practices, and expectations for successful completion of the graduate degree.

CADS 7050 RESEARCH METHODS IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. CADS 7060. Research and investigation methods appropriate to the study of consumer and design sciences.

CADS 7060 SURVEY OF CONSUMER AND DESIGN SCIENCES RESEARCH (3) LEC. 3. Presentation and discussion of a broad array of research topics to support literature review development.

CADS 7100 ENVIRONMENTAL DESIGN THEORIES AND APPLICATIONS (3) LEC. 3. Theories, methodologies, and current issues relevant to interior design; sociological, psychological, ecological, and post-modern perspectives. Departmental approval for Pre-requisites.

CADS 7200 AESTHETICS THEORY IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. P/C CADS 7050. Review of theories of aesthetics focusing on aesthetic experience and response as a function of object, perceiver, and situational properties. Graduate standing.

CADS 7530 SUSTAINABILITY THEORY AND APPLICATIONS (3) LEC. 3. Pr. P/C CADS 7050. Departmental approval. Overview of current sustainability theories, research, and methodologies from the perspectives of different fields of study. Evaluation of literature and practices in the apparel and textile industrial complex, interior design practice, and related products and services through people, processes, and the environment. Development and presentation of original scholarly or creative design work within sustainability frameworks.

CADS 7670 SOCIAL PSYCHOLOGICAL THEORIES IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. P/C CADS 7050. Examination of theories that explain the social-psychological aspects of consumer behavior related to apparel and design sciences.

CADS 7690 CONSUMER THEORY IN APPAREL AND INTERIORS (3) LEC. 3. Pr. CADS 7050. Departmental approval. Overview of various theories used in consumer research with an emphasis on their application in apparel, merchandising, design, and interiors.

CADS 7900 DIRECTED STUDIES (1-3) IND. SU. Course may be repeated for a maximum of 6 credit hours.

CADS 7910 SUPERVISED TEACHING IN CONSUMER AND DESIGN SCIENCES (1) AAB/IND. 1. SU. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

CADS 7920 GRADUATE INTERNSHIP (3) INT. 3. Departmental approval. Supervised professional experience in the United States or internationally.

CADS 7930 ADVANCED DESIGN PROJECTS (1-6) IND. SU. Departmental approval. Independent execution of advanced design work. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Course may be repeated for a maximum of 6 credit hours.

CADS 7940 STUDY/TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) FLD. SU. Departmental approval. Concentrated study/travel in the U.S. or internationally. Course may be repeated for a maximum of 6 credit hours.

CADS 7950 SEMINAR (1) SEM. 1. SU. Departmental approval. Research presentations and discussion. Course may be repeated for a maximum of 3 credit hours.

CADS 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Directed readings in textiles, apparel, interiors and retailing. Course may be repeated for a maximum of 6 credit hours.

CADS 7970 SPECIAL TOPICS IN DESIGN (1-6) RES. Departmental approval. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Independent execution of advanced design work. Course may be repeated for a maximum of 6 credit hours.

CADS 7980 GRADUATE PROJECT (1-3) RES. Departmental approval. In-depth, integrative research in a particular project related to apparel, textiles, interiors or consumer behavior. Course may be repeated for a maximum of 6 credit hours.

CADS 7990 RESEARCH AND THESIS (1-10) AAB/MST. Course may be repeated with change in topics.

CADS 8100 BRANDING RESEARCH AND THEORIES IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. CADS 7050. Critical examination of theories and methodological issues in branding research and application in the fields of consumer and design sciences.

CADS 8950 INDUSTRY ISSUES SEMINAR (1) LEC. 1. SU. Research presentations and discussions on issues facing consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8960 CURRENT ISSUES IN CONSUMER AND DESIGN SCIENCES (1-3) LEC. 1-3. Departmental approval. Examination of current issues in consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Topics related to various aspects of consumer and design sciences. Course may be repeated for a maximum of 9 credit hours.

CADS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Apparel Merchandising, Design and Production Management — Apparel Merchandising Option (APME)

Apparel Merchandising Option

Freshman

Fall	Hours	Spring	Hours
CADS 1600 Textile Industrial Complex	**3**	**NTRI 2000 Nutrition And Health, HDFS 2100 The Science of Human Connections, *or* HOSP 2000 Principles of Service Management**	**3**
ENGL 1100 English Composition I	3	Core Humanities[1]	3
MATH 1120 Pre-Calculus Algebra ***or*** 1130 Pre-Calculus Trigonometry	3	ENGL 1120 English Composition II	3
Core Social Science	3	COMP 1000 Personal Computer Applications	2

		COMM 1000 Public Speaking	3
	12		**14**

Sophomore

Fall	**Hours**	**Spring**	**Hours**
CADS 2600 Textiles	**3**	**CADS 2800 Apparel Production Management**	**4**
CADS 2000 Global Consumer Culture	**3**	**CADS 2760 Visual Merchandising**	**4**
ACCT 2810 Fundamentals Of Accounting	3	Core History II	3
Core History I	3	Core Science Sequence (1 of 2)[2]	4
Core Science (1 of 2)[2]	4		
	16		**15**

Junior

Fall	**Hours**	**Spring**	**Hours**	**Summer**	**Hours**
CADS 3850 Merchandise Planning and Control	**3**	**CADS 5600 Global Sourcing in Textiles and Apparel**	**3**	**CADS 4930 Apparel Merchandising, Design and Production Management Internship**	**9**
CADS 3150 Professional Development for Apparel Merchandising Career	**1**	**CADS 5850 Apparel Merchandising and Retail Management**	**4**		
HDFS 2040 Analytics for the Social and Behavioral Sciences	3	**Merchandising Support Choice[5]**	**3**		
NTRI 2000 Nutrition And Health, HDFS 2100 The Science of Human Connections, *or* HOSP 2000 Principles of Service Management	**3**	Core Fine Arts	3		
ECON 2020 Principles of Microeconomics	3	Core Literature	3		
	13		**16**		**9**

Senior

Fall	**Hours**	**Spring**	**Hours**
CADS 5760 Fashion Analysis And Forecasting	**3**	**CADS 5450 History Of Costume (OR professional electives)[4]**	**3**
CADS 5460 Fashion Industry Since 1910 (or prof. electives)[4]	**3**	MNGT 3810 Management Foundations	3
Merchandising Support Choice [5]	**3**	Professional Electives[4]	6
MKTG 3310 Principles of Marketing	3	UNIV 4AA0 Achieve the Creed[6]	0
Professional Electives[4]	4		
	16		**12**

Total Hours: 123

College and Department Notes:

Required major courses and College core courses are in **bold**. Grades in these courses are used to calculate the GPA in the major and to meet graduation standards.
To enroll in CADS classes, students must be APME or APDP majors, or dept. approval. Exceptions to APME or APDP requirement: CADS 1600, CADS 1740, CADS 2000, CADS 2700, CADS 3700, CADS 4910, CADS 5450, CADS 5460.
Note: Must earn a "C" in all required courses in the APME major. Students must earn a "C" or higher in all prerequisite courses in the major.

1 Must choose from HONR 1017, PHIL 1010/PHIL 1017, PHIL 1020/PHIL 1027, PHIL 1030, PHIL 1040, PHIL 1050, PHIL 1060, PHIL 1070, PHIL 1080, PHIL 1090, PHIL 1100, PHIL 1110.

2 Choose from: BIOL 1000/BIOL 1001 & BIOL 1010/BIOL 1011; CHEM 1010/CHEM 1011 & CHEM 1020/CHEM 1021; GEOL 1100 & GEOL 1110; CSES 1010 & CSES 1020; GEOG 1020 & GEOG 1030.

4 Must choose 6 hours CADS courses as professional elective OR complete a minor. Student must complete CADS 5450 or CADS 5460. Other classes may be approved by faculty advisors. Up to 3 hours of CADS 3900 may be used towards professional electives.

5 Merchandising support courses—choose 2 courses from: CADS 3800, CADS 3810, CADS 4850, CADS 5510, CADS 5700, CADS 5860.

6 Seniors must register for UNIV 4AA0 the term they plan to graduate (non-credit class for clearing graduation).

Apparel Merchandising, Design and Production Mngt. — Apparel Design and Prod. Mngt Option (APDP)

Apparel Design and Production Management Option

Freshman

Fall	Hours	Spring	Hours
CADS 1600 Textile Industrial Complex	**3**	**CADS 1740 Aesthetics for Fashion**	**3**
CADS 2000 Global Consumer Culture	**3**	**NTRI 2000 Nutrition And Health, HDFS 2100 The Science of Human Connections, *or* HOSP 2000 Principles of Service Management**	**3**
COMP 1000 Personal Computer Applications	2	COMM 1000 Public Speaking	3
MATH 1120 Pre-Calculus Algebra ***or*** 1130 Pre-Calculus Trigonometry	3	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Humanities[1]	3
	14		**15**

Sophomore

Fall	Hours	Spring	Hours
CADS 2600 Textiles	**3**	**CADS 2750 Product Development: Technical Design**	**4**
CADS 2740 Illustration Techniques for Apparel	**3**	**CADS 2770 Computer-Aided Design for Apparel**	**4**
CADS 2800 Apparel Production Management	**4**	Core History II	3
Core History I	3	ECON 2020 Principles of Microeconomics	3
	13		**14**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
CADS 3750 Product Development: Apparel Design	**4**	**CADS 3850 Merchandise Planning and Control**	**3**	**CADS 4930 Apparel Merchandising, Design and Production Management Internship**	**9**
CADS 5770 Portfolio Development for Apparel Design	**4**	**CADS 5600 Global Sourcing in Textiles and Apparel**	**3**		
Core Fine Arts	3	**NTRI 2000 Nutrition And Health, HDFS 2100 The Science of Human Connections, *or* HOSP 2000 Principles of Service Management**	**3**		
Core Science Sequence (1 of 2)[2]	4	Core Literature	3		
		Core Science Sequence (2 of 2)[2]	4		
	15		**16**		**9**

Senior

Fall	Hours	Spring	Hours
CADS 4800 Apparel Engineering	**4**	**CADS 5450 History Of Costume (OR Professional Electives)[2]**	**3**
CADS 5460 Fashion Industry Since 1910 (OR Professional Electives)[2]	**3**	**CADS 5750 Apparel Line Development**	**4**
CADS 5760 Fashion Analysis And Forecasting	**3**	Professional Electives[3]	7
Core Social Science	3	UNIV 4AA0 Achieve the Creed	0
	13		**14**

Total Hours: 123

College and Department Notes:

- Required major courses and College core courses are in **bold**. Grades in these courses are used to calculate the GPA in the major and to meet graduation standards.
- To enroll in CADS classes, students must be APME or APDP majors, or have dept. approval. Exceptions to APME or APDP requirement: CADS 1600, CADS 1740, CADS 2000, CADS 2700, CADS 3700, CADS 4910, CADS 5450, CADS 5460.
- Note: Must earn a "C" in all required courses in the APDP major. Students must earn a "C" or higher in all prerequisite courses in the major.

1 Must choose from HONR 1017, PHIL 1010/PHIL 1017, PHIL 1020/PHIL 1027, PHIL 1030, PHIL 1040, PHIL 1050, PHIL 1060, PHIL 1070, PHIL 1080, PHIL 1090, PHIL 1100, PHIL 1110.

2 Choose from: BIOL 1000/BIOL 1001 & BIOL 1010/BIOL 1011; CHEM 1010/CHEM 1011 & CHEM 1020/CHEM 1021; GEOL 1100 & GEOL 1110; CSES 1010 & CSES 1020; GEOG 1020 & GEOG 1030.

3 Must choose 6 hours design courses as professional elective OR complete a minor. Student must complete CADS 5450 or CADS 5460. Other classes may be approved by faculty advisors. Up to 3 hours of CADS 3900 may be used towards professional electives.

4 Seniors must register for UNIV 4AA0 the term they plan to graduate (non-credit class for clearing graduation).

Certificate in Financial Planning

The Certificate in Financial Planning introduces students to the core areas of personal financial planning. Through the curriculum, students learn to analyze and advise in all personal financial planning knowledge components as identified by the Certified Financial

Planner Board of Standards. Courses offered in the certificate will prepare students to sit for the post-graduation certification exam and become a Certified Financial Planner. The certificate prepares students for careers in the financial planning profession.

Code	Title	Hours
CADS 2040	Consumer Financial Planning	3
CADS 4040	Estate Planning & Philanthropy	3
CADS 4050	Consumer Tax Planning	3
CADS 4060	Retirement & Benefits Planning	3
FINC 3200	Risk and Insurance	3
CADS 4740	Consumer Financial Management Applications	3
FINC 3640	Investments	3

Students must earn a "C" or higher in the courses required for the certificate.

Interior Design (INDS)

Freshman and transfer students admitted to Auburn University, as well as internal transfer students from within Auburn University, who desire to major in Interior Design, College of Human Sciences, will be admitted to Pre-Interior Design (INDX). The Pre-Interior Design students must complete the first year of Pre-Interior Design course work; i.e., CADS 1000 and CADS 1100 with a grade of “C” or better in order to be evaluated for possible admission into the Interior Design curriculum. Admission into the Interior Design program (sophomore-senior levels) is limited with a maximum class size of 60 students per year. Admission will be based upon a portfolio review by the Interior Design faculty of selected work completed in the Pre-Interior Design course work. Most course work in the major must be taken in sequence; transfer students should anticipate that additional semesters of study may be required to complete the program. Students in INDS must earn a grade of a C or higher in all prerequisite courses in the major before being allowed to proceed to the next course in the sequence. Major courses include the Human Sciences College core courses and all required Consumer and Design Sciences courses that are indicated in bold print in the model.

Freshman

Fall	Hours	Spring	Hours
CADS 2000 Global Consumer Culture	**3**	**CADS 2300 History of Interior Design I**	**3**
CADS 1100 Interior Design Studio: Design Principles	**3**	Core History 2	3
CADS 1000 Introduction to Interior Design	**3**	Core Fine Arts	3
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History 1	3	MATH 1100 Finite Math and Applications, 1120 Pre-Calculus Algebra, ***or*** 1130 Pre-Calculus Trigonometry	3
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
CADS 2100 Interior Design Studio: Space Planning and Process	**4**	**CADS 2200 Interior Design Studio: Computer-Aided Design**	**3**
CADS 2150 Project Management for Interior Designers	**1**	**CADS 2400 Interior Materials and Components**	**3**
CADS 2350 History of Interior Design II	**3**	**CADS 3200 Interior Design Studio: Residential**	**4**

CADS 2550 Lighting, Mechanical, and Environmental Systems	**3**	Professional Elective[1]	3
COMM 1000 Public Speaking	3	**NTRI 2000 Nutrition And Health, HDFS 2100 The Science of Human Connections, *or* HOSP 2000 Principles of Service Management**	**3**
	14		**16**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
CADS 5100 Interior Design Studio: Commercial	**4**	**CADS 5150 Global Issues in Interior Design**	**3**	**CADS 4950 Interior Design Internship**	**9**
CADS 5200 Interior Design Portfolio	**3**	**CADS 5400 Interior Design Studio: Design for Health and Wellness**	**4**		
Core Literature	3	**NTRI 2000 Nutrition And Health, HDFS 2100 The Science of Human Connections, *or* HOSP 2000 Principles of Service Management**	**3**		
Core Science Sequence (1 of 2)[2]	4	Core Science Sequence (2 of 2)[2]	4		
	14		**14**		**9**

Senior

Fall	Hours	Spring	Hours
CADS 4200 Interior Design Senior Seminar	**1**	**CADS 5350 Interior Design Studio: Advanced Design Project**	**4**
CADS 5300 Interior Design Studio: Hospitality	**4**	Core Social Sciences	3
Professional Elective[1]	5	Professional Elective[1]	3
Core Social Sciences	3	Core Humanities - PHIL	3
		UNIV 4AA0 Achieve the Creed	0
	13		**13**

Total Hours: 123

1 Professional electives are selected from a list provided by program advisors/academic advisors.

2 Choose from: Series A: BIOL 1000, BIOL 1001 & BIOL 1010, BIOL 1011; CHEM 1010, CHEM 1011 & CHEM 1020, CHEM 1021; GEOL 1100 & GEOL 1110; CSES 1010 & CSES 1020.

College and Department Notes:

- Note 1: Required Interior Design major courses and College Core are in bold. Grades in these courses are used to calculate the GPA in the major and to meet graduation requirements.
- Note 2: Admission to the INDS program is competitive. All incoming and transfer students will be placed in Pre-Interior Design pending acceptance into the INDS program.
- Note 3: Students participate in a portfolio review after completing both CADS 1000 and CADS 1100 with a "C" or higher to determine the students that matriculate into the INDS program.
- Note 4: Must earn a "C" or higher on all required CADS courses in the Interior Design major.

- Note 5: All Human Sciences students must have a laptop. In addition, students who complete portfolio review and matriculate into the Interior Design program have specific technology requirements for the major.
- Note 6: Students must register for UNIV 4AA0 the term they plan to graduate (non-credit class for clearing graduation).

Philanthropy and Non-Profit Studies (PNPS)

Freshman

Fall	Hours	Spring	Hours
CADS 1700 Giving and Sharing	**3**	**CADS 2000 Global Consumer Culture**	**3**
NTRI 2000 Nutrition And Health, HDFS 2100 The Science of Human Connections, *or* HOSP 2000 Principles of Service Management	**3**	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	COMM 1000 Public Speaking	3
MATH 1130 Pre-Calculus Trigonometry ***or*** 1120 Pre-Calculus Algebra	3	HIST CORE 2	3
HIST CORE 1	3	Core Social Science	3
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
NTRI 2000 Nutrition And Health, HDFS 2100 The Science of Human Connections, *or* HOSP 2000 Principles of Service Management	**3**	**CADS 2040 Consumer Financial Planning**	**3**
CADS 2700 Introduction to Nonprofit Organizations	**3**	ECON 2020 Principles of Microeconomics	3
Core Science sequence 1[1]	4	Core Science sequence 2[1]	4
Core Literature	3	Core PHIL	3
Required Supporting Coursework	3	Minor OR Certificate Course	3
	16		**16**

Junior

Fall	Hours	Spring	Hours
CADS 3700 Gender, Wealth & Philanthropy	**3**	**CADS 5790 Grantmaking for Philanthropists**	**3**
CADS 4040 Estate Planning & Philanthropy	**3**	POLI 5380 INGOs and International Organizations ***or*** 5390 NGOs and International Development	3
Core Fine Arts	3	Minor OR Certificate course	6
POLI 5360 Nonprofit Resource Development	3	Professional elective	4
Minor OR Certificate Course	3		
Required Supporting Coursework	3		
	18		**16**

Senior

Fall	Hours	Spring	Hours
CADS 4700 Portfolio Development for Philanthropy and Nonprofit Studies	**3**	**CADS 4920 Philanthropy and Nonprofit Studies Internship**	**9**
POLI 5370 Nonprofit Management	3	UNIV 4AA0 Achieve the Creed	0
POLI 5350 Nonprofit Law and Governance	3		

Minor OR Certificate course	3	
Professional elective	3	
	15	**9**

Total Hours: 120

1 Core Science sequence options: CHEM 1010/CHEM 1011 AND CHEM 1020/CHEM 1021, or BIOL 1000/BIOL 1001 AND BIOL 1010/BIOL 1011, or PHYS 1500 AND PHYS 1510, or GEOG 1020 AND GEOG 1030, or GEOL 1100 AND GEOL 1110.

2 Minor options: Consumer Financial Planning, Hunger Studies, International Minor in Human Sciences, Communication, Business, Public Administration

3 Professional elective options: CADS 5780 International Philanthropy, GSHS 2000 Global Studies Human Sciences, HUSC 2000 Hunger: Causes, Consequences, and Responses, CADS 3940 Study Travel in Consumer and Design Sciences, CADS 5700 Entrepreneurship in Apparel and Interiors, COMM 2400 Introduction to Workplace Communication, COMM 3110 Persuasion, PRCM 2400 Foundations of Public Relations, ENGL 3040 Technical Writing, CADS 4100 Philanthropy & Nonprofit Studies Lecture Series, Foreign Language

Philanthropy and Non-Profit Studies Minor

Required Courses

Code	Title	Hours
CADS 2700	Introduction to Nonprofit Organizations	3
CADS 3700/3707	Gender, Wealth & Philanthropy	3
CADS 4910	Practicum in Philanthropy and Nonprofit Organizations	3
Total Hours		**9**

Disciplinary Support*

(Select a minimum of 6 hours from the list below. ** At least 3 hours must be at the 3000 level or above.)

Code	Title	Hours
CADS 2000/2007	Global Consumer Culture	3
CADS 3940	Study Travel in Consumer and Design Sciences	1-3
HDFS 3930	Service Learning in Human Development and Family Science	1-6
HDFS 3500	Hospitalized Children and Their Families	3
HDFS 4670	Parent Education	3
HDFS 4680	Family in Cross-Cultural Perspective	3
HDFS 5300	HDFS and Social Policy	3
HUSC 2000/2007	Hunger: Causes, Consequences, and Responses	3
CADS 1700	Giving and Sharing	3
HOSP 2600	Event Operations	3
CADS 4100	Philanthropy & Nonprofit Studies Lecture Series	1
CADS 4700	Portfolio Development for Philanthropy and Nonprofit Studies	3
HUSC 4000	Hunger Studies Capstone	3
ACCT 2810	Fundamentals Of Accounting	3
CADS 5790	Grantmaking for Philanthropists	3
CADS 4050	Consumer Tax Planning	3
CADS 4060	Retirement & Benefits Planning	3
CADS 4740	Consumer Financial Management Applications	3

* If a student has taken this course to fulfill requirements of the School/College core or the major, it cannot count toward the minor. In this case, the student must select an additional three hour course from the electives above.

** Some of these courses may have prerequisites that must be met.

Horst Schulze School of Hospitality Management

The Horst Schulze School of Hospitality Management offers the major in Hospitality Management (HOSP). The HOSP major emphasizes food, lodging and event services for consumers in the tourism and hospitality industry. The HOSP major offers three study options: Hotel and Restaurant Management (HRMG), Event Management (EVMT) and Culinary Science (CULI).

Hospitality Management

The Hospitality Management Major prepares students for careers in hotels, resorts, culinary, restaurants, the event sector and other positions in the tourism and hospitality industry. With its focus on instructional research and outreach initiatives, the Hospitality Management program's mission is to educate exceptional leaders for the State of Alabama and the global hospitality and tourism industry. Faculty concentrate on service excellence, social and ethical responsibility, diversity and inclusion in a practically oriented and intellectually stimulating learning environment.

The major offers students three exciting study options to choose from, including (1) Hotel and Restaurant Management, (2) Event Management and (3) Culinary Science.

Academic standards and policies: Students must earn a **"C"** in all required courses in the Hospitality Management Major. Students must earn a **"C"** or higher in all pre-requisite HOSP courses in the major.

Hotel and Restaurant Management Option

The Hotel and Restaurant Management (HRMG) option is designed to prepare graduates for careers in the premium service segment of the hospitality industry. This focus makes the Auburn HRMG program nationally unique. The HRMG curriculum provides career preparation for hotel management and food and beverage (restaurant) management, including private club management.

Event Management Option

The Event Management option is designed to service the educational needs of those students seeking to advance their careers in the event management field. As is the case both nationally and globally, this sector now makes a significant contribution to the socio-economic wellbeing of the state of Alabama and the nation. The event management curriculum focuses on the planning, execution and evaluation of a myriad of special events including, family, social, sporting, historical, musical and food and beverage oriented.

Culinary Science Option

The Culinary Science option is designed to service the needs of students seeking to advance their careers in the broad culinary field, including the commercial and non-commercial food production and service industry. The program will prepare students for advanced career entry by providing them with a differential mix of hands-on experience and the professional skill set deemed critical for success in this ever evolving and innovative sector. The program blends the art, science, and business of food to prepare students for a wide array of employment opportunities.

Majors

- Hospitality Management — Event Management Option (p. 811)
- Hospitality Management — Hotel and Restaurant Management Option (p. 812)
- Hospitality Management — Culinary Science Option (p. 809)

Courses

HOSP 1010 INTRODUCTION TO HOSPITALITY MANAGEMENT (3) LEC. 3. Overview of the hotel, restaurant, club, and travel industries and their interaction.

HOSP 1050 FOOD SAFETY AND SANITATION (1) LEC. 1. HOSP Major, or Departmental approval. Introduction to food sanitation and safety practices in foodservice operations.

HOSP 2000 PRINCIPLES OF SERVICE MANAGEMENT (3) LEC. 3. This course will address the key performance indicators service professionals and their front line personnel in the broad services sector and the hospitality industry in particular, must address in an effort to set themselves apart competitively as well as grow and sustain market share.

HOSP 2300 HOSPITALITY LAW (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010). or Departmental Approval. Legal systems and laws relevant to the management of restaurants, hotels, private clubs and other hospitality operations.

HOSP 2350 CULINARY FUNDAMENTALS (3) LEC. 2. LAB. 4. HOSP Major, WLEM, or Departmental approval. Introduction to fundamental culinary skills, methods and techniques used in the production of a variety of culinary dishes.

HOSP 2400 FOOD PRODUCTION AND SERVICE (2) LEC. 2. Pr. HOSP 1010 and (HOSP 1050) and (HOSP 2350). Coreq. HOSP 2401. Food Production and Service - Lecture Component will introduce students to the theoretical concepts surrounding front- and back-of-the-house across different foodservice establishments. Students will be guided to understand the current challenges and trends in the foodservice industry.

HOSP 2401 FOOD PRODUCTION AND SERVICE LAB (1) LAB. 5.5. Pr. (HOSP 1010) and (HOSP 1050) and (HOSP 2350). Coreq. HOSP 2400. Food Production and Service (Lab Component) will introduce students to the operational experience and skillsets surrounding front- and back-of-the-house across different foodservice establishments. This variety of hands-on learning experiences aims to provide a comprehensive understanding of food production and service in diverse settings.

HOSP 2500 LODGING OPERATIONS (2) LEC. 2. LAB. 0. Coreq. HOSP 2501. Lodging operations management, with emphasis on guest cycle.

HOSP 2501 LODGING OPERATIONS LAB (1) LEC. 0. LAB. 3, LAB. 0. Pr. P/C HOSP 2500. Coreq. HOSP 2500. This course offers students hands-on, practical experience in a real hotel environment. Participants will actively engage in various shifts across key departments, including front office operations, housekeeping, and laundry services.

HOSP 2600 EVENT OPERATIONS (3) LEC. 3. An analysis of each component pertinent to the planning and operations of a hospitality event. Topics such as strategic planning, event design, logistics, staging, marketing, and event evaluation will be discussed.

HOSP 2910 HOSPITALITY PRACTICUM (1) PRA. Pr. HRMT 1010 or HOSP 1010. Hospitality Major Only. Rotational perspective on the management and operation of the Auburn University Hotel and Conference Center.

HOSP 2940 PROFESSIONAL DEVELOPMENT IN HOSPITALITY (2) LEC. 2. Introduces the concepts of career planning and preparation for the hospitality industry. Hospitality Management Major.

HOSP 3200 HOSPITALITY FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (ACCT 2810 or ACCT 2813 or ACCT 2817 or ACCT 2110 or ACCT 2113 or ACCT 2117). Hospitality Management Major only. Financial systems and statements in the hospitality industry.

HOSP 3400 HOSPITALITY MARKETING (3) LEC. 3. Pr. (P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317). Junior standing and Hospitality Major Only or Departmental approval. Service marketing concepts and issues as applied to the global hospitality industry.

HOSP 3450 ADVANCED CULINARY ARTS (3) LEC. 2. LAB. 5. Pr. HOSP 1010 and HOSP 2350. HOSP Major or Departmental Approval. This course is an in-depth study of intermediate and advanced level processes in contemporary culinary arts and food production.

HOSP 3460 MANAGING EVENTS IN THE LIVE ENTERTAINMENT INDUSTRY (3) LEC. Pr. HOSP 2600. Departmental approval. This course is designed to expose students to live entertainment sub-sector of the events industry by focusing on the management, marketing and venue operations of three major business segments, specifically, spectator sports, live concerts, and performing arts. Through a series of lectures, invited speaker seminars, group discussions, and real-world case studies, students will learn a variety of concepts including stakeholder management, financing, logistics, sponsorship, marketing, contract negotiations and rider management among other related topics.

HOSP 3750 BAKING AND PATISSERIE (3) LEC. 2. LAB. 6. Pr. HOSP 2350. HOSP Major or Departmental Approval. This course includes the study of bakery and patisserie methods and principles, emphasizing classical and contemporary plated desserts and baked goods.

HOSP 3800 HOSPITALITY INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HRMT 1010 or HOSP 1010. Hospitality Major only or Departmental Approval. Strategic and operational issues surrounding introduction of technology in hospitality. Must be minimum of Junior standing.

HOSP 4200 HOSPITALITY FACILITIES MANAGEMENT (2) LEC. 2. LAB. 0. Pr. (HOSP 2500 and HOSP 2501). Design and operation of hospitality facilities.

HOSP 4201 HOSPITALITY FACILITIES MANAGEMENT LAB (1) LEC. 0. LAB. 3, LAB. 0. Pr. (HOSP 2500) and HOSP 2501. Laboratory course for HOSP 4200.

HOSP 4300 FOOD AND BEVERAGE MANAGEMENT (2) LEC. 2. Pr. (HOSP 2400 and HOSP 2401). Coreq. HOSP 4301. Food and Beverage Management (Lecture Component) will introduce students to the theoretical concepts surrounding front-and-back-of-the-house in a commercial restaurant operation.

HOSP 4301 FOOD AND BEVERAGE MANAGEMENT LAB (1) LAB. 5.5. Pr. HOSP 2400 and (HOSP 2401). Coreq. HOSP 4300. •Food and Beverage Management (Lab Component) will introduce students to the operational (hands-on experience) concepts surrounding front- and back-of-the-house in a commercial restaurant operation. This course consists of two components: weekly-basis lectures and weekly-basis labs

HOSP 4350 ADVANCED RESTAURANT MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400) and (HRMT 4300 or HOSP 4300). Advanced concepts and managerial issues of restaurant management.

HOSP 4480 GLOBAL GASTRONOMY (3) LEC. 2. LAB. 5. Pr. (HRMT 2400 or HOSP 2400) and HOSP 3450 and HOSP 3750. HOSP Major or Departmental Approval. The study of classical cooking skills associated with the preparation and service of international and ethnic cuisines. Additionally, food will be explored from a historical, cultural, economic and geopolitical perspective in each of the regions/countries studied.

HOSP 4500 STRATEGIC HOSPITALITY MANAGEMENT (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010) and (MNGT 3100 or MNGT 3103 or MNGT 3107 or MNGT 3810). Hospitality Major only or Departmental Approval. Development and implementation of strategic management in hospitality.

HOSP 4510 SPECIAL EVENTS (3) LEC. 3. Pr. HRMT 2600 or HOSP 2600. This course teaches students all the intricacies of special events. Students learn about the different types of special events and how different they are from each other. Students should be able to plan, organize and manage. Hospitality Major Only. Junior and Senior Standing.

HOSP 4570 GLOBAL HOSPITALITY (3) LEC. 3. Contemporary issues confronting the global hospitality industry. Management and marketing operations emphasized. Seniors only, HOSP and GSHS majors only.

HOSP 4600 BEVERAGE APPRECIATION (3) LEC. 3. 21 Years Old. Junior standing. Hospitality Major Only or Departmental Approval. Production, selection, service, and sensory evaluation of alcoholic and non-alcoholic beverages.

HOSP 4700 HOSPITALITY PROPERTY DEVELOPMENT & MANAGEMENT (3) LEC. 3. Pr. HOSP 2500 or HRMT 2500. This course introduces students to the complex world of resort management while also providing an understanding of the hotel/resort product development cycle from development to opening and management. It explores management responsibilities for project development, construction, supervision, pre-opening requirements, and operations. Senior only.

HOSP 4920 INTERNSHIP IN HOSPITALITY (4) INT. 4. Pr. 2.20 GPA. Departmental approval. HOSP major, 2.2 cumulative GPA, senior Standing, and 600 hours (during the collegiate experience) of work experience in hospitality. Application of principles and theories of hospitality in a professional hospitality setting.

HOSP 4930 DIRECTED STUDIES IN HOSPITALITY MANAGEMENT (1-3) LEC. Departmental approval. Directed Studies in Hospitality Management Pr., School Approval. Advanced individual research and study in Hospitality Management under the direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

HOSP 4970 SPECIAL TOPICS IN HOSPITALITY MANAGEMENT (3) LEC. 3. Departmental approval. Special Topics in Hospitality Management Pr., School Approval. A course addressing unique and/or current issues not covered in a regularly scheduled course.

HOSP 4980 UNDERGRADUATE RESEARCH AND STUDY (1-3) IND. Departmental approval. Undergraduate Research and Study Course may be repeated for a maximum of 3 credit hours.

HOSP 5380 STUDY TRAVEL IN HOSPITALITY (1-12) AAB/LLB. Departmental approval. Concentrated study in hospitality management in the US or international locations. Course may be repeated for a maximum of 12 credit hours.

HOSP 5460 THE EVENT EXPERIENCE - STRATEGIC DESIGN AND TECHNICAL PRODUCTION (3) LEC. 2. LAB. 4. Pr. HOSP 4510. This course familiarizes students with key points involved in the process of event design and technical production for a real-world event fundraiser. Students will evaluate a venue’s challenges and assets to execute the most fitting, and feasible, event design concept based on client needs and budgetary considerations. Additionally, students will consider the right audiovisual needs from a technical production vantage point to elevate the event attendee experience, award ceremony, and auction. Must be Senior Standing.

HOSP 5461 CATERING AND EVENT MANAGEMENT LABORATORY (2) LAB. 2. Pr. HOSP 5460 or HRMT 5460. Departmental approval. Provides students with a leadership practical experience in the planning, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 5530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Junior standing. Hospitality Major only or departmental approval. Role of quality service in attaining and retaining customers with emphasis on organizational strategic mission. May count HOSP 5530 or 6530.

HOSP 5540 CONFERENCE COORDINATION (3) LEC. 3. Pr. HOSP 1010 or HRMT 1010. Junior standing. Systems for managing conference coordination. May count HOSP 5540 or 6540.

HOSP 5550 CLUB MANAGEMENT (3) LEC. 3. Pr. HOSP 1010 or HRMT 1010. Junior standing. Examination of unique features, opportunities and problems associated with club management. Credit will not be given for HOSP 5550 and HOSP 6550.

HOSP 5590 RECREATIONAL FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. HRMT 2400 or HOSP 2400 or Departmental approval. Methods and systems of managing foodservice operations recreational facilities. Credit is not allowed for both HOSP 5590 and HOSP 6590.

HOSP 6380 STUDY TRAVEL IN HOSPITALITY (1-6) AAB/LLB. Departmental approval. Concentrated study in hospitality management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

HOSP 6460 CATERING AND EVENT MANAGEMENT (1) LEC. 1. Departmental approval. Exploring advanced management topics in catering and event planning including risk, liability, crisis and other challenges faced by the industry.

HOSP 6461 CATERING AND EVENT MANAGEMENT (2) LAB. 4. Pr. HRMT 6460 or HOSP 6460. Departmental approval. Provides students with a leadership practical experience in the planing, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 6530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Departmental approval. This course introduces students to the important role that quality service plays in attaining and retaining customers in the pursuit of an organizations strategic mission. Credit will not be given for HOSP 6530 and HOSP 5530.

HOSP 6540 CONFERENCE COORDINATION (3) LEC. 3. Departmental approval. Systems for the management of the conference coordination segment of the hospitality industry. Credit will not be given for HOSP 6540 and HOSP 5540.

HOSP 6550 CLUB MANAGEMENT (3) LEC. 3. Departmental approval. Unique features, opportunities, and problems associated with resort and club management. Credit will not be given for HOSP 6550 and HOSP 5550.

HOSP 6590 RECREATIONAL FOODSERVICE MANAGEMENT (3) LEC. 3. Departmental approval. Methods and systems of managing foodservice operations in recreational facilities. Credit will not be given for both HOSP 6590 and HOSP 5590.

HOSP 7000 HOSPITALITY ENTERPRISE (3) LEC. 3. Emphasizes aspects of hospitality enterprise including developmental, motivational, financial and human resource issues through contemporary academic literature.

HOSP 7010 ADVANCED TOURISM ANALYSIS (3) LEC. 3. This course acquaints students with selected theories, methods, techniques, current issues, practices, and principles that govern tourism behavior.

HOSP 7050 ADVANCED HOSPITALITY OPERATIONS (3) LEC. 3. This course familiarizes students with theory, research and methodological issues, current issues, practices, and principles in hospitality operations. Students will be exposed to a broad range of academic research and practice-oriented readings such as case studies and book chapters in the area of customer relations management, service quality, sustainable operations and corporate social responsibility, strategic management, human resource management, financial management, etc. Must be in Graduate Standing.

HOSP 7060 HUMAN RESOURCE MANAGEMENT IN HOSPITALITY ORGANIZATIONS (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course is designed to provide students with a deep understanding of HR practices within the hospitality industry. It covers key topics such as recruitment, training, performance management, employee relations, compensation, HR theories, and contemporary HR issues specific to hospitality organizations.

HOSP 7070 FINANCE AND REVENUE MANAGEMENT IN HOSPITALITY INDUSTRY (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course offers a comprehensive understanding of finance and revenue management in the hospitality industry. Key topics include revenue management, financial statement analysis, sustainability in financial performance, risk management, fraud and ethics, and cross-cultural challenges. Students will learn to interpret financial data, address hospitality industry-specific challenges, and make strategic decisions to improve efficiency and profitability in hospitality operations.

HOSP 7090 CONSUMER BEHAVIOR IN HOSPITALITY AND TOURISM (3) LEC. 3. This course aims to explore and critically examine current debates, critical reflections of contemporary ideas, controversies and pertinent queries relating to the rapidly expanding discipline of consumer behavior in hospitality and tourism. Must be a student enrolled in the HOSP graduate program.

HOSP 7100 THE BUSINESS OF BREWING (3) DSL/LEC. 3.

HOSP 7110 BREWING MATERIALS (3) DSL/LEC. 3. This course provides students with an introduction to all types of brewing ingredients including grain, hops, and adjuncts. Baccalaureate degree and 21 years of age.

HOSP 7120 SCIENCE OF BREWING I (3) DSL/LEC. 3. Theoretical and applied brewing science, recipe formulation yeast biology and genetics part I. Baccalaureate degree and 21 years of age.

HOSP 7130 SCIENCE OF BREWING II (3) DSL/LEC. 3. Theoretical and applied brewing science, recipe, formulation, yeast biology and genetics part 2. Baccalaureate Degree, 21 years of age.

HOSP 7140 FACILITIES AND OPERATIONS (3) LEC. 3. This course will focus on the facilities required to produce a high quality, safe and sanitary product. Baccalaureate Degree, 21 years of age.

HOSP 7150 BREWING MICROBIOLOGY (3) LEC. 3. Pr. (HOSP 7116 or HOSP 7110) and (HOSP 7126 or HOSP 7120) and (HOSP 7136 or HOSP 7130). Brewing Microbiology discusses the microbes that are essential to successful beer production and processing, and the ways they can pose hazards in terms of spoilage and sensory quality. The course examines the properties and management of these microorganisms in brewing, along with tactics for reducing spoilage and optimizing beer quality.

HOSP 7160 APPLIED ENGINEERING IN BREWING (3) LEC. 3. This course will be an introduction of basic engineering principles and how they can be applied to the brewing process. These principles will then be applied in the practice of basic engineering scale-up with emphasis on larger scale brewing equipment and processes.

HOSP 7170 BEER DISTRIBUTION SYSTEMS (3) LEC. 3. Brewery supply chain management in the context of suppliers, distributors, retailers, and customers. Focus on components of production/packaging, impact of supply chain disruption, distribution pathways, and the three-tier system.

HOSP 7180 QUALITY MANAGEMENT AND BREWING ANALYTICS (3) LEC. 3. Quality Management and Brewing Analytics examines the establishment of quality management programs in the brewery and the various sensory and analytical approaches to assessing overall beer quality.

HOSP 7500 GLOBAL HOSPITALITY STRATEGY (3) LEC. 3. Departmental approval. The course addresses the strategic issues and unique challenges encountered by international hospitality endeavors.

HOSP 7750 ADVANCED LODGING MANAGEMENT (3) LEC. 3. LAB. 0, LEC. 0. A high-level examination of the main elements involved in the successful management of a lodging business including rooms division, food and beverage, sales and marketing, revenue management, accounting, housekeeping, and engineering maintenance. The course provides students with relevant research addressing the latest trends affecting the operations of the lodging business.

HOSP 7910 PRACTICUM IN BREWING SCIENCE (3) DSL/PRA. SU. Application of principles and theories of brewing in an industry setting.

HOSP 7920 PROFESSIONAL INTERNSHIP IN HOSPITALITY MANAGEMENT (1-3) INT. SU. Departmental approval. Application and analysis of principles and theories of hospitality in a professional hospitality setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 3 credit hours.

HOSP 7960 SPECIAL PROBLEMS (1-3) DSL/IND. An independent research experience under the supervision of a faculty member from the Hospitality Management Program to allow pursuit of specific interests in hospitality and tourism usually not covered in other course offerings. Graduate standing. Course may be repeated for a maximum of 6 credit hours.

HOSP 7980 NON-THESIS RESEARCH (1-4) RES. 1-4. Individual masters research. May be repeated for credit. Course may be repeated with change in topics. No more than six hours may be counted toward meeting degree requirements. Must be a HOSP major. Course may be repeated for a maximum of 6 credit hours.

HOSP 7990 RESEARCH AND THESIS (1-4) RES. 1-4. Individual masters research. May be repeated for credit. Course may be repeated with change in topics. No more than four hours may be counted toward meeting degree requirements. Must be a HOSP major.

HOSP 8020 NEW FACULTY DEVELOPMENT IN HOSPITALITY (2) SEM. 2. SU. The course aims to engage graduate students in a discussion about the normative graduate education experience, faculty expectations on productivity around this experience, career preparation and placement, and navigating the promotion and tenure process. Must be a HOSP Graduate student or have Departmental Approval.

HOSP 8860 CURRENT ISSUES IN HOSPITALITY MANAGEMENT (3) LEC. 3. Analysis of current issues in the hospitality industry with emphasis on management.

HOSP 8870 ADVANCED HOSPITALITY MANAGEMENT RESEARCH AND APPLICATIONS (3) LEC. 3. Comprehensive review of the academic research process in the context of hospitality management.

HOSP 8880 THEORETICAL DEVELOPMENTS FOR HOSPITALITY (3) LEC. 3. The nature of hospitality theory and its development.

HOSP 8910 SUPERVISED TEACHING (1) IND. 1. Individual teaching experience under the supervision of a faculty member in hospitality management. Exploration of a variety of instructional methods and active learning strategies as well as related educational issues, such as grading, classroom management, and student motivation.

HOSP 8970 GRANTSMANSHIP FOR HOSPITALITY AND TOURISM RESEARCH (3) LEC. 3. This course will provide students with the necessary skills to develop a competitive grant proposal. It will also cover information about grants development, including identifying various funding resources, writing a request for funding letter, planning a budget, evaluating the quality of a proposal, developing collaborations, and implementing strategies for research. NDHM graduate students or Departmental Approval.

HOSP 8990 RESEARCH AND DISSERTATION (1-10) DSR. 1-10. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics. Must be HOSP major.

Hospitality Management — Culinary Science Option (CULI)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Social Science	3	MATH 1120 Pre-Calculus Algebra	3
COMM 1000 Public Speaking	3	Core Science w Lab[1]	4
HOSP 1010 Introduction to Hospitality Management	**3**	**HOSP 2600 Event Operations**	**3**
HOSP 1050 Food Safety and Sanitation	**1**	**HOSP 2940 Professional Development in Hospitality**	**2**
HOSP 2350 Culinary Fundamentals	**3**		
	16		**15**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2810 Fundamentals Of Accounting	3	ECON 2030 Principles of Macroeconomics ***or*** BUSI 3250 International Business	3
Core Social Science	3	HDFS 2040 Analytics for the Social and Behavioral Sciences	3

Literature Core	3	Core Philosophy	3
HOSP 2000 Principles of Service Management	**3**	**HOSP 2300 Hospitality Law**	**3**
HOSP 2400 Food Production and Service	**2**	**HOSP 2500 Lodging Operations**	**2**
HOSP 2401 Food Production and Service Lab	**1**	**HOSP 2501 Lodging Operations Lab**	**1**
	15		**15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
MNGT 3810 Management Foundations	3	Core Science w Lab II[1]	4	**HOSP 4920 Internship In Hospitality[2]**	**4**
HOSP 3200 Hospitality Financial Management	**3**	FINC 3810 Foundations of Business Finance	3		
HOSP 3450 Advanced Culinary Arts	**3**	Core History I	3		
HOSP 3800 Hospitality Information Technology	**3**	Core Fine Arts	3		
HOSP 4300 Food and Beverage Management	**2**	**HOSP 3750 Baking and Patisserie**	**3**		
HOSP 4301 Food and Beverage Management Lab	**1**				
	15		**16**		**4**

Senior

Fall	Hours	Spring	Hours
HRMN 3420 Human Resource Management	3	Core History II	3
MKTG 3810 Foundations of Business Marketing	3	**HOSP 4480 Global Gastronomy**	**3**
NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HDFS 2100 The Science of Human Connections	**3**	**HOSP 4500 Strategic Hospitality Management**	**3**
NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HDFS 2100 The Science of Human Connections	**3**	**HOSP 4600 Beverage Appreciation**	**3**
		HOSP 5530 Science of Quality Service in Hospitality	**3**
		UNIV 4AA0 Achieve the Creed[3]	0
	12		**15**

Total Hours: 123

1 Choose from: BIOL 1000/BIOL 1001 & BIOL 1010/BIOL 1011; CHEM 1010/CHEM 1011 & CHEM 1020/CHEM 1021; GEOL 1100 & GEOL 1110; CSES 1010 & CSES 1020; GEOG 1020 & GEOG 1030.

2 Requires approval which includes proof of having 600 hours (during collegiate experience) work experience in hospitality and a GPA of 2.2.

[3] Seniors must register for UNIV 4AA0 the term they plan to graduate (non-credit class for clearing graduation).

Hospitality Management — Event Management Option (EVMT)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Fine Arts	3	MATH 1120 Pre-Calculus Algebra	3
Core Social Science	3	COMM 1000 Public Speaking	3
HOSP 1010 Introduction to Hospitality Management	**3**	**HOSP 2350 Culinary Fundamentals**	**3**
HOSP 1050 Food Safety and Sanitation	**1**	**HOSP 2600 Event Operations**	**3**
HOSP 2000 Principles of Service Management	**3**	**HOSP 2940 Professional Development in Hospitality**	**2**
	16		**17**

Sophomore

Fall	Hours	Spring	Hours
ACCT 2810 Fundamentals Of Accounting	3	ECON 2030 Principles of Macroeconomics ***or*** BUSI 3250 International Business	3
Core Literature	3	HDFS 2040 Analytics for the Social and Behavioral Sciences	3
Core Social Science	3	Core Science w Lab II[1]	4
Core Science with Lab I	4	**HOSP 2300 Hospitality Law**	**3**
HOSP 2500 Lodging Operations	**2**	**HOSP 2400 Food Production and Service**	**2**
HOSP 2501 Lodging Operations Lab	**1**	**HOSP 2401 Food Production and Service Lab**	**1**
	16		**16**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
MNGT 3810 Management Foundations	3	FINC 3810 Foundations of Business Finance	3	**HOSP 4920 Internship In Hospitality[2]**	**4**
Core History I	3	Core Philosophy	3		
HOSP 3200 Hospitality Financial Management	**3**	Core History II	3		
HOSP 3460 Managing Events in the Live Entertainment Industry	**3**	HRMN 3420 Human Resource Management	3		
HOSP 3800 Hospitality Information Technology	**3**	**NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HDFS 2100 The Science of Human Connections**	**3**		
	15		**15**		**4**

Senior

Fall	Hours	Spring	Hours
MKTG 3810 Foundations of Business Marketing	3	**HOSP 4500 Strategic Hospitality Management**	**3**
NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HDFS 2100 The Science of Human Connections	**3**	**HOSP 5460 The Event Experience - Strategic Design and Technical Production**	**3**
HOSP 4510 Special Events	**3**	**HOSP 5530 Science of Quality Service in Hospitality**	**3**
HOSP 4600 Beverage Appreciation	**3**	**HOSP 5540 Conference Coordination**	**3**
		UNIV 4AA0 Achieve the Creed[3]	0
	12		**12**

Total Hours: 123

1 Choose from BIOL 1000/BIOL 1001 & BIOL 1010/BIOL 1011; CHEM 1010/CHEM 1011 & CHEM 1020/CHEM 1021; GEOL 1100 & GEOL 1110; CSES 1010 & CSES 1020; GEOG 1020 & GEOG 1030.

2 Requires approval which includes proof of having 600 hours (during collegiate experience) work experience in hospitality and a GPA of 2.2.

3 Seniors must register for UNIV 4AA0 the term they plan to graduate (non-credit class for clearing graduation).

Hospitality Management — Hotel and Restaurant Management Option (HRMG)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Fine Arts	3	COMM 1000 Public Speaking	3
Core Social Science	3	MATH 1120 Pre-Calculus Algebra	3
Core Philosophy	3	**HOSP 2350 Culinary Fundamentals**	**3**
HOSP 1010 Introduction to Hospitality Management	**3**	**HOSP 2600 Event Operations**	**3**
HOSP 1050 Food Safety and Sanitation	**1**	**HOSP 2940 Professional Development in Hospitality**	**2**
	16		**17**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	ECON 2030 Principles of Macroeconomics ***or*** BUSI 3250 International Business	3
ACCT 2810 Fundamentals Of Accounting	3	HDFS 2040 Analytics for the Social and Behavioral Sciences	3
Core Social Science	3	**HOSP 2300 Hospitality Law**	**3**

HOSP 2000 Principles of Service Management	**3**	**HOSP 2400 Food Production and Service**	**2**
HOSP 2500 Lodging Operations	**2**	**HOSP 2401 Food Production and Service Lab**	**1**
HOSP 2501 Lodging Operations Lab	**1**		
	15		**12**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
MNGT 3810 Management Foundations	3	Core History II	3	**HOSP 4920 Internship In Hospitality**[2]	**4**
Core History I	3	Core Science w Lab II[1]	4		
Core Science w Lab I[1]	4	FINC 3810 Foundations of Business Finance	3		
HOSP 3200 Hospitality Financial Management	**3**	HRMN 3420 Human Resource Management	3		
HOSP 3800 Hospitality Information Technology	**3**	**HOSP 4300 Food and Beverage Management**	**2**		
		HOSP 4301 Food and Beverage Management Lab	**1**		
	16		**16**		**4**

Senior

Fall	Hours	Spring	Hours
MKTG 3810 Foundations of Business Marketing	3	**NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HDFS 2100 The Science of Human Connections**	**3**
NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HDFS 2100 The Science of Human Connections	**3**	**HOSP 4500 Strategic Hospitality Management**	**3**
HOSP 4200 Hospitality Facilities Management	**2**	**HOSP 4600 Beverage Appreciation**	**3**
HOSP 4201 Hospitality Facilities Management Lab	**1**	**HOSP 4700 Hospitality Property Development & Management**	**3**
HOSP 4570 Global Hospitality	**3**	**HOSP 5530 Science of Quality Service in Hospitality**	**3**
		UNIV 4AA0 Achieve the Creed[3]	0
	12		**15**

Total Hours: 123

1 Choose from: BIOL 1000/BIOL 1001 & BIOL 1010/BIOL 1011; CHEM 1010/CHEM 1011 & CHEM 1020/CHEM 1021; GEOL 1100 & GEOL 1110; CSES 1010 & CSES 1020; GEOG 1020 & GEOG 1030.

2 Requires approval which includes proof of having 600 hours (during collegiate experience) work experience in hospitality and a GPA of 2.2.

3 Seniors must register for UNIV 4AA0 the term they plan to graduate (non-credit class for clearing graduation).

Department of Human Development and Family Science

The Human Development and Family Science (HDFS) undergraduate curriculum is designed to prepare students for a variety of careers that contribute to the well-being of individuals and families across the life span. Career directions include, but are not limited to, teaching preschool-aged children, supporting children and families in a hospital setting, serving teens in residential treatment or church programs, aiding adult and/or elderly populations, implementing family education in the broader community, or advocating for family policy within government settings. Students also gain excellent preparation for graduate school. Majors select one of two options.

Options

- Early Child Development (p. 825)
- Child Life (p. 824)

The capstone course for students is the full-time undergraduate internship where classroom learning and real life come together to strengthen professional competence. The HDFS curriculum draws from the knowledge of many academic disciplines to promote understanding of current issues for individuals and families in modern society, and it is approved by the National Council on Family Relations to offer the Provisional Certified Family Life Education (CFLE) designation. The Department also operates the Auburn University Early Learning Center as well as the Harris Early Learning Center in Birmingham, Alabama. Both programs are accredited by the National Association for the Education of Young Children.

Fingerprint/Criminal Background Checks are required of all HDFS majors. Students who do not obtain the required background check and clearing letter will not be allowed to enroll in practicum, service learning, research, or internship courses.

Academic Standards and Policies: Students must earn a grade of "C" or better on all required HDFS major core classes at the 3000-level or higher to complete graduation requirements.

Child Life (HDCH) is a four-year B.S. program endorsed by the Association of Child Life Professionals (ACLP). The curriculum focuses on child development, understanding the impact hospitalization has on children and families, coping support, diagnosis education, procedure preparation, bereavement support, family advocacy and normalization of the hospital environment. A clinically supervised internship under the direct supervision of a certified child life specialist is required.

Academic Standards and Policies: Students admitted to Auburn University who desire to major in HDFS Child Life will be admitted into Pre-Child Life (HCHX). Admission into the Child Life Program is based on GPA (minimum 3.3 GPA), a professional letter of recommendation from someone who has seen the students work with children, and 300 verified hours of experience with children. Applicants must have completed HDFS 1810, NTRI 2000, HDFS 2010 and HDFS 3010 with a grade of “B” or better and have earned 60 credit hours overall. Applications are accepted until May 15Th each year.

Graduation Requirements: Students must complete a 100+ hour child life practicum and 600+ hour child life internship under the supervision of a certified child life specialist. Child life specific courses are only offered in select semesters and are necessary for clinical eligibility. Transfer students should anticipate that additional semesters of study may be required to complete the program.

Application and additional information can be found at the following link: https://auburn.qualtrics.com/jfe/form/SV_6xpiHaSpJUHJQai

Majors

- Global Studies — BS (p. 821)
- Human Development and Family Science — BS (p. 823)
- Human Development and Family Science — Child Life Option (p. 824)
- Human Development and Family Science — Early Child Development Option (p. 825)

Minors

- Health and Human Development (p. 827)
- Human Development and Family Science (p. 828)

Undergraduate Certificates

- Health Equity Science (p. 829)

Courses

HDFS 1800 FUNDAMENTALS IN HDFS: BUILDING PROFESSIONAL SKILLS FOR CAREER GROWTH AND EXPLORATION (2) LEC. 2. Introduction to HDFS as a profession, career pathways, ePortfolio development, and foundational professional writing skills.

HDFS 1810 INTRODUCTION TO THE FIELD OF CHILD LIFE (1) LEC. 1. Students will be introduced to the field of child life, including but not limited to the realities of child life, clinical requirements for certification, document preparation, alternative contexts for child life, and general child life skills.

HDFS 2000 MARRIAGE AND FAMILY IN A GLOBAL CONTEXT (3) LEC. 3. Examination of marriage and family systems, including their interface with the broader socio-cultural context.

HDFS 2010 LIFESPAN HUMAN DEVELOPMENT IN FAMILY CONTEXT (3) LEC. 3. This course examines human development from prenatal life through late adulthood, emphasizing biological, cognitive, and psychosocial processes, theory, and research methods.

HDFS 2020 RESEARCH METHODS FOR DEVELOPMENTAL AND FAMILY SCIENCE (3) LEC. 3. The focus of this course is on the methods used to conduct research in human developmental and family sciences.

HDFS 2030 APPLIED PROFESSIONAL SKILLS IN HDFS (2) LEC. 2. Pr. P/C HDFS 1800. Development and application of professional skills essential for careers in Human Development and Family Science (HDFS). Emphasis on communication, ethical decision-making, leadership, teamwork, and professional development. Includes practical experiences, career planning, and strategies for success in various professional settings.

HDFS 2040 ANALYTICS FOR THE SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. (MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617). Introduction to basic data analysis (by Excel) used in social and behavioral science research, including descriptive and inferential techniques and elements of research design.

HDFS 2050 ISSUES AND TRENDS IN EARLY CHILD DEVELOPMENT (3) LEC. 3. This course will examine the history of the field of early care and education, specifically in regard to young children. Theorists such as Montessori, Dewey, Piaget and Vygotsky will be discussed. Modern approaches such as Reggio Emilia, High Scope, Forest Schools and Open Schools will be examined. Students will learn about laws pertaining to young children as well as avenues for advocacy. Emphasis will be placed on the importance of building family and community relationships as well as becoming a professional in the early childhood field.

HDFS 2100 THE SCIENCE OF HUMAN CONNECTIONS (3) LEC. 3. From childhood bonds to lifelong partnerships, this course delves into the science of relationships and family dynamics through a developmental and theoretical lens.

HDFS 2200 MENTAL HEALTH AWARENESS (3) LEC. This course will improve students' mental health literacy, help students be able to better and more quickly respond to their own and their social networks' mental health concerns, and identify resources across local, regional, and national domains. It is designed to provide introductory knowledge of mental health issues and their effects on systems (e.g. family, educational, judicial), learn about the sociocultural history of mental health.

HDFS 3010 CHILD DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA. Social, emotional, cognitive, language, and physical development from conception to adolescence, with a special focus on development within the family and other sociocultural contexts.

HDFS 3030 ADOLESCENT DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA. HDFS 2010 or HDFS 2013. Analysis of adolescent development with emphasis on family context and developmental outcomes employing an ecological framework. Prerequisites: 2.25 GPA. HDFS 2010

HDFS 3040 HUMAN SEXUALITY (3) LEC. 3. Pr. HDFS 2000 or (SOCY 1000 or SOCY 1007) or (PSYC 2010 or PSYC 2017). This course examines the multifaceted dimensions of human sexual development, familial dynamics, and societal influences that shape our understanding of sexuality from infancy to late adulthood.

HDFS 3050 ADULT DEVELOPMENT AND AGING (3) LEC. 3. Exploration of the transformations in physical, cognitive, social and emotional functioning in adulthood, with an emphasis on the second half of this period of life.

HDFS 3060 PATTERNS OF FAMILY INTERACTION (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000 or HDFS 2003. Examination of family process and interaction, emphasizing major conceptual frameworks of family development.

HDFS 3080 DEVELOPMENT OF INTERPERSONAL RELATIONSHIPS (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000 or HDFS 2003. This course will focus on the development of social competence and interpersonal relationships. We will cover models of socialization in the family, peer experiences and relationships from childhood through early adulthood, behaviors associated with social acceptance and rejection, emotional and social-cognitive underpinnings of social competence, and supportive communication through the lifespan.

HDFS 3110 INFANT AND TODDLER DEVELOPMENT (3) LEC. 3. Pr. P/C HDFS 2010 or P/C HDFS 2013. Infant and toddler development from pre-birth through 36 months, with a focus on theory, research, and practice.

HDFS 3130 PEER RELATIONSHIPS IN CHILDHOOD AND SOCIAL SKILLS TRAINING (3) LEC. 2. LAB. 3. Departmental approval. This class will focus on theory and research on peer relationships. Students will be able to use the theory and research to work directly with children to improve their conduct and social skills. Students will discuss assigned, primary source readings and work in teams with a small group of elementary school children to improve the children's social understanding and behavior. This course includes field experience.

HDFS 3460 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN (3) LEC. 3. Pr. P/C HDFS 3010. Coreq. HDFS 3461. This course uses previously gained child development knowledge and applies it to teacher-child relationships and interactions with young children. Students will learn to take their knowledge of child development and apply it in a preschool classroom at the Auburn University Early Learning Center.

HDFS 3461 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN LAB (1) LAB. 3. Pr. P/C HDFS 3010. Coreq. HDFS 3460. Laboratory Class for HDFS 3460

HDFS 3470 LEARNING EXPERIENCES FOR YOUNG CHILDREN (3) LEC. 3, FLD/LEC. 1. Pr. HDFS 3460. Coreq. HDFS 3471. Child development knowledge applied to preschool curriculum planning.

HDFS 3471 LEARNING EXPERIENCES FOR YOUNG CHILDREN LAB (1) LAB. 3. Pr. HDFS 3010 and HDFS 3460 and HDFS 3461. Coreq. HDFS 3470. Laboratory Class for HDFS 3470

HDFS 3500 HOSPITALIZED CHILDREN AND THEIR FAMILIES (3) LEC. 3. Pr. P/C HDFS 3010. Sophomore standing in HDFS major or a major in a related field. Theories and research about children and their families in hospital settings. Course is taught by Certified Child Life Specialist through a child life lens.

HDFS 3510 THERAPEUTIC PLAY (3) LEC. 3. Pr. P/C HDFS 3010. Theories and research on play, play's use in many contexts, and the many therapeutic qualities of play will be discussed. Course is taught by Certified Child Life Specialist through a child life lens.

HDFS 3520 CLINICAL INTRODUCTION FOR CHILD LIFE (3) LEC. 3. LAB. 0, SEM. 0. Application of child life clinical skills and preparation for Association of Child Life Professionals (ACLP) internship. Course is taught by Certified Child Life Specialist through a child life lens. Junior standing in HDFS - Child Life major.

HDFS 3700 FAMILY LIFE EDUCATION (3) LEC. 3. Learning how to help families build knowledge and skills, focusing on their strengths to function at their optimal levels. Exploring how to help create strong, healthy families.

HDFS 3910 PRACTICUM (1-6) PRA. SU. Pr., Departmental approval. Directed experience in a professional setting. A) Human Development; B) Family Studies; C) Marriage and Family Therapy. Course may be repeated for a maximum of 6 credit hours.

HDFS 3930 SERVICE LEARNING IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-6) AAB/LEC. Application of HDFS-relevant knowledge to real-life situations through active participation in a directed community service experience. A.) Auburn University Early Learning Center; B.) Harris Early Learning Center of Birmingham; C.) Other Community Placements. Course may be repeated for a maximum of 6 credit hours.

HDFS 3940 CHILD LIFE PRACTICUM (3) PRA. Pr. P/C HDFS 4500. Directed experience in a healthcare setting under the supervision of a certified child life specialist. Application and Interview process required. Departmental approval required.

HDFS 3980 UNDERGRADUATE RESEARCH AND STUDY (1-5) AAB/LEC. SU. Directed research under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

HDFS 4380 STUDY AND TRAVEL IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (2-12) AAB/FLD. Pr. CADS 2000 or NTRI 2000 or HDFS 2100 or HOSP 2000. Departmental approval. Provide students with opportunities to reach beyond the classroom to study topics relevant to human development and family science abroad. Course may be repeated for a maximum of 12 credit hours.

HDFS 4470 ADVANCED LEARNING EXPERIENCES FOR YOUNG CHILDREN (3) LEC. 3, FLD/LEC. 1. Pr. HDFS 3010 and HDFS 3460 and HDFS 3470 and HDFS 3461 and HDFS 3471. Coreq. HDFS 4471. This course uses previously gained knowledge about child development and teacher-child relationships and interactions with young children to create playful learning environments and activities for young children and their families in a preschool classroom at the Auburn University Early Learning Center and Early Head Start.

HDFS 4471 ADVANCED LEARNING EXPERIENCES FOR YOUNG CHILDREN LAB (1) LAB. 4. Pr. HDFS 3010 and HDFS 3460 and HDFS 3470 and HDFS 3461 and HDFS 3471. Coreq. HDFS 4470. Laboratory course for HDFS 4470. Child development knowledge applied to preschool curriculum planning with 6 hours a week of supervised participation at Auburn University Early Learning Center.

HDFS 4520 DYING, DEATH AND BEREAVEMENT (3) LEC. 3. In this course students will explore the multidimensional aspects of dying, death, and bereavement from various perspectives, encompassing psychological, sociological, cultural, and ethical dimensions. This course is based on the premise that death education helps one to live more fully and serve others in a more meaningful way.

HDFS 4640 SYSTEMS OF CARE FOR INDIVIDUALS WITH DISABILITIES ACROSS THE LIFESPAN (3) LEC. 3. Pr. HDFS 2010 or PSYC 3120. This course examines disability and systems of care across the lifespan, with a focus on the impact of disability and services on individuals and families.

HDFS 4660 RESOURCE MANAGEMENT FOR INDIVIDUALS, COUPLES, AND FAMILIES (3) LEC. 3. An understanding of the decisions individuals and families make about developing and allocating resources.

HDFS 4670 PARENT EDUCATION (3) LEC. 3. Pr. HDFS 3010 or HDFS 3030 or HDFS 3050. The purpose of this course is to prepare you to work with parents and caregivers using theory and research-based knowledge of parent-child relationships. This will be accomplished through a variety of lectures, presentations, individual research papers, and group projects. Although completing this course will not make you a "Parent educator", this course will provide you with a basis for further development of parent education knowledge and skills.

HDFS 4680 FAMILY IN CROSS-CULTURAL PERSPECTIVE (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000 or HDFS 2003. Examination of family function and family systems across diverse cultural groups.

HDFS 4700 GENDER ROLES AND CLOSE RELATIONSHIPS (3) LEC. 3. Pr. HDFS 2000 or SOCY 1000 or SOCY 1007 or PSYC 2010 or PSYC 2017 or COUN 2000. This course explores gender, gender roles, gender identity and the intersections of gender, gender roles, and gender identity with race, ethnicity, privilege, culture, and class.

HDFS 4910 PROFESSIONAL DEVELOPMENT II AND CAPSTONE (2) LEC. 2. Pr. HDFS 1800 and HDFS 2030 and P/C HDFS 2040. Professional Development aimed at student preparation for graduate school and career. The cumulation of the professional development courses requires an in-depth examination and advanced design of the professional, outward-facing ePortfolio.

HDFS 4920 INTERNSHIP IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (12) AAB/INT. Pr. HDFS 4910. HDFS major with current background check, all required coursework for the major complete, a grade of C or better in all HDFS major core classes at the 3000-level or higher, and an overall minimum GPA of 2.25. Internship applications must be submitted 2 semesters in advance. A computer and internet access is required.

HDFS 4930 INTERNSHIP IN CHILD LIFE (12) INT. Pr. HDFS 4910. Departmental approval. HDFS major with current background check, all required coursework for the major complete, a grade of C or better in all child life option core classes at the 3000-level or higher, and an overall minimum GPA of 3.0. Students who enroll in this course must complete their internship under the supervision of a certified child life specialist. Internship applications must be submitted 2 semesters in advance. A computer and internet access are required.

HDFS 4940 INTERNSHIP IN EARLY CHILD DEVELOPMENT TOWARD CERTIFICATION (12) INT. Departmental approval. Pr. HDFS 3460 and HDFS 3470 and HDFS 4470 and HDFS 4910. Intensive capstone teaching experience of at least 450 hours. HDFS major with all required coursework for the major complete, a grade of C or better in all Early Child Development option core classes at the 3000-level or higher, ALSDE background check, and an overall minimum GPA of 2.75. Students who enroll in this course will complete requirements for Ed TPA. Internship applications must be submitted 2 semesters in advance. A computer and internet access are required.

HDFS 4950 ADVANCED SEMINAR (3) LEC. 3. Pr., Departmental approval. Topical seminar in HDFS. A) Advanced Research B) Child Development; C) Family Studies; D) Marriage and Family Therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 4960 SPECIAL PROBLEMS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-3) IND. SU. Supervised readings in one or more topical areas. Course may be repeated for a maximum of 3 credit hours.

HDFS 4980 ADVANCED UNDERGRADUATE RESEARCH IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-5) IND. Pr., Departmental approval. Junior standing. Conduct research under the direction of a human development and family studies faculty member on a topic of mutual interest. Course may be repeated for a maximum of 5 credit hours.

HDFS 4997 HONORS THESIS (2-6) IND. SU. Pr. Honors College. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

HDFS 5200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Junior standing. Application of research to the development and evaluation of programming for children and families.

HDFS 5300 HDFS AND SOCIAL POLICY (3) LEC. 3. Junior standing. Examination and critique of social policies from a family perspective.

HDFS 5400 PROGRAM DESIGN FOR COMMUNITIES, SCHOOLS, AND FAMILIES (3) SEM. 3. Program design for schools, communities, and families is a course designed to help students learn about program design approaches used to improve the lives of people. Students will learn the basics of the program planning process, the complexity of assessing need, evaluation, and program implementation to targeted populations of people.

HDFS 5930 SOCIETY AND HEALTH (3) LEC. 3. This course provides an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HDFS 5930 or HUSC 5930.

HDFS 5950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) SEM. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs.

HDFS 5970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Pr., Junior standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 6200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Graduate standing. Application of research to the development and evaluation of programming for children and families.

HDFS 6300 HDFS AND SOCIAL POLICY (3) LEC. 3. Graduate standing. Examination and critique of social from a family perspective.

HDFS 6400 PROGRAM DESIGN FOR COMMUNITIES, SCHOOLS, AND FAMILIES (3) SEM. 3. Program design for communities, schools, and families is a course designed to teach the basics of the program planning process, the complexity of assessing need, program evaluation, and program delivery to targeted populations of people.

HDFS 6930 SOCIETY AND HEALTH (3) LEC. 3. This course provide an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HDFS 6930 or HUSC 6930.

HDFS 6950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) LEC. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs.

HDFS 6970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Pr., Graduate standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 7010 CHILD AND ADOLESCENT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical examination of research on development from birth through adolescence.

HDFS 7020 ADULT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical evaluation of research on development in the adult and aging periods of the life cycle.

HDFS 7030 LIFESPAN DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical examination of research on human development from infancy through adulthood.

HDFS 7040 FAMILY PROCESSES (3) LEC. 3. An orientation to family theories and their role in contemporary studies of family processes.

HDFS 7050 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Pr., Departmental approval. Survey of principles and methods for studying individuals, dyadic relationships and families.

HDFS 7060 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY SCIENCE II (3) LEC. 3. Pr. HDFS 7050. Pr., Departmental approval. Survey of principles and advanced methods for studying individuals, dyadic relationships, and families.

HDFS 7070 RESEARCH LITERACY IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Research literacy course informs students' as research consumers to identify, understand, discuss, and evaluate different types of research methods and statistical analyses, to communicate the findings of such research to others, and to use findings of quality research to impact future academic research and professional policy and practice.

HDFS 7100 PSYCHOSOCIAL CARE OF MEDICALLY AND EMOTIONALLY VULNERABLE CHILDREN (3) LEC. 3. Departmental approval. Child development theories, the impact of hospitalization on children and families, the impacts of trauma on development and coping, and common child life interventions are explored.

HDFS 7110 PLAY AND THERAPEUTIC INTERVENTIONS IN CHILD LIFE (3) LEC. 3. Child development theory, play theory, adaptive play, and therapeutic interventions are explored in the context of helping children cope with stressors such as hospitalization, bereavement, and trauma. Undergraduate degree in child life, child development, human development and family studies, or another related field.

HDFS 7120 INTRODUCTION TO CAPSTONE FOR ADVANCED STANDING CHILD LIFE STUDENTS (3) LEC. This course will prepare students to complete their capstone project, which will be completed during their last semester of graduate school. This course will focus on peer-to-peer learning, supervision of undergraduate and graduate learners, and community applications for child life programming. Specifically, clinical conversation among peers will be a core focus of the course.

HDFS 7130 CHILD LIFE PROGRAM DEVELOPMENT AND EVALUATION (3) LEC. 3. Methods of creating and implementing Child Life programs; documenting and assessing program activities; and supervising child life students and professionals will be discussed. Department Approval.

HDFS 7140 DEATH, DYING AND BEREAVEMENT FOR CHILD LIFE SPECIALISTS (3) LEC. 3. LAB. 0. Pr. HDFS 7100. Exploring children's understanding of death, and the child life specialist's role in caring for the bereaved family.

HDFS 7600 MARRIAGE AND FAMILY THERAPY THEORY I (3) LEC. 3. Pr., Departmental approval. Overview of theoretical and historical foundations, classic and contemporary therapy models, and integrative frameworks for marriage and family therapy.

HDFS 7601 MARRIAGE AND FAMILY THERAPY THEORY LABORATORY I (1) LAB. 3. Pr., Departmental approval. Basic clinical skills and self-of-the-therapist issues.

HDFS 7610 MARRIAGE AND FAMILY THERAPY THEORY II (3) LEC. 3. Pr., Departmental approval. Current theory and conceptual issues in the practice of marriage and family therapy.

HDFS 7620 MARRIAGE AND FAMILY THERAPY CLINICAL ISSUES I: FAMILY SYSTEMS (3) LEC. 3. Pr., Departmental approval. Advanced study of conceptual models and clinical approaches utilized in treating family systems.

HDFS 7621 MARRIAGE AND FAMILY THERAPY LABORATORY II (1) LAB. 1. Coreq. HDFS 7620. Pr., Departmental approval. Application of clinical models in a supervised setting.

HDFS 7630 MARRIAGE AND FAMILY THERAPY CLINICAL ISSUES II: INDIVIDUALS (3) LEC. 3. Pr., Departmental approval. Assessment and treatment of children, adolescents, adults, and sexuality issues from a systemic perspective.

HDFS 7631 MARRIAGE AND FAMILY THERAPY LABORATORY III (1) LAB. 3. Coreq. HDFS 7630. Departmental approval. Application of clinical skills with families, couples and individuals.

HDFS 7640 MARRIAGE AND FAMILY THERAPY CLINICAL ISSUES III: COUPLES (3) LEC. 3. Pr., Departmental approval. Conceptual, assessment and clinical approaches utilized in treating couples.

HDFS 7650 MARRIAGE AND FAMILY THERAPY PROFESSIONAL ISSUES (3) LEC. 3. Pr., Departmental approval. Professional, ethical, and legal issues associated with the practice of marriage and family therapy.

HDFS 7660 SYSTEMIC IMPACT OF ILLNESS, MEDFT, & PSYCHOPHARMACOLOGY (3) LEC. 3. Three components related to the practice of marriage and family therapy in healthcare settings: 1.) Systemic Impact and Treatment of Illness, (2) Treatment in Collaborative Health Care teams, and (3) Psychopharmacology.

HDFS 7670 INDIVIDUAL, COUPLE, AND FAMILY DYNAMICS OF ADDICTION, RECOVERY, AND TREATMENT (3) LEC. 3. An overview of the scope of the dynamics of addiction treatment and recovery in individuals, couples, and families. This course focuses on both substance use disorders and process addictions and will deal directly with preferred treatments of these issues in individual and systemic therapy.

HDFS 7680 SYSTEMIC ASSESSMENT, DIAGNOSIS, & TREATMENT OF PSYCHOPATHOLOGY (3) LEC. 3. This course will examine current research, theory, and clinical best practices for assessing and diagnosing psychopathology in the context of individual, couple, and family therapy.

HDFS 7850 GRADUATE CHILD LIFE PRACTICUM (3) PR1. 9. Pr. P/C HDFS 7100. Supervised clinical experience under the supervision of a Certified Child Life Specialist.

HDFS 7900 DIRECTED STUDIES (1-3) AAB/IND. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage & Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7910 PRACTICUM (1-9) AAB/PRA. SU. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy; G) Teaching. Course may be repeated for a maximum of 9 credit hours.

HDFS 7920 MARRIAGE AND FAMILY THERAPY INTERNSHIP (3) INT. Pr., Departmental approval. Clinical practice of marriage and family therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7930 SEMINAR IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-3) SEM. Pr., Departmental approval. A) Infancy/Childhood; B) Adolescence/Young Adulthood; C) Adulthood/Aging; D) Family as a Microsystem; E) Family and Mesosystem; F) Family in the Macrosystem; G) Child and Family Program Planning and Evaluation. Course may be repeated for a maximum of 16 credit hours.

HDFS 7940 DIRECTED FIELD EXPERIENCE (1-9) AAB/FLD. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7950 INTERNSHIP IN CHILD LIFE (12) INT. 3. Pr. HDFS 7010 and HDFS 7040 and HDFS 7070 and HDFS 7100 and HDFS 7110 and HDFS 7130 and HDFS 7140 and HDFS 7850. Supervised on-the-job experiences, along with rigorous evaluations of student’s work.

HDFS 7970 SPECIAL TOPICS IN HDFS (1-4) LEC. 1-4. Students will learn about key issues in sleep research, especially with those related to family functioning and social/emotional, behavioral, and physical health. Students will have assigned readings to prepare them for discussions during the lectures. Course may be repeated for a maximum of 18 credit hours.

HDFS 7990 RESEARCH AND THESIS (1-10) AAB/MST.

HDFS 8010 RELATIONSHIP DEVELOPMENT AND PROCESS IN CHILDHOOD AND ADOLESCENCE (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in childhood adolescence.

HDFS 8020 RELATIONSHIP DEVELOPMENT AND PROCESS IN ADULTHOOD (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in adulthood and aging.

HDFS 8040 LONGITUDINAL DATA ANALYSIS (3) LEC. 3. Pr. HDFS 7060. This class addresses many of the ways longitudinal data can be modeled statistically from both multilevel and structural equation modeling frameworks. This class will cover the theoretical and mathematical concepts underlying longitudinal data analysis with a primary focus on application.

HDFS 8050 ADVANCED RESEARCH METHODS: COVARIANCE STRUCTURE ANALYSIS (3) LEC. 3. Pr. HDFS 7060. In-depth examination of research methods, designs, and data analytic strategies commonly used in child and family research.

HDFS 8060 MULTILEVEL MODELING (3) LEC. 3. Pr. HDFS 7060. In depth examination of multilevel modeling as an analytic strategy for research in nested data structures.

HDFS 8070 MEDIATION AND MODERATION ANALYSIS (3) LEC. 3. Pr. HDFS 7060. Methods for evaluating mediation and moderation hypotheses by addressing both study designs and statistical analyses.

HDFS 8080 MIXTURE MODELING (3) SEM. Pr. HDFS 7060. Methodological advances in latent variable analysis have provided promising avenues for researchers interested in answering questions about latent (unobserved) classes and profiles. These two analytic techniques will be the focus of this course.

HDFS 8090 QUALITATIVE METHODS IN THE SOCIAL SCIENCES (3) LEC. 3. This course prepares graduate students to conduct and evaluate qualitative research in social science disciplines.

HDFS 8970 ADVANCED SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-3) LEC. Departmental approval. Study of advanced topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 8990 RESEARCH AND DISSERTATION (1-10) DSR.

Global Studies in Human Sciences (GSHS)

For students in Global Studies in Human Sciences, the world is their classroom. Students explore issues such as hunger, community development, sustainability, health, education, and international affairs in pursuit of solutions to our world's greatest challenges. Using design-thinking methodologies, students learn critical thinking and practical problem-solving skills to improve quality of life in communities around the world. Students also choose from a variety of relevant minors such as business, public health, and hunger studies to narrow their focus and apply lessons learned to various career fields.

The Global Studies curriculum prioritizes hands on experience through study abroad, a full time, semester-long internship, and a client-based capstone experience. Students gain vital professional skills including teamwork, cross-cultural communication, and professional writing in order to work effectively in their chosen field after graduation, whether they choose to focus their efforts locally or abroad.

Graduates of this interdisciplinary program leave Auburn University prepared to step into roles with multinational companies, philanthropic foundations, governmental and non-governmental organizations, and local non-profits. Students may also pursue graduate study in many fields ranging from public health and social entrepreneurship to law school and medical school. Regardless of their next steps, students leave empowered to enact practical, positive change in the world.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	MATH 1130 Pre-Calculus Trigonometry ***or*** 1120 Pre-Calculus Algebra	3
PHIL 1050 Introduction to Political Philosophy, 1060 Philosophy East and West, 1070 Art, Value, and Society, 1080 Introduction to Philosophy of Religion, ***or*** 1090 Philosophy of Race and Gender	3	**ENGL 1120 English Composition II**	**3**
SUST 2000 Introduction to Sustainability	3	**HDFS 2100 The Science of Human Connections, CADS 2000 Global Consumer Culture, HOSP 2000 Principles of Service Management, *or* NTRI 2000 Nutrition And Health**	**3**
HISTORY CORE I	3	**HDFS 2100 The Science of Human Connections, CADS 2000 Global Consumer Culture, HOSP 2000 Principles of Service Management, *or* NTRI 2000 Nutrition And Health**	**3**
GSHS 2000 Global Studies Human Sciences	**3**	HISTORY CORE II	3
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Science Sequence[1]	4	Core Science Sequence[1]	4
FINE ARTS CORE	3	GEOG 1010 Global Geography ***or*** POLI 1050 Global Politics and Issues	3

CORE LITERATURE	3	Minor Course(s)	3
HUSC 2000 Hunger: Causes, Consequences, and Responses	**3**	ECON 2030 Principles of Macroeconomics	3
HDFS 2100 The Science of Human Connections, CADS 2000 Global Consumer Culture, HOSP 2000 Principles of Service Management, *or* NTRI 2000 Nutrition And Health	**3**	**GSHS 3000 Global Studies in Human Sciences Lecture Series**	**1**
		GSHS 3010 Professional Development in Global Studies	**2**
	16		**16**

Junior

Fall	**Hours**	**Spring**	**Hours**
Foreign Language I†	4	Foreign Language II†	4
Minor Course(s)	3	Minor Courses(s)	3
CADS 2700 Introduction to Nonprofit Organizations	**3**	COMM 1000 Public Speaking	3
HDFS 4680/ Family in Cross-Cultural Perspective, 3080 Development of Interpersonal Relationships, *or* 4700 Gender Roles and Close Relationships[4]	**3**	ECON 4300 International Economics, POLI 3090 Introduction to International Relations, 3120 Introduction to Comparative Politics, ***or*** 3300 Law and Society**	3
HOSP 4570 Global Hospitality	**3**	**GSHS 5050 Design Thinking in Global Studies in Human Sciences**	**3**
	16		**16**

Senior

Fall	**Hours**	**Spring**	**Hours**
GSHS 4920 Global Studies Internship[2]	**12**	**GSHS 5000 Global Studies in Human Sciences Capstone**	**3**
		Minor Course(s)	9
		Free Electives	2
		UNIV 4AA0 Achieve the Creed[3]	0
	12		**14**

Total Hours: 120

† Due to capacity issues, students might not be able to enroll in foreign language sequence during the academic year and might be required to take these courses at Auburn during the summer or at another approved institution.

** ECON 4300 requires a pre-requisite of ECON 2030.

1 Choose from: CHEM 1010/CHEM 1011 & CHEM 1020/CHEM 1021; BIOL 1000/BIOL 1001 & BIOL 1010/BIOL 1011; PHYS 1500 & PHYS 1510; GEOL 1100 & GEOL 1110; CSES 1010 & CSES 1020; FOWS 1020/FOWS 1021 & FOWS 1030/FOWS 1031; FOWS 1040/FOWS 1041 & FOWS 1050/FOWS 1051; GEOG 1020 & GEOG 1030

2 Internship placement must have global/international focus. Internship may be completed in the summer semester. There are also several CHS study abroad programs that have internship requirements built into them. These must all be pre-approved by the Director of Global Education.

3 Seniors must register for UNIV 4AA0 the term they plan to graduate (non-credit class for clearing graduation).

4 HDFS 4700 is typically offered in the Spring semester.

For the required minor in Global Studies in Human Sciences, students may choose from the following minors: Business minor, Philanthropy and Non-Profit Studies minor, Hunger Studies minor, International Minor in Human Sciences, Human Development and

Family Science minor, Sustainability minor, Public Health minor, Leadership minor, African American and Africana Studies minor, Rural Sociology minor or Asian Studies minor. Additional minors accepted upon approval by the Director of Global Education.

Human Development and Family Science (HDSC)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History I	3	Core History II	3
HDFS 2000 Marriage and Family in a Global Context	**3**	MATH 1120 Pre-Calculus Algebra	3
Core Philosophy[1]	3	**HDFS 1800 Fundamentals in HDFS: Building Professional Skills for Career Growth and Exploration**	**2**
HDFS 2100 The Science of Human Connections	**3**	**HDFS 2010 Lifespan Human Development in Family Context**	**3**
		NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HOSP 2000 Principles of Service Management	**3**
	15		**17**

Sophomore

Fall	Hours	Spring	Hours
BIOL 1000 Introduction to Biology & BIOL 1001 Introduction to Biology Laboratory	4	BIOL 1010 A Survey of Life & BIOL 1011 A Survey of Life Laboratory	4
Core Literature	3	Core Social Science[2]	3
Core Fine Arts	3	COMM 1000 Public Speaking	3
Core Social Science[2]	3	**HDFS 2030 Applied Professional Skills in HDFS**	**2**
NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HOSP 2000 Principles of Service Management	**3**	HDFS Professional Courses[4]	3
	16		**15**

Junior

Fall	Hours	Spring	Hours
Professional Electives[5]	3	HDFS Professional Courses[4]	6
HDFS Professional Courses[4]	3	**HDFS Understanding Diverse Perspectives Course[3]**	**3**
HDFS 3010 Child Development in the Family, 3030 Adolescent Development in the Family, 3050 Adult Development and Aging, *or* 3110 Infant and Toddler Development	**3**	HDFS 2040 Analytics for the Social and Behavioral Sciences	3
HDFS 3060 Patterns of Family Interaction, 3080 Development of Interpersonal Relationships, *or* 3700 Family Life Education	**3**	Free Electives	3
Free Electives	3		
	15		**15**

Senior

Fall	Hours	Spring	Hours
Professional Electives[5]	9	**HDFS 4920 Internship in Human Development and Family Science**	**12**
HDFS Understanding Diverse Perspectives Course[3]	**3**	**or approved HDFS approved Study Abroad Program**	
HDFS 4910 From Classroom to Career: Professional Practice in HDFS	**2**	UNIV 4AA0 Achieve the Creed	0
Free Electives	1		
	15		**12**

Total Hours: 120

1 Must choose from PHIL 1010, PHIL 1020, PHIL 1030, PHIL 1040, PHIL 1080, PHIL 1090, PHIL 1100, PHIL 1110.

2 Must choose from ANTH 1000, SOCY 1000, PSYC 2010, COUN 2000, GSHS 2000, AAAS 2000, SOCY 1100, GEOG 1010, NATR 2050.

3 HDFS Understanding Diverse Perspectives course options: HDFS 3040, HDFS 4640, HDFS 4680, HDFS 4700.

4 HDFS Professional course options: HDFS 2020, HDFS 3460, HDFS 3461, HDFS 3470, HDFS 3471, HDFS 3500, HDFS 3510, HDFS 4660, HDFS 4670, HDFS 4950, HDFS 5200, HDFS 5300, HDFS 5400, or any HDFS course not required for the major.

5 Choose professional course electives that will strengthen your preparedness for internship and support your career goals. Professional course electives may be used to earn a minor. Professional course electives should be selected through consultation with your faculty advisor. HDFS courses and most PSYC, SOWO, SOCY, COMM, and other social science related courses may serve as appropriate electives.

Human Development and Family Science — Child Life Option (HDCH)

Freshman

Fall	Hours	Spring	Hours
HDFS 2000 Marriage and Family in a Global Context	**3**	HDFS 1800 Fundamentals in HDFS: Building Professional Skills for Career Growth and Exploration	2
HDFS 2100 The Science of Human Connections	**3**	**HDFS 1810 Introduction to the Field of Child Life**	**1**
ENGL 1100 English Composition I	3	**HDFS 2010 Lifespan Human Development in Family Context**	**3**
Core History I	3	ENGL 1120 English Composition II	3
PHIL 1030 Ethics and the Health Sciences	3	MATH 1120 Pre-Calculus Algebra	3
		Core History II	3
		Free Elective	2
	15		**17**

Sophomore

Fall	Hours	Spring	Hours
NTRI 2000 Nutrition And Health	**3**	**HDFS 2030 Applied Professional Skills in HDFS**	**2**
BIOL 1000 Introduction to Biology & BIOL 1001 Introduction to Biology Laboratory	4	BIOL 1010 A Survey of Life & BIOL 1011 A Survey of Life Laboratory	4
Core Fine Arts	3	**HDFS 3010 Child Development in the Family**	**3**
Core Literature	3	COMM 1000 Public Speaking	3
Core Social Science[1]	3	Core Social Science[1]	3

*Applications for the AUCLP due March 15th

	16		**15**

Junior

Fall	Hours	Spring	Hours
HDFS 3060 Patterns of Family Interaction	**3**	**HDFS Understanding Diverse Perspectives**[2]	**3**
HDFS 3500 Hospitalized Children and Their Families	3	**HDFS 3030 Adolescent Development in the Family *or* 3110 Infant and Toddler Development**	**3**
HDFS 3520 Clinical Introduction for Child Life	3	HDFS 3510 Therapeutic Play	3
HDFS 4520 Dying, Death and Bereavement	3	HDFS 3460 Effective Guidance and Interaction with Young Children	3
HDFS 2040 Analytics for the Social and Behavioral Sciences	3	HDFS 3461 Effective Guidance and Interaction with Young Children Lab	1
		HDFS 3940 Child Life Practicum	3
		HDFS 4910 From Classroom to Career: Professional Practice in HDFS	**2**
	15		**18**

Senior

Fall	Hours	Spring	Hours
HDFS Understanding Diverse Perspectives[2]	**3**	**HDFS 4930 Internship in Child Life**[4]	**12**
CADS 2000 Global Consumer Culture *or* HOSP 2000 Principles of Service Management	**3**	UNIV 4AA0 Achieve the Creed	0
HDFS PROF Human Development and Family Studies Elective	3		
HDFS PROF Human Development and Family Studies Elective	3		
	12		**12**

Total Hours: 120

1 Social Science options: ANTH 1000, SOCY 1000, PSYC 2010, COUN 2000, GSHS 2000, AAAS 2000, SOCY 1100, NATR 2050.
2 HDFS Understanding Diverse Perspectives course options: HDFS 3040, HDFS 4680, HDFS 4700.
3 Choose professional course electives that will strengthen your preparedness for internship and support your career goals. Professional course electives may be used to earn a minor. Professional course electives should be selected through consultation with your faculty advisor. HDFS courses and most PSYC, SOWO, SOCY, COMM, and other social science related courses may serve as appropriate electives.
4 Child Life Internships may be completed in Fall or Spring semesters. Departmental approval required.

Human Development and Family Science — Early Child Development (HDED)

Both Fully Online and Fully On-Campus Options Available

Freshman

Fall	Hours	Spring	Hours
HDFS 1800 Fundamentals in HDFS: Building Professional Skills for Career Growth and Exploration	**2**	ENGL 1120 English Composition II	3

NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HOSP 2000 Principles of Service Management	**3**	MATH 1120 Pre-Calculus Algebra	3
HDFS 2100 The Science of Human Connections	**3**	Core History II	3
ENGL 1100 English Composition I	3	**HDFS 2010 Lifespan Human Development in Family Context**	**3**
Core History I	3	**HDFS 2000 Marriage and Family in a Global Context**	**3**
Core Humanities[1]	3		
	17		**15**

Sophomore

Fall	Hours	Spring	Hours
BIOL 1000 Introduction to Biology & BIOL 1001 Introduction to Biology Laboratory	4	BIOL 1010 A Survey of Life & BIOL 1011 A Survey of Life Laboratory	4
Core Literature	3	COMM 1000 Public Speaking	3
NTRI 2000 Nutrition And Health, CADS 2000 Global Consumer Culture, *or* HOSP 2000 Principles of Service Management	**3**	Core Social Science[2]	3
Core Fine Arts	3	**HDFS 2030 Applied Professional Skills in HDFS**	**2**
Core Social Science[2]	3	HDFS 2050 Issues and Trends in Early Child Development	3
	16		**15**

Junior

Fall	Hours	Spring	Hours
HDFS 3010 Child Development in the Family	**3**	HDFS 2040 Analytics for the Social and Behavioral Sciences	3
HDFS 3060 Patterns of Family Interaction, 3700 Family Life Education, *or* 3080 Development of Interpersonal Relationships	**3**	HDFS 3470 Learning Experiences for Young Children	3
HDFS 3460 Effective Guidance and Interaction with Young Children	3	HDFS 3471 Learning Experiences for Young Children Lab	1
HDFS 3461 Effective Guidance and Interaction with Young Children Lab	1	Free Electives	2
Free Electives	2	HDFS PROF Human Development and Family Studies Elective	3
Understanding Diverse Perspectives Course[3]	**3**	**Understanding Diverse Perspectives[3]**	**3**
	15		**15**

Senior

Fall	Hours	Spring	Hours
HDFS 3110 Infant and Toddler Development	3	**HDFS 4940 Internship in Early Child Development toward Certification**	**12**
HDFS 4470 Advanced Learning Experiences for Young Children	3	UNIV 4AA0 Achieve the Creed	0
HDFS 4471 Advanced Learning Experiences for Young Children Lab	1		
HDFS 4910 From Classroom to Career: Professional Practice in HDFS	**2**		

Professional Electives[4]	6	
	15	**12**

Total Hours: 120

1 Must choose from PHIL 1010, PHIL 1020, PHIL 1030, PHIL 1040, PHIL 1080, PHIL 1090, PHIL 1100, PHIL 1110
2 Must choose from ANTH 1000, SOCY 1000, PSYC 2010, COUN 2000, GSHS 2000, AAAS 2000, SOCY 1100, NATR 2050
3 HDFS Understanding Diverse Perspectives course options: HDFS 3040, HDFS 4640, HDFS 4680, HDFS 4700
4 Choose professional course electives that will strengthen your preparedness for internship and support your career goals. Professional course electives may be used to earn a minor. Professional course electives should be selected through consultation with your faculty advisor. HDFS courses and most PSYC, SOWO, SOCY, COMM and other social science related courses may serve as appropriate electives.

Health and Human Development Minor

Health and Human Development Minor is a 15 hour minor with course requirements in the following areas: Foundation, Development, Experiential, and Health Based.

Code	Title	Hours
Foundation Courses		**6**
HDFS 2010	Lifespan Human Development in Family Context	
HDFS 4950	Advanced Seminar [1]	
or HDFS 5950	Seminar on Health Ecology and Equity	
Development Course		**3**
HDFS 3010	Child Development in the Family	
or HDFS 3030	Adolescent Development in the Family	
or HDFS 3050	Adult Development and Aging	
Experiential Course		**3**
HDFS 3930	Service Learning in Human Development and Family Science	
or HDFS 4380	Study and Travel in Human Development and Family Science	
or HDFS 4980	Advanced Undergraduate Research in Human Development and Family Studies	
Health Based Course		**3**
HDFS 3500	Hospitalized Children and Their Families	
or HDFS 3510	Therapeutic Play	
or HDFS 4640	Systems of Care for Individuals with Disabilities Across the Lifespan	
or HDFS 4520	Dying, Death and Bereavement	
or HDFS 5930	Society and Health	
or HUSC 2000	Hunger: Causes, Consequences, and Responses	
Total Hours		**15**

1 **Must choose HDFS 4950: HEALTH AND WELLNESS EDUCATION FOR THE HUMAN SCIENCES (3). Topical seminar in HDFS focused on health education including theory, worksite locations, and program planning within the field of human sciences.**

Human Development and Family Science Minor

Required Courses

Code	Title	Hours
HDFS 2000	Marriage and Family in a Global Context	3
HDFS 2010	Lifespan Human Development in Family Context	3
Total Hours		**6**

Elective Courses

(Select a minimum of 12 hours from the list below; 9 hours must be at the 3000 level or higher.)

Code	Title	Hours
HDFS 2020	Research Methods for Developmental and Family Science	3
HDFS 2040	Analytics for the Social and Behavioral Sciences	3
HDFS 2050	Issues and Trends in Early Child Development	3
HDFS 3010	Child Development in the Family *	3
HDFS 3030	Adolescent Development in the Family *	3
HDFS 3040	Human Sexuality	3
HDFS 3050	Adult Development and Aging	3
HDFS 3060	Patterns of Family Interaction *	3
HDFS 3080	Development of Interpersonal Relationships *	3
HDFS 3130	Peer Relationships in Childhood and Social Skills Training	3
HDFS 3110	Infant and Toddler Development	3
HDFS 3460	Effective Guidance and Interaction with Young Children	3
HDFS 3461	Effective Guidance and Interaction with Young Children Lab	1
HDFS 3470	Learning Experiences for Young Children	3
HDFS 3471	Learning Experiences for Young Children Lab	1
HDFS 3500	Hospitalized Children and Their Families	3
HDFS 3510	Therapeutic Play	3
HDFS 4470	Advanced Learning Experiences for Young Children	3
HDFS 4471	Advanced Learning Experiences for Young Children Lab	1
HDFS 4520	Dying, Death and Bereavement	3
HDFS 4640	Systems of Care for Individuals with Disabilities Across the Lifespan	3
HDFS 3700	Family Life Education	3
HDFS 4660	Resource Management for Individuals, Couples, and Families	3
HDFS 4670	Parent Education	3
HDFS 4680	Family in Cross-Cultural Perspective *	3
HDFS 4700	Gender Roles and Close Relationships	3
HDFS 4950	Advanced Seminar	3
HDFS 4980	Advanced Undergraduate Research in Human Development and Family Studies	1-5
HDFS 5200	Applied Research and Evaluation Methods	3
HDFS 5300	HDFS and Social Policy	3
HDFS 5400	Program Design for Communities, Schools, and Families	3
HDFS 5930	Society and Health	3
HDFS 5950	Seminar on Health Ecology and Equity	3

Students must have a 2.25 cumulative GPA to enroll in HDFS 3010, HDFS 3030, HDFS 3060, HDFS 3080, and HDFS 4680. A "C" grade or better must be earned in each course taken toward the minor and each must be an HDFS course.

Note: A student cannot use the same course to fulfill the requirements of both their major and their minor. If a course has been completed to meet the requirements of their major, the student must select an alternate course from the elective courses above to meet the requirements of their minor.

Certificate in Health Equity Science

The undergraduate Certificate in Health Equity Science (CHES) is administered through the Department of Human Development and Family Science in the College of Human Sciences. Students completing this certificate program will have a strong understanding of the role of social context in generating disease risks and disparities in health between groups. Students will also learn how this corpus of knowledge can be translated into health-promoting policies and community-level interventions.

The CHES requires 12 semester hours (including at least 6 semester hours at the 3000-level or higher). Completion of this certificate will appear on the official Auburn University transcript. Students earn the certificate by completing:

Code	Title	Hours
HUSC/HDFS 5930	Society and Health	3
HUSC/HDFS 5950	Seminar on Health Ecology and Equity	3
Six (6) additional semester hours through elective courses [1]		6
SOCY 2000	Social Issues	
HDFS 5300	HDFS and Social Policy	
RSOC 5510	Social Welfare, Family and Poverty	
SOCY 3500	Social Inequalities	
SOCY 4200	Health and Society	
SOCY 5400	Sociology of Mental Health	
SOCY 5670	Sociology of Gender	
ANTH 3600	Medical Anthropology	
ANTH 3900	Bioarchaeology	
ANTH 5600	Culture, Medicine, and Power	
HDFS 4950	Advanced Seminar (Health and Wellness for the Human Sciences)	
Honors Thesis (2-6 semester hours) on a health equity topic* Practicum (1-6 semester hours) in health equity in a professional setting* Internship (12 semester hours) in health equity* [2]		
Total Hours		**12**

1 Elective courses relevant to the certificate vary from year to year. Courses with substantial content focused on health equity science or social inequality are likely to qualify. Please email course syllabus to ches@auburn.edu to obtain approval.

2 Thesis, practicum, and internship activities are not required for the certificate but are an alternative way to complete the elective credit requirements. In departments where such opportunities are available, thesis, practicum, and internship should be organized by the student with a faculty mentor in their department. To obtain approval for these credits to count towards the Health Equity Science certificate submit the following materials to ches@auburn.edu. Students should submit a 1 page description of the time commitment and primary activities of the internship or practicum (signed by the student and her/his supervisor) and a 1 page description of how the activities are relevant to health equity science topics. Students completing thesis credits to meet the certificate requirements should submit their thesis proposal for preliminary approval before it is completed and the completed thesis for final approval.
General questions about how to obtain the certificate should be directed ches@auburn.edu

Department of Nutritional Sciences

The Department offers the major in Nutrition. The NTRI major offers three study options: Nutrition/Dietetics (NTDI), Nutrition Science (NSPM) and Nutrition/Wellness (NTWE).

Nutrition

The field of nutrition is concerned with human physiology and biochemistry and their relationship to human health, diet, and well-being. The NTRI curriculum has three options which permit specialization according to students' specific interests. Course work in the major

must be taken in sequence. On and off campus transfer students should anticipate that additional semesters of study may be required to complete the program.

Nutrition Science Option

The Nutrition Science option prepares students for a variety of health professional schools, such as medical, dental, pharmacy, optometry, physical therapy, and physician's assistant, as well as for graduate study in the nutrition discipline.

Pre-Pharmacy

The pre-pharmacy program in particular permits students to take only three years of undergraduate classes before starting the Pharm.D. program at the Harrison College of Pharmacy. During their junior year, students will begin the application process for pharmacy school. After successful completion of four semesters in the Harrison College of Pharmacy's Pharm.D. program, the College of Human Sciences will approve conferral of a student's Bachelor of Science in Nutrition/Nutrition Science.

Pre-Anesthesiologist Assistant

The Auburn University/Edward Via College of Osteopathic Medicine-Bluefield Rocovich Early Admission Program (REAP) is a unique opportunity for Auburn University students interested in a career as an Anesthesiologist Assistant (CAA). The Rocovich EAP provides early admission to VCOM-Bluefield's Master of Health Science in Anesthesia (MHSA) Program for highly competitive Auburn students each year who have met the program requirements. Candidates selected for admission into the program are notified in the spring of their junior undergraduate year.

All interested Nutrition Science students should confer with the College of Human Sciences advisors for specific course requirements and other details about the program. After successful completion of the first year in MHSA, these students will be awarded their Bachelor of Science in Nutrition Science degree.

Students enrolled in the Nutrition Science option must earn a grade of "C" or better in all NTRI courses to graduate. Additionally, students must earn a grade of "C" or better in all pre-requisite courses to enroll in the subsequent NTRI course.

Nutrition/Dietetics Option

The Nutrition/Dietetics option is designed to prepare students interested in completing the requirements to become credentialed as a Registered Dietitian (RD) and Registered Dietitian Nutritionist (RDN). This option prepares students for careers in clinical nutrition, community nutrition, public health, nutrition education and counseling, foodservice management, and food and nutrition in industry. Graduates who successfully complete the Didactic Program in Dietetics are qualified to apply for a post-baccalaureate supervised-practice program, which is a requirement for eligibility to take the National Registration Examination for Dietitians and earn the RD/RDN credential. The Auburn University's Didactic Program in Dietetics is accredited by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (312) 899-0040 ext. 5400. https://www.eatright.org/.

Academic Standards and Policies: Freshmen and on and off campus transfer students who desire to major in Nutrition/Dietetics will be admitted to Pre-dietetics (NTDX). To be eligible for consideration for admission to the didactic program in dietetics, applicants must successfully complete at least 45 semester hours of the pre-dietetics curriculum courses, including:

Code	Title	Hours
NTRI 2000/2007	Nutrition And Health	3

As well as 4 of the following 6 science courses:

Code	Title	Hours
CHEM 1030/1031	Fundamentals Chemistry I	3
CHEM 1040/1041	Fundamental Chemistry II	3
CHEM 2030	Survey Of Organic Chemistry	3
BIOL 1020/1021	Principles Of Biology	3
BIOL 2500/2501	Human Anatomy and Physiology I	3
BIOL 2510/2511	Human Anatomy and Physiology 2	3

Students must successfully complete the lower-division pre-dietetics prerequisite courses as outlined below with a minimum GPA of 2.8 on a 4.0 scale. No grade lower than a "C" will be accepted in any prerequisite course (BIOL 1020/BIOL 1021, BIOL 2500, BIOL 2510, CADS 2000 CHEM 1030/CHEM 1031, CHEM 1040/CHEM 1041, CHEM 2030, HDFS 2000, NTRI 2000 (or NTRI 2007), NTRI 2070,

PSYC 2010). Criteria for admission include pre-dietetics cumulative GPA, science GPA, and student's personal statements and career goals. Due to the limited number of seats, achievement of minimum standards does not ensure admission into the Didactic Program in Dietetics.

Program Application: Pre-dietetic students must formally apply to the DPD, upon completion of the admission requirement course work. Once grades are posted for the semester, students will complete the application located on the Nutrition Dietetics website and follow application instructions to submit.

Students enrolled in the Pre-Dietetics and Nutrition/Dietetics options must earn a grade of "C" or better in all NTRI courses to graduate. Additionally, students must earn a grade of "C" or better in all pre-requisite courses to enroll in the subsequent NTRI course.

Students admitted to Pre-dietetics are required to apply to be admitted into the Nutrition/Dietetics option, which is also the accredited Didactic Program in Dietetics (DPD). Students must successfully complete at least 45 semester hours of the pre-dietetics curriculum courses (NTRI 2000 (or NTRI 2007), and at least 4 of the 6 required science courses, including CHEM 1030/CHEM 1031, CHEM 1040/CHEM 1041, CHEM 2030, BIOL 1020/BIOL 1021, BIOL 2500/BIOL 2501, BIOL 2510/BIOL 2511) with a grade of "C" or better and a minimum GPA of 2.8 on a 4.0 scale.

Nutrition/Wellness Option

The Nutrition/Wellness option prepares students for careers in health-related settings. Graduates find positions in non-profit health organizations, hospital-based and corporate-based programs, and federal, state and local health agencies.

Students enrolled in the Nutrition/Wellness must earn a grade of "C" or better in all NTRI courses to graduate. Additionally, students must earn a grade of "C" or better in all pre-requisite courses to enroll in the subsequent NTRI course.

Majors

- Nutrition: Accelerated BS/MB — ABM Program (p. 1502)
- Nutrition — Nutrition/Dietetics Option (p. 838)
- Nutrition — Nutrition Science Option (pre-professional) (p. 835)
  - Nutrition — Nutrition Science Option (pre-anesthesiology) (p. 836)
  - Nutrition — Nutrition Science Option (pre-pharmacy) (p. 837)
- Nutrition — Nutrition Wellness Option (p. 840)

Courses

NTRI 1010 INTRODUCTION TO THE PRE-HEALTH PROFESSIONS (1) LEC. 1. This course is designed to expose College of Human Sciences Pre-Health students to the different components of the pre-professional application process. This course will uncover the opportunities offered to students to enhance his/her ability to gain experiences that demonstrate core competencies of health professions. This course provides opportunities to explore and develop these competencies required for professional programs through discussion, activities, reading, writing, and collaboration.

NTRI 2000 NUTRITION AND HEALTH (3) LEC. 3. Principles of human nutrition and food choices related to the health of individuals. Credit will not be given for both NTRI 2000 and NTRI 2007.

NTRI 2007 HONORS NUTRITION AND HEALTH (3) LEC. 3. Pr. Honors College. Principles of human nutrition and food choices related to the health of individuals. Topics similar to NTRI 2000 but covered in greater depth with classroom discussion of controversial topics. Credit will not be given for both NTRI 2000 and NTRI 2007.

NTRI 2010 BASIC SPORTS NUTRITION (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) or (NTRI 2000 or NTRI 2007). An introductory course on the relationship between nutrition and sports performance. Topic areas to be covered include energy, carbohydrates, protein/amino acids, fluids, vitamins, minerals, body weight and supplement use as they directly relate to sports performance. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 2070 CAREERS IN NUTRITION, DIETETICS AND WELLNESS (1) LEC. 1. Pr. (NTRI 2000 or NTRI 2007). Professional roles and responsibilities in nutrition, dietetics, and wellness with emphasis on careers professional development and conduct. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 3560 EXPERIMENTAL STUDY OF FOODS (4) LEC. 3. LAB. 3. Pr. (NTRI 2000 or NTRI 2007) and (BIOL 1020 or BIOL 1027) and CHEM 1030 or departmental approval. Experimental approach to the chemistry to food including composition, preparation, recipe modification, food quality, sanitation, processing, and food laws. A C or better is required in all pre-requisite courses to enroll in the course .

NTRI 3750 NUTRITION EDUCATION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2017) and (NTRI 2000 or NTRI 2007). How to design, deliver, and evaluate the types of educational interventions and programs conducted by most of nutrition educators in a variety of settings such as work, community programs, clinic, food banks, family programs, and/or schools. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 3940 COMMUNITY SERVICE (3-9) LEC. 1. LAB. 6. Departmental approval. Application of NTRI-related knowledge to real-life situations through participation in directed community service experiences. A) nutrition; B) hospitality; C) general NTRI. Course may be repeated for a maximum of 9 credit hours.

NTRI 4090 PROFESSIONAL ISSUES IN DIETETICS AND NUTRITION (1) LEC. 1. SU. Pr. NTRI 2070. NTDI or departmental approval. Senior standing. Professional issues and trends affecting dietetics and nutrition practice; planning for professional advancement; includes externship. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4560 FOOD SYSTEMS OPERATIONS (2) LEC. 2. Pr. NTRI 2000 or Departmental approval. Principles for managing resources required in planning, purchasing, preparing and serving high quality food in food service operations. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4561 FOOD SYSTEMS OPERATIONS LAB (2) LAB. 4. Pr. NTRI 2000 or departmental approval. Coreq. NTRI 4560. Laboratory experience in food service operations. Food safety certification is included. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4580 FOOD AND CULTURE (2) LEC. 2. Departmental approval. Cultural and social factors affecting food habits and nutritional status of populations throughout the world.

NTRI 4620 PUBLIC HEALTH NUTRITION (3) LEC. 3. Pr. NTRI 4820 and NTRI 4830. Population-focused approaches that facilitate healthy diets through policy development and environmental changes. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4820 MACRONUTRIENT METABOLISM (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2007) and BCHE 3180 and P/C BIOL 2510 or departmental approval. Physiological and biochemical basis for energy-yielding nutrients; structure, function, dietary requirements, digestion, absorption, transport and metabolism of macronutrients. A C or better is required in all pre-requisite courses to enroll in the course

NTRI 4830 MICRONUTRIENT METABOLISM (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2007) and BCHE 3180 and P/C BIOL 2510. Metabolism, dietary needs, deficiency symptoms and food sources of vitamins and minerals in humans. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4930 DIRECTED STUDIES (1-8) AAB/IND. Departmental approval. Independent reading or research in a content area of special interest; supervised by a faculty member. Course may be repeated for a maximum of 8 credit hours.

NTRI 4970 SPECIAL TOPICS (1-3) LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. A course offering unique or current issues not covered in a regularly scheduled course. Course may be repeated for a maximum of 6 credit hours.

NTRI 4980 UNDERGRADUATE RESEARCH AND STUDY (1-9) IND. Departmental approval. Directed research under faculty supervision. Course may be repeated for a maximum of 9 credit hours.

NTRI 4997 HONORS THESIS (1-3) IND. SU. Pr. Honors College. Departmental approval. Research in specialized topics. Course may be repeated for a maximum of 3 credit hours.

NTRI 5020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. NTRI 4820 and NTRI 4830. NTDI or departmental approval Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. NTRI 5020 or NTRI 6020. NTDI or departmental approval. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5040 GLOBAL NUTRITION AND HUNGER (3) LEC. 3. Pr. (NTRI 2000). This course explores the complex and interconnected issues of global nutrition and hunger. Students will examine the causes, consequences, and potential solutions to malnutrition and food insecurity around the world. Departmental approval required.

NTRI 5047 GLOBAL NUTRITION AND HUNGER (3) LEC. 3. Pr. (NTRI 2000). This course explores the complex and interconnected issues of global nutrition and hunger. Students will examine the causes, consequences, and potential solutions to malnutrition and food insecurity around the world. Department approval.

NTRI 5100 NUTRITION IN DISEASE PREVENTION (3) LEC. 3. Pr. P/C NTRI 4820 and P/C NTRI 4830. The functions, safety, and efficacy of selected nutrients and herbs in the prevention and/or treatment of selected diseases/conditions. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5380 STUDY/TRAVEL IN NUTRITIONAL SCIENCES (1-6) AAB/FLD. Pr. BIOL 1030. Departmental approval. Concentrated study in nutritional sciences in international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 5560 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. P/C NTRI 4560 and P/C NTRI 4561. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 5560 and NTRI 6560. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5760 NUTRITION COUNSELING (2) LEC. 2. Pr. P/C NTRI 3750 and (P/C NTRI 5030 or P/C NTRI 6030) or departmental approval. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760. A C or better is required in all pre-requisite courses to enroll in the course NTDI

NTRI 5820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4830 and NTRI 4820. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 5820 and NTRI 6820. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5830 NUTRITIONAL GENOMICS (3) LEC. 3. Pr. NTRI 4820 and NTRI 4830. Principles of nutrient-gene interactions and how these interactions influence human health and disease. May count either NTRI 5830 or NTRI 6830. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5910 CLINICAL PRACTICUM IN DIETETICS (1) PRA. 3. SU. NTDI or department approval. Application of the practice of dietetics in a clinical or community setting.

NTRI 6020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. NTRI 4820. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. NTRI 5020 or NTRI 6020 or departmental approval. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030. A "C" or better is required in all pre-requisite courses to enroll in the course. NTDI

NTRI 6040 GLOBAL NUTRITION AND HUNGER (3) LEC. 3. This course explores the complex and interconnected issues of global nutrition and hunger. Students will examine the causes, consequences, and potential solutions to malnutrition and food insecurity around the world. Department approval.

NTRI 6100 NUTRITION IN DISEASE PREVENTION (3) LEC. 3. Pr. (NTRI 5820 or NTRI 6820) and (NTRI 5830 or NTRI 6830). The functions, safety, and efficacy of selected nutrients herbs in the prevention and/or treatment of selected diseases/conditions. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6380 STUDY/TRAVEL IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) AAB/FLD. Departmental approval. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 6560 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. NTRI 4560 and NTRI 4561. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 6560 and NTRI 5560. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6760 NUTRITION COUNSELING (2) LEC. 2. Pr. P/C NTRI 3750 and (P/C NTRI 5030 or P/C NTRI 6030). Coreq. NTRI 6030 and NTRI 5030. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4820 and NTRI 4830. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 6820 and NTRI 5820. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6830 NUTRITIONAL GENOMICS (3) LEC. 3. Pr. NTRI 4820. Principles of nutrient-gene interactions and how these interactions influence human health and disease. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 7010 ADVANCED PRACTICUM IN DIETETICS (1-9) DSL/LEC. SU. DPD verification statement. Enrollment in Masters in Nutrition Program or department approval. Supervised practical experience in clinical, food service, and community settings for development of entry-level skills for the registered dietitian. Course may be repeated for a maximum of 9 credit hours.

NTRI 7020 ADVANCED NUTRITION AND DIET THERAPY (3) DSL/LEC. Explores complex medical nutrition therapies and the role of diet in disease prevention and management. Emphasizing evidence-based approaches, students will develop skills in nutrition assessment, intervention design, and evaluating outcomes, preparing them for advanced practice and research in clinical settings. Department approval.

NTRI 7030 LEADERSHIP AND MANAGEMENT IN NUTRITIONAL SCIENCES (3) LEC. 3. This course provides an in-depth examination of leadership and management principles specific to the the various areas within nutritional sciences. Students will develop the skills necessary to lead teams, manage resources, and navigate complex organizational systems. Topics include financial management, leadership styles, communication, team building, decision-making, and strategic planning within various nutrition-related settings. Department approval.

NTRI 7050 METHODS OF RESEARCH (3) LEC. 3. Departmental approval. Research methods and designs applicable to disciplines represented in nutrition.

NTRI 7280 LABORATORY METHODS IN FOOD SCIENCE AND NUTRITION (3) LEC. 2. LAB. 3. Departmental approval. Modern laboratory techniques and instruments used in human nutrition and food science research.

NTRI 7500 MINERALS (3) LEC. 3. Departmental approval. Sources, digestion, absorption, transport, function and metabolism of major and trace minerals in the human body.

NTRI 7510 VITAMINS (3) LEC. 3. Departmental approval. Advanced study of metabolism, requirements, interactions and deficiencies of the fat and water soluble vitamins as related to humans.

NTRI 7520 MACRONUTRIENTS: INTEGRATION AND METABOLISM (4) LEC. 4. Advanced study of energy metabolism, digestion, absorption, transport and integrative metabolism of macronutrients.

NTRI 7530 HUMAN NUTRIENT METABOLISM (4) LEC. 4. Advanced study of nutrition and metabolism, as related to humans. Department approval. Credit will not be given for both NTRI 7530 or NTRI 7536 once developed, or BCHE 6180 and BCHE 6190, and/or BCHE 7200.

NTRI 7620 SPORTS AND PERFORMANCE NUTRITION (3) LEC. 3. In-depth exploration of the principles and practices of sports and performance nutrition, including the role of macronutrients and micronutrients, supplements, and ergogenic aids in energy production, muscle recovery, and injury prevention. Strategies to meet the nutritional needs for different types of athletes and ways to maintain movement, performance, muscle mass, bone health, and mobility throughout the lifespan will also be discussed.

NTRI 7850 RESEARCH SEMINAR FOR MASTER'S PROGRAM (1) DSL/SEM. 1. Departmental approval. Current topics in nutrition, dietetics and hospitality management presented by M.S. graduate students.

NTRI 7910 PRACTICUM IN NUTRITION AND DIETETICS (1-12) PRA. SU. Departmental approval. Application of principles and theories of nutrition in a professional setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 12 credit hours.

NTRI 7930 ADVANCED INDEPENDENT STUDY (1-6) DSL/IND. Departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

NTRI 7960 SPECIAL PROBLEMS (1-5) DSL/IND. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 10 credit hours.

NTRI 7980 NONTHESIS RESEARCH (1-6) AAB. SU. Departmental approval. In-depth work in a particular project related to hotel and restaurant management. Course may be repeated for a maximum of 6 credit hours.

NTRI 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

NTRI 8850 RESEARCH SEMINAR FOR DOCTORAL PROGRAM (1-2) SEM. Departmental approval. Required for doctoral students in nutrition and hospitality management. Advanced topics in nutrition and food science presented by doctoral students. Course may be repeated for a maximum of 2 credit hours.

NTRI 8910 SUPERVISED TEACHING (1) AAB/IND. 1. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

NTRI 8970 ADVANCED TOPICS IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) DSL/LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. Course may be repeated for a maximum of 6 credit hours.

NTRI 8990 RESEARCH AND DISSERTATION (1-10) AAB/DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

Nutrition — Nutrition Science Option (NSPM)

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	ENGL 1120 English Composition II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	Core History	3
ENGL 1100 English Composition I	3	**NTRI 2000 Nutrition And Health**	**3**
MATH 1610 Calculus I	4	BIOL 1030 Organismal Biology	3
BIOL 1020 Principles of Biology	3	BIOL 1031 Organismal Biology Laboratory	1
NTRI 1010 Introduction to the Pre-Health Professions	**1**	CHEM 1040 Fundamental Chemistry II	3
BIOL 1021 Principles of Biology Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
	16		**17**

Sophomore

Fall	Hours	Spring	Hours
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
Core History	3	BIOL 3000 Genetics	3
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II[1]	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory[1]	1
PSYC 2010 Introduction to Psychology	3	**NTRI 2070 Careers in Nutrition, Dietetics and Wellness**	**1**
STAT 2510 Statistics for Biological and Health Sciences	3	SOCY 1000 Sociology: Global Perspective	3
	17		**15**

Junior

Fall	Hours	Spring	Hours
BCHE 3180 Nutritional Biochemistry	**3**	**NTRI 4820 Macronutrient Metabolism**	**3**
BIOL 3200 General Microbiology	**3**	**NTRI 4830 Micronutrient Metabolism**	**3**

BIOL 3201 General Microbiology Laboratory	**1**	**HDFS 2000 Marriage and Family in a Global Context, CADS 2000 Global Consumer Culture, *or* HOSP 2000 Principles of Service Management**	**3**
BIOL 4100 Cell Biology	3	PHYS 1510 General Physics II	4
BIOL 4101 Cell Biology Laboratory	2		
PHYS 1500 General Physics I	4		
	16		**13**

Senior

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking	3	**NTRI 5100 Nutrition in Disease Prevention**	**2**
NTRI 5820 Nutrition In The Life Cycle	**3**	**HDFS 2000 Marriage and Family in a Global Context, CADS 2000 Global Consumer Culture, *or* HOSP 2000 Principles of Service Management**	**3**
Professional Elective(s)[2]	3	**NTRI 5830 Nutritional Genomics**	**3**
Core Fine Arts	3	PHIL 1030 Ethics and the Health Sciences	3
		Core Literature	3
		UNIV 4AA0 Achieve the Creed	0
	12		**14**

Total Hours: 120

* **University Core Notes:** Students in the Honors College may take equivalent honors courses. Student may take online version of courses.
College and Department Notes: Required major courses and College core courses are in bold. Grades in these courses are used to calculate the GPA in the major and to meet graduation standards (2.0 overall GPA for graduation).
This option meets the requirements for health and professional schools, such as medical school, dental school, and physical therapy school.

1 For Pre-Physical Therapy, substitute an additional psychology course for CHEM 2080 and CHEM 2081.

2 Professional Electives: NTRI 3940 Community Service; NTRI 3750 Nutrition Education; NTRI 4980 Undergraduate Research and Study; NTRI 4620 Public Health Nutrition; NTRI 5380 Study/Travel in Nutritional Sciences; HUSC 4000 Hunger Studies Capstone

Nutrition — Nutrition Science (NSPM) Pre-Anesthesiology

The pre-anesthesia assistant program permits students to take only three years of undergraduate classes before starting the MHSA program with Bluefield University in partnership with VCOM-Auburn. During their junior year, students will begin the application process for MHSA. After successful completion of first year (65 hours) in the MHSA program, the College of Human Sciences will approve conferral of a student's Bachelor of Science in Nutrition/Nutrition Science. If the student does not complete the MHSA program, they will need to consult with Human Sciences' Academic Affairs office to determine remaining coursework for the Nutrition/Nutrition Science degree.

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	ENGL 1120 English Composition II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1040 Fundamental Chemistry II	3
ENGL 1100 English Composition I	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	3	MATH 1610 Calculus I	4
BIOL 1021 Principles of Biology Laboratory	1	BIOL 2500 Human Anatomy and Physiology I	3

NTRI 2000 Nutrition And Health	**3**	BIOL 2501 Human Anatomy and Physiology I Laboratory	1
NTRI 1010 Introduction to the Pre-Health Professions	**1**		
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
Core History	3	CHEM 2080 Organic Chemistry II[1]	3
CHEM 2070 Organic Chemistry I	3	CHEM 2081 Organic Chemistry II Laboratory[1]	1
CHEM 2071 Organic Chemistry I Laboratory	1	SOCY 1000 Sociology: Global Perspective	3
PSYC 2010 Introduction to Psychology	3	BIOL 1030 Organismal Biology	3
STAT 2510 Statistics for Biological and Health Sciences	3	BIOL 1031 Organismal Biology Laboratory	1
BIOL 2510 Human Anatomy and Physiology II	3	PHYS 1500 General Physics I	4
BIOL 2511 Human Anatomy and Physiology II Laboratory	1	**NTRI 3750 Nutrition Education**	**2**
	17		**17**

Junior

Fall	Hours	Spring	Hours
BCHE 3180 Nutritional Biochemistry	**3**	COMM 1000 Public Speaking	3
PHYS 1500 General Physics I	4	CORE FINE ARTS	3
PHIL 1030 Ethics and the Health Sciences	3	**NTRI 4820 Macronutrient Metabolism**	**3**
CORE LITERATURE	3	**NTRI 4830 Micronutrient Metabolism**	**3**
CORE HISTORY II	3	**NTRI 5100 Nutrition in Disease Prevention**	**3**
	16		**15**

Total Hours: 95

Nutrition — Nutrition Science (NSPM) Pre-Pharmacy

The pre-Pharmacy program permits students to take three years of undergraduate classes before starting the Pharm.D. program at the Harrison College of Pharmacy. During their junior year, students will begin the application process for pharmacy school. After successful completion of four semesters in the Harrison College of Pharmacy's Pharm. D. program, the College of Human Sciences will approve conferral of a student's Bachelor of Science in Nutrition/Nutrition Science. If the student does not complete not the Pharmacy program, they will need to consult with Human Sciences' Academic Affairs office to determine remaining coursework for the Nutrition/Nutrition Science degree.

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	ENGL 1120 English Composition II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	Core History	3
ENGL 1100 English Composition I	3	CHEM 1040 Fundamental Chemistry II	3
MATH 1610 Calculus I	4	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	3	BIOL 2500 Human Anatomy and Physiology I	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 2501 Human Anatomy and Physiology I Laboratory	1

NTRI 1010 Introduction to the Pre-Health Professions		**1**	**NTRI 2000 Nutrition And Health**		**3**
		16			**17**

Sophomore

Fall	Hours		Spring	Hours	
Core History		3	BIOL 3000 Genetics		3
BIOL 2510 Human Anatomy and Physiology II		3	BIOL 3200 General Microbiology		3
BIOL 2511 Human Anatomy and Physiology II Laboratory		1	BIOL 3201 General Microbiology Laboratory		1
CHEM 2070 Organic Chemistry I		3	CHEM 2080 Organic Chemistry II[1]		3
CHEM 2071 Organic Chemistry I Laboratory		1	CHEM 2081 Organic Chemistry II Laboratory[1]		1
PSYC 2010 Introduction to Psychology		3	SOCY 1000 Sociology: Global Perspective		3
STAT 2510 Statistics for Biological and Health Sciences		3	COMM 1000 Public Speaking		3
		17			**17**

Junior

Fall	Hours		Spring	Hours	
PHYS 1500 General Physics I		4	PHIL 1030 Ethics and the Health Sciences		3
CORE LITERATURE		3	CORE FINE ARTS		3
BCHE 3180 Nutritional Biochemistry		**3**	**NTRI 4820 Macronutrient Metabolism**		**3**
HDFS 2000 Marriage and Family in a Global Context		**3**	**NTRI 4830 Micronutrient Metabolism**		**3**
		13			**12**

Total Hours: 92

* **University Core Notes:** Students in the Honors College may take equivalent honors courses. Student may take online version of courses.
College and Department Notes: Required major courses and College core courses are in bold. Grades in these courses are used to calculate the GPA in the major and to meet graduation standards (2.0 overall GPA for graduation).
This option meets the requirements for health and professional schools, such as medical school, dental school, and physical therapy school.

1 For Pre-Physical Therapy, substitute an additional psychology course for CHEM 2080 and CHEM 2081.

2 Professional Electives: NTRI 3940 Community Service; NTRI 3750 Nutrition Education; NTRI 4980 Undergraduate Research and Study; NTRI 4620 Public Health Nutrition; NTRI 5380 Study/Travel in Nutritional Sciences; HUSC 4000 Hunger Studies Capstone

Nutrition — Nutrition/Dietetics Option (NTDI)

Freshmen and on and off campus transfer students who desire to major in Nutrition/Dietetics will be admitted to Pre-dietetics (NTDX). To be eligible for consideration for admission to the didactic program in dietetics, applicants must successfully complete at least 45 semester hours of the pre-dietetics curriculum courses, including:

Code	Title	Hours
NTRI 2000/2007	Nutrition And Health	3
As well as 4 of the following 6 science courses:		
CHEM 1030/1031	Fundamentals Chemistry I	
CHEM 1040/1041	Fundamental Chemistry II	
CHEM 2030	Survey of Organic Chemistry	
BIOL 1020/1021	Principles of Biology	

BIOL 2500/2501	Human Anatomy and Physiology I
BIOL 2510/2511	Human Anatomy and Physiology II

Students must successfully complete the lower-division pre-dietetics prerequisite courses as outlined below with a minimum GPA of 2.8 on a 4.0 scale. No grade lower than a “C” will be accepted in any prerequisite course (BIOL 1020/BIOL 1021, BIOL 2500, BIOL 2510, CADS 2000, CHEM 1030/CHEM 1031, CHEM 1040/CHEM 1041, CHEM 2030, HDFS 2000, NTRI 2000 (or NTRI 2007), NTRI 2070, PSYC 2010). Criteria for admission include pre-dietetics cumulative GPA, science GPA, and student’s personal statements and career goals. Due to the limited number of seats, achievement of minimum standards does not ensure admission into the Didactic Program in Dietetics.

Pre-dietetic students must formally apply to the DPD, upon completion of the admission requirement course work. Once grades are posted for the semester, students will complete the application located on the Nutrition Dietetics website and follow application instructions to submit.

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	BIOL 1020 Principles of Biology	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	BIOL 1021 Principles of Biology Laboratory	1
MATH 1150 Pre-Calculus Algebra and Trigonometry	4	CHEM 1040 Fundamental Chemistry II	3
Core History 1	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
ENGL 1100 English Composition I	3	**NTRI 2000/2007 Nutrition And Health**	**3**
PSYC 2010 Introduction to Psychology	3	ENGL 1120 English Composition II	3
		Core History 2	3
	17		**17**

Sophomore

Fall	Hours	Spring	Hours
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
STAT 2510 Statistics for Biological and Health Sciences	3	CHEM 2030 Survey of Organic Chemistry	3
Core Literature	3	COMM 1000 Public Speaking	3
Core Fine Arts	3	**HDFS 2100 The Science of Human Connections, HOSP 2000 Principles of Service Management, *or* NTRI 2000 Nutrition And Health**	**3**
NTRI 2070 Careers in Nutrition, Dietetics and Wellness	1		
	14		**13**

Junior

Fall	Hours	Spring	Hours
BCHE 3180 Nutritional Biochemistry	**3**	**NTRI 3750 Nutrition Education**	**3**
NTRI 3560 Experimental Study of Foods	**4**	**NTRI 4820 Macronutrient Metabolism**	**3**
PHIL 1030 Ethics and the Health Sciences	3	**NTRI 4830 Micronutrient Metabolism**	**3**
BIOL 3200 General Microbiology	3	Core Social Sciences	3
BIOL 3201 General Microbiology Laboratory	1	NTRI 4090 Professional Issues in Dietetics and Nutrition	1

Elective	2	**HDFS 2100 The Science of Human Connections, HOSP 2000 Principles of Service Management, *or* NTRI 2000 Nutrition And Health**	**3**
	16		**16**

Senior

Fall	Hours	Spring	Hours
NTRI 4560 Food Systems Operations	**2**	**NTRI 5030 Medical Nutrition II**	**4**
NTRI 4561 Food Systems Operations Lab	**2**	**NTRI 5560 Nutrition and Food Service Management**	**3**
NTRI 4620 Public Health Nutrition	**3**	**NTRI 5760 Nutrition Counseling**	**2**
NTRI 5020 Medical Nutrition I	**4**	**NTRI 5830 Nutritional Genomics**	**3**
NTRI 5820 Nutrition In The Life Cycle	**3**	**NTRI 5910 Clinical Practicum in Dietetics**	**1**
		UNIV 4AA0 Achieve the Creed	0
	14		**13**

Total Hours: 120

The Accreditation Council for Education in Nutrition and Dietetics' academic requirements for Didactic Program in Dietetics will be met by the Nutrition/Dietetics option. Graduates choosing this option must complete an internship after graduation to be eligible to take the national exam for Registered Dietitians. Acceptance into dietetic internships is highly competitive.

Nutrition — Wellness Option (NTWE)

The Bachelor of Science in Nutrition with an emphasis on Wellness is designed to provide students with a comprehensive understanding of nutrition principles and their impact on health and wellness. This degree program focuses on preventative health care and aims to improve the quality of life among consumers and employers. Students enrolled in the BS Nutrition degree must earn a grade of "C" or better in all NTRI courses to graduate. Additionally, students must earn a grade of "C" or better in all pre-requisite courses to enroll in the subsequent NTRI course.

Freshman

Fall	Hours	Spring	Hours
CHEM 1030 Fundamentals Chemistry I	3	BIOL 1020 Principles of Biology	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	BIOL 1021 Principles of Biology Laboratory	1
ENGL 1100 English Composition I	3	CHEM 1040 Fundamental Chemistry II	3
MATH 1150 Pre-Calculus Algebra and Trigonometry	4	CHEM 1041 Fundamental Chemistry II Laboratory	1
PSYC 2010 Introduction to Psychology	3	ENGL 1120 English Composition II	3
Core History I	3	Core History II	3
		NTRI 2000/2007 Nutrition And Health	**3**
	17		**17**

Sophomore

Fall	Hours	Spring	Hours
Literature Core	3	CHEM 2030 Survey of Organic Chemistry	3
Social Science Core	3	**NTRI 2070 Careers in Nutrition, Dietetics and Wellness**	**1**
Fine Arts Core	3	COMM 1000 Public Speaking	3
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3

BIOL 2501 Human Anatomy and Physiology I Laboratory		1	**HDFS 2000 Marriage and Family in a Global Context, CADS 2000 Global Consumer Culture, *or* HOSP 2000 Principles of Service Management**		**3**
NTRI 3560 Experimental Study of Foods		**4**	BIOL 2511 Human Anatomy and Physiology II Laboratory		1
		17			**14**

Junior

Fall	**Hours**		**Spring**	**Hours**	
Professional Electives[1]		2	**NTRI 3750 Nutrition Education**		**2**
PHIL 1030 Ethics and the Health Sciences		3	**NTRI 4830 Micronutrient Metabolism**		**3**
Free Electives		2	STAT 2510 Statistics for Biological and Health Sciences		3
NTRI 2010 Basic Sports Nutrition		**3**	KINE 1100 Wellness & Public Health		3
BCHE 3180 Nutritional Biochemistry		**3**	**NTRI 4820 Macronutrient Metabolism**		**3**
			ENGL 3040 Technical Writing		3
		13			**17**

Senior

Fall	**Hours**		**Spring**	**Hours**	
NTRI 4620 Public Health Nutrition		**3**	Free Electives		4
NTRI 5820 Nutrition In The Life Cycle		**3**	Professional Electives[1]		9
Professional Electives[1]		6	UNIV 4AA0 Achieve the Creed[2]		0
HDFS 2000 Marriage and Family in a Global Context, CADS 2000 Global Consumer Culture, *or* HOSP 2000 Principles of Service Management		**3**	**NTRI 5100 Nutrition in Disease Prevention**		**2**
		15			**15**

Total Hours: 125

1 Professional electives options: HOSP 1010, NTRI 4560, NTRI 4561, NTRI 5560, COMP 1000, KINE 3400, KINE 3680, KINE 4450, COMM 2010, COMM 2410, COMM 3100, COMM 3110, COMM 3450, COMM 3500, JRNL 1100, JRNL 2210, JRNL 3220, HDFS 2010. Courses from Business minor, Hunger minor, Joseph S. Bruno Auburn Abroad in Italy, PYSC, COUN, Foreign Language Undergraduate Research. Department head approval.

2 Seniors must register for UNIV 4AA0-HS1 the term they plan to graduate (non-credit class number for clearing graduation check).

*** **NOTE**: Required major courses and College core courses are in **bold**. Grades in these courses are used to calculate the GPA in the major and to meet graduation standards.

Majors

Minors

Honors International Minor in Human Sciences

Few places are more of an academic paradise than Italy. Incredible art, history and culture are set against a backdrop of exquisite land and seascapes, amazing food, and friendly people. As a student in the Joseph S. Bruno Auburn Abroad in Italy program, your assignment is simple: experience it all. By program's end, you will earn an Honors International Minor in Human Sciences—an impressive addition to any resume in today's global society. This experience differs significantly from other study abroad options on campus and elsewhere: our program is structured so that you will not just learn about Italian culture—you will live it.

You will stay as a full-time resident in the grand Palazzo Chigi, a 15th century palace once home to Italian nobility, at Auburn's only permanent overseas campus in Ariccia, Italy. Our 12-week curriculum enables you to immerse yourself in the international landscape while earning an International Honors Minor for a total of 16 hours of academic credit (14 of which are honors) here at Auburn.

Lectures are taught in English by notable international scholars and professionals in sustainability, world history, architecture, art, design, language, cuisine, and culture. Campus instruction is supplemented by field trips and experiential learning activities to other parts of Italy to bring enhance and bring meaningful context to the knowledge you have gained in the classroom.

Your worldview will flourish in ways you did not know were possible, gaining a better understanding of both the world and yourself. Most of all, your life will be enriched with memories and friendships that will last forever.

The Joseph S. Bruno Auburn Abroad in Italy program in which a student can earn the International Minor in one semester while studying abroad in Ariccia, Italy:

Code	Title	Hours
HUSC 3380	CHS at AU in Italy	2
HUSC 4017	Honors CHS at AU in Italy: Integrated Global Studies	6
HUSC 4387	Honors CHS at AU in Italy: Study and Travel	2
HUSC 4947	Honors CHS at AU in Italy: Directed Field Experiences	6
Total Hours		**16**

Study Abroad Program admission required. Please contact the CHS Office of Global Education for more information about program availability and application processes.

Hunger Studies Minor

The Hunger Studies minor emphasizes causes, consequences and responses to hunger all while encouraging students from all disciplines to mobilize and act to solve hunger. Students will examine hunger as a complex issue of sustainable human development. Courses in the minor help students develop a skill set for global citizenship that includes opportunities for advocacy, research, community involvement, leadership, and critical problem solving. Students representing every discipline—from agriculture to marketing, from engineering to design—are welcome to apply their major studies in these cross-disciplinary classes that interactively study and discuss how to solve hunger.

Required Courses

Code	Title	Hours
HUSC 2000/2007	Hunger: Causes, Consequences, and Responses	3
HUSC 4000	Hunger Studies Capstone	3
Total Hours		**6**

(Select a minimum of 12 hours from the lists below; 9 hours must be at the 3000 level or higher.)

Knowledge

(must select at least one course)

Code	Title	Hours
CSES 2000	Basic Crop Science	4
ANSC 1000	Introduction to Animal Sciences	4
ANSC 2010	Animals and Society	3
CADS 2700	Introduction to Nonprofit Organizations	3
ENGL 4040	Public Writing	3
FISH 5210	Principles of Aquaculture	3
FORY 5440	International Forestry	3
NTRI 2000	Nutrition And Health	3
NTRI 3560	Experimental Study of Foods	4
NTRI 3750	Nutrition Education	3

NTRI 4620	Public Health Nutrition	3
POLI 5370	Nonprofit Management	3
RSOC 2090	Food Systems: Policy, Production, and Practice	3

Leadership and Advocacy

(must select at least one course)

Code	Title	Hours
AGRI 3800	Leading People and Teams in Agriculture	3
COMM 3450	Intercultural Communication	3
HDFS 5300	HDFS and Social Policy	3
PHIL 3100	Ethical Theory	3
POLI 2100	State Government and Policy	3
RSOC 5640	Sociology of Community Development	3
RSOC 3620	Community Organization	3
RSOC 5610	Rural Sociology	3
RSOC 3560	Environment, Society, and Justice	3
RSOC 5410	Extension Programs and Methods	3
RSOC 5510	Social Welfare, Family and Poverty	3

Global Citizenship

(must select at least one course)

Code	Title	Hours
ANTH 3000	Culture, Marriage, and the Family	3
ANTH 3700	Environmental Anthropology	3
CADS 2000/2007	Global Consumer Culture	3
ECON 4300	International Economics	3
GEOG 2010	Human Geography	3
GEOG 5350	Economic Geography	3
HDFS 4680	Family in Cross-Cultural Perspective	3
POLI 3090	Introduction to International Relations	3
PSYC 3550	Psychology and Culture	3
POLI 3140	American Foreign Policy	3
POLI 3190	International Relations of the Middle East	3
POLI 3560	The Arab Spring	3
POLI 3610	Asian Politics	3
GSHS 2000	Global Studies Human Sciences	3
GSHS 3000	Global Studies in Human Sciences Lecture Series	1

To learn more about the Hunger Studies minor, contact Dr. Alicia Powers, Managing Director of the Hunger Solutions Institute, College of Human Sciences at arp0042@auburn.edu.

International Minor in Human Sciences

Few places are more of an academic paradise than Italy. Incredible art, history and culture are set against a backdrop of exquisite land and seascapes, amazing food, and friendly people. As a student in the Joseph S. Bruno Auburn Abroad in Italy program, your assignment is simple: experience it all. By program's end, you will earn an International Minor in Human Sciences - an impressive addition to any resume in today's global society. This experience differs significantly from other study abroad options on campus and elsewhere: our program is structured so that you will not just learn about Italian culture - you will live it.

You will stay as a full-time resident in the grand Palazzo Chigi, a 15th century palace once home to Italian nobility, at Auburn's only permanent overseas campus in Ariccia, Italy. Our 12-week curriculum enables you to immerse yourself in the international landscape while earning an International Honors Minor for a total of 16 hours of academic credit (14 of which are honors) here at Auburn.

Lectures are taught in English by notable international scholars and professionals in sustainability, world history, architecture, art, design, language, cuisine, and culture. Campus instruction is supplemented by field trips and experiential learning activities to other parts of Italy to bring enhance and bring meaningful context to the knowledge you have gained in the classroom.

Your worldview will flourish in ways you did not know were possible, gaining a better understanding of both the world and yourself. Most of all, your life will be enriched with memories and friendships that will last forever.

The College of Human Sciences offers two paths to obtaining the International Minor:

The Joseph S. Bruno Auburn Abroad in Italy program in which a student can earn the International Minor in one semester while studying abroad in Ariccia, Italy:

Code	Title	Hours
HUSC 1940	Study and Travel in Human Sciences: Pre-Departure	0
HUSC 3380	CHS at AU in Italy	2
HUSC 4010	CHS at AU in Italy: Integrated Global Studies	6
HUSC 4380	CHS at AU in Italy: Study and Travel	2
HUSC 4940	CHS at AU in Italy: Directed Field Experiences	6
Total Hours		**16**

OR

An on/off-campus program for students to complete a for-credit study abroad experience in the human sciences and human sciences content competencies and/or foreign language competencies on campus.

Code	Title	Hours
Required Courses (3-15 Hours)		
HUSC 5940	Study and Travel in Human Sciences (HUSC 5940 and/or HUSC 2940)	3-12
HUSC 2940	Study Abroad in Human Sciences (HUSC 5940 and/or HUSC 2940)	1-6
AND/OR CADS/HDFS/NTRI/GSHS Study Abroad opportunities		
Elective Courses (0-12) Hours		
HUSC 1940	Study and Travel in Human Sciences: Pre-Departure	0
GSHS 3010	Professional Development in Global Studies	2
GSHS 3000	Global Studies in Human Sciences Lecture Series	1
CADS 1700	Giving and Sharing	3
CADS 2000/2007	Global Consumer Culture	3
CADS 2700	Introduction to Nonprofit Organizations	3
CADS 3700	Gender, Wealth & Philanthropy	3
CADS 5780	International Philanthropy	3
Foreign Language		4
HDFS 2000	Marriage and Family in a Global Context	3
HDFS 2030	Applied Professional Skills in HDFS	2
HDFS 3080	Development of Interpersonal Relationships	3
HDFS 4680	Family in Cross-Cultural Perspective	3
HDFS 4700	Gender Roles and Close Relationships	3
HDFS 5300	HDFS and Social Policy	3
GSHS 2000	Global Studies Human Sciences	3
GSHS 5050	Design Thinking in Global Studies in Human Sciences	3
NTRI 2000/2007	Nutrition And Health	3

NTRI 4620	Public Health Nutrition	3
HOSP 2000	Principles of Service Management	3
HOSP 4570	Global Hospitality	3
Total Credit Hours: 15		

No more than 6 hours may be lower division (2000 and below) classes.
Courses taken as a requirement for the major or University core cannot be counted toward the minor.
No S/U courses can be counted toward the minor.
Students must earn an overall grade average of "C" (2.0) on all courses taken in the minor.

Study Abroad Program admission required. Please contact the CHS Office of Global Education for more information about program availability and application processes.

Click on the links above to learn more or contact Kate Thornton, Director of Global Education, College of Human Sciences, 334 Spidle Hall, 334-844-1339, kate.thornton@auburn.edu (brockmk@auburn.edu).

College of Liberal Arts

JASON HICKS, Dean
CYNTHIA BOWLING, Associate Dean for Research and Faculty Development
CHARLES A. ISRAEL, Associate Dean for Academic Affairs
LAURA PLEXICO, Associate Dean for Engagement and Graduate Studies
MELISSA ADAMS, Assistant Dean for Student Services

Majors in Liberal Arts prepare students for immediate employment after receiving undergraduate degrees, for example, as journalists, public relations experts, archivists, interpreter/translators, curators, social scientists, counselors, fine arts and entertainment industry professionals, education support specialists, management professionals, or technical communicators. Students also receive strong academic backgrounds for graduate study or professional education. The College of Liberal Arts consists of four academic areas, each of which is divided further into departments.

- Humanities: English, History, Philosophy, and World Languages, Literatures, and Cultures, awarding Bachelor of Arts degrees.
- Fine Arts: Art, Music, and Theatre and Dance, awarding Bachelor of Arts, Bachelor of Music, and Bachelor of Fine Arts degrees.
- Communication: Communication and Journalism, and Speech, Language, and Hearing Sciences, awarding Bachelor of Arts and Bachelor of Science degrees.
- Behavioral and Social Sciences: Aviation, Economics, Political Science, Psychological Sciences, and Sociology, Anthropology, and Social Work, awarding Bachelor of Arts and Bachelor of Science degrees.

Becoming a Liberal Arts Major

Entering a Major: Incoming freshmen and external transfer students are admitted directly to the College of Liberal Arts. The following majors have additional admission requirements beyond university admission: Art-BFA, Aviation-Professional Flight, Communication, Health Services Administration, Journalism, Music, Public Relations, Film and Media Studies, Social Work, and Theatre-BFA. Students should contact the department that houses their intended major to determine specific entrance requirements.

Declaring a Major: All students must declare a major by the end of the semester in which they complete 65 semester hours of credit, including transfer and other college credit. Students transferring into the College of Liberal Arts with 65 or more semester hours of credit must declare a major upon admission. If a major is not declared at the time of admission, students will follow the requirements for the College of Liberal Arts and will be identified as pre-majors in a curriculum or by the designation UNLA for undeclared students.

Required Courses for All Liberal Arts Majors

Most majors in the College of Liberal Arts require students to complete a one-year sequence in a world language other than English. Students are placed into each sequence based on results of a placement exam administered by the Department of World Languages, Literatures, and Cultures. Students in Aviation and those pursuing BFA degrees in Art and Theatre are exempted from the language sequence requirement. Most majors in the College of Liberal Arts also require students to complete LBAR 2010: Liberal Arts Careers Preparation; majors not requiring that class have identified other specific places in their curricula addressing career preparation for students.

Policies for Concurrent Degrees and Double Majors

To earn a second baccalaureate degree, students must complete a separate body of knowledge appropriate for the degree. The Dean's Office in the College of Liberal Arts determines when it is possible for students to earn a second baccalaureate degree. Auburn University academic policy stipulates the minimum hours necessary in addition to the primary degree or curriculum. The College of Liberal Arts requires that, at a minimum, 30 additional hours of non-overlapping course work must be accomplished in the second baccalaureate degree program.

To earn a double major, students must complete all the major courses in both majors. Of these major courses, at least 20 hours of each major must be unique, rather than being used as major, support, or core courses in both majors. If at least 20 hours of unique courses do not exist for each of the two majors, students cannot pursue a double major.

For complete information on concurrent degrees and double major requirements, please see the Academic Policies section.

Special Academic Opportunities

To augment the learning experiences available through majors in the College of Liberal Arts, students can take advantage of the following possibilities:

- *Concurrent Degrees with the College of Engineering*. Students can receive a degree from a Liberal Arts major and a degree from a major in the Samuel Ginn College of Engineering, including specially designed programs pairing engineering and modern language training. To ensure that all requirements are met, students should see advisors in both colleges. Typically, five to six academic years are necessary to complete concurrent degrees.
- *Pre-Law Study.* While students interested in preparing for advanced study of the law should consider the major in Law and Justice, most degrees in Liberal Arts are accepted by law schools as appropriate preparation for the study of law. However, students should consult with the pre-law advisor in Haley Center 7002 in preparing for law school admission and the study of law.
- *Pre-Health Study*. Most majors in Liberal Arts are accepted as preparation for professional degrees in health, including medicine, dentistry, optometry, physical therapy, and occupational therapy. Generally, students will need to take particular courses in science, mathematics, and philosophy as their university core requirements. They will also need to take additional courses in science and mathematics not required by most Liberal Arts majors and attend a Pre-Health Professional Orientation course offered during fall semester. To ensure they complete the necessary requirements and to get assistance in applying to graduate or professional programs in health fields, students should meet with the pre-health advisors in the College of Science and Mathematics. Students should also consult with advisors in the College of Liberal Arts.
- *Teacher Certification through the College of Education.* Students holding baccalaureate degrees in English, history, French, or Spanish may gain teaching certification through enrolling in the Alternative Master's Certification Program in the College of Education. Upon successful completion of the program, students are awarded a master's degree in education (MEd), and they will be eligible to apply for Alabama Class A certification (master's level certificate).
- *University Honors College.* Students with extraordinarily high academic aptitude can receive individual learning opportunities through the Honors College. For more information, see the "Academics Policies" section of this Bulletin.
- *Study Abroad.* Students can gain course credit either through class instruction or internship in Study Abroad programs. For more information, students can contact the Office of International Programs or consult the college's Study Abroad information at https://cla.auburn.edu/cla-abroad (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcla.auburn.edu%2Fcla-abroad&data=05%7C01%7Cblltn%40auburn.edu%7C72415c09752d4cc7186208db469658a4%7Cccb6deedbd294b388979d72780f62d3b%7C1%7C0%7C638181383796449746%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=3rP%2Bx%2F64GjpW5Zy35eyZ3xZx6bE1q9yeRX6xxugo05c%3D&reserved=0).
- *Cooperative Education Programs.* Students receive opportunities to integrate classroom education with work experience in Cooperative Education Programs. Students alternate each semester between attending classes and working for companies.

Cooperative Education Programs are available in the Departments of Art, English (Professional Writing and Public Writing track), Political Science (Health Services Administration and Public Administration majors), Psychology, and Sociology, Anthropology, and Social Work. Interested students should contact the director of the Cooperative Education Program.

- *The Caroline Marshall Draughon Center for the Arts and Humanities.* Students may be interested in the programs and other activities sponsored through the Caroline Marshall Draughon Center for the Arts and Humanities at Pebble Hill. The mission of the Center is to strengthen the bonds between the College of Liberal Arts and the public by creating and implementing arts and humanities programs that explore our individual and collective experiences, values, and identities through the past, in the present, and for the future. The Center also creates occasions and space for dialogue, intellectual community, and cross-disciplinary scholarship.

Undergraduate Degrees

The College of Liberal Arts and the School of Fine arts offer academic majors, programs, and options in more than 30 fields. These are listed below.

Graduate Degrees

Doctor of Philosophy degrees are offered in Applied Economics, English, History, Psychology, Public Administration and Public Policy, and an Earth System Science Interdisciplinary program. Master of Arts degrees are offered in English, Spanish, History, Political Science, Sociology, and Communication. Master of Science degrees are offered in Economics, Psychology, Rural Sociology, Sociology, and Speech, Language, and Hearing Sciences. The Doctor of Audiology degree is offered in Speech, Language, and Hearing Sciences.

The degrees of Master of Community Planning, Master of Hispanic Studies, Master of Public Administration, Master of Social Work, and Master of Technical and Professional Communication are offered. Degree programs are described in the Graduate School section.

Majors

- Anthropology (p. 1110)
- Art (p. 961)
- Art History Option (p. 962)
- Art Studio/Fine Arts (p. 963)
- Aviation Management (p. 978)
- Communication (p. 1005)
- Economics — Primary Track (p. 1019)
- Economics — Quantitative Track (p. 1020)
- English — Creative Writing Option (p. 1029)
- English — Literature Option (p. 1031)
- English — Professional and Public Writing Option (p. 1032)
- Film and Media Studies (p. 1006)
- Film and Media Studies — Film Option (p. 1008)
- French (p. 1151)
- French — International Trade Option (p. 1153)
- German (p. 1154)
- German — International Trade Option (p. 1156)
- Health Services Administration (p. 1086)
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- Journalism (p. 1009)
- Journalism — Sports Production Option (p. 1011)
- Law and Justice (p. 1088)
- Music (BA) (p. 1059)
- Music: Commercial Music track (p. 1060)
- Music: Composition (Technology) track (p. 1062)

- Music: Instrumental track (p. 1063)
- Music: Piano track (p. 1057)
- Music: Voice track (p. 1065)
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Graduate Degrees

Doctor of Philosophy degrees are offered in Applied Economics, English, History, Psychology, Public Administration and Public Policy, and an Earth System Science Interdisciplinary program. Master of Arts degrees are offered in English, Spanish, History, Political Science, Sociology, and Communication. Master of Science degrees are offered in Economics, Psychology, Rural Sociology, Sociology, and Speech, Language, and Hearing Sciences. The Doctor of Audiology degree is offered in Speech, Language, and Hearing Sciences.

The degrees of Master of Community Planning, Master of Hispanic Studies, Master of Public Administration, Master of Social Work, and Master of Technical and Professional Communication are offered. Degree programs are described in the Graduate School section.

Graduate Minors

The College of Liberal Arts houses the Women's and Gender Studies Program, which offers a graduate minor in Women's and Gender Studies. For more information about this minor, please select the link below.

- Women's and Gender Studies

Faculty in the Departments of Political Science (Public Administration and Community Planning) and Agricultural Economics & Rural Sociology participate in the graduate minor in Economic Development, which is administered by the Master of Public Administration Program in partnership with the Government and Economic Development Institute.

- Economic Development

Other graduate minors offered include Community Planning and Economic Development.

Graduate Certificates

The College of Liberal Arts offers Graduate Certificates in Communication, Economic Development, Election Administration, Global Public Service, Non-profit Organizations and Community Governance, Public History, and Technical Communication. More information on these certificates is available at the Graduate School and the programs linked above.

AAAS Courses

AAAS 2000 INTRODUCTION TO AFRICAN AMERICAN & AFRICANA STUDIES (3) LEC. 3. An introduction to the interdisciplinary field of African American and Africana Studies through an exploration of the literature, culture, politics, and history of African Americans and other African descended peoples. The course highlights an intentional study of blackness, including critical discussions of social and political realities, arts and aesthetics, and narratives of enslavement, freedom, and radicality.

Anthropology Courses

ANTH 1000 ANTHROPOLOGY: CULTURE AND ADAPTATION (3) LEC. 3. Social Science core. Anthropology is the exploration of human evolution and cultures. This course surveys the four subfields of Archaeology, Biological Anthropology, Cultural Anthropology and Linguistic Anthropology. We will see how anthropology provides a broad framework for understanding and solving pressing social problems in the world today.

ANTH 1007 HONORS INTRODUCTION TO ANTHROPOLOGY (3) LEC. 3. LAB. 0. Pr. Honors College. Social Science core. Anthropology is the exploration of human evolution and cultures. This course surveys the four subfields of Archaeology, Biological Anthropology, Cultural Anthropology and Linguistic Anthropology. We will see how anthropology provides a broad framework for understanding and solving pressing social problems in the world today. Credit will not be given for both ANTH 1000 and ANTH 1007.

ANTH 2000 ETHNOGRAPHIC METHODS (3) LEC. 3, AAB/LEC. 0. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007) or (SOCY 1000 or SOCY 1007) or GEOG 1100. Approaches, techniques, and strategies for carrying out ethnographic research and analyzing qualitative data in the social sciences.

ANTH 2500 ANTHROPOLOGY OF GLOBAL STUDIES (3) LEC. 3. Any Social Science Core course. Broad-based study of processes and problems that transcend national boundaries, including global historical processes, politics, migrations, trade, disease, environmental change, and sustainability.

ANTH 2600 MUSEUM STUDIES IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003. Students will consider the history of museum anthropology and reflect on contemporary anthropological engagement in/of museums and other cultural institutions.

ANTH 2610 FORENSIC ANTHROPOLOGY (3) LEC. 3. Explores standards of practice in forensic anthropology and analysis of case studies.

ANTH 2700 PEOPLES AND CULTURES OF ASIA (3) LEC. 3. Any Social Science Core course. Introduction to the traditions, religions, histories, and nation-states of the people of Asia, using a cultural approach.

ANTH 2800 ANTHROPOLOGY OF THE AFRICAN DIASPORA (3) LEC. 3. Any Social Science Core course. Anthropological perspectives on African Diasporas. Diaspora. Archaeological, ethnohistorical, and contemporary research exploring identity, symbols, power, and social relations in the lives of enslaved Africans and descendants in the Caribbean, Latin America and North America.

ANTH 2900 WORLD PREHISTORY (3) LEC. 3. Explore broad patterns in human prehistory over the past 10,000 years, including the origins of culture, religion, domestication and agriculture, writing, cities, and states.

ANTH 3000 CULTURE, MARRIAGE, AND THE FAMILY (3) LEC. 3. Role and meaning of kinship and its universal and particularistic features in human society.

ANTH 3010 MAGIC, MYTH, AND RITUAL: ANTHROPOLOGY OF RELIGION (3) LEC. Pr. P/C ANTH 1000. This course explores religious beliefs and practices around the world from an anthropological perspective. Our focus will be on how anthropologists study religion and how religious beliefs, practices, and practitioners are understood in their historical and cultural contexts.

ANTH 3100 LANGUAGE AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Contemporary perspectives on cultural and linguistic anthropology, emphasizing language acquisition and culture change; language as socially charged; performance; status and inequality; and the study of globally diverse linguistic communities of practice.

ANTH 3110 ANTHROPOLOGY AND FICTION (3) LEC. Inter-disciplinary study of fiction from an anthropological perspective.

ANTH 3200 ANTHROPOLOGY OF GENDER (3) LEC. 3. Pr. P/C ANTH 1000 or P/C ANTH 1003 or P/C ANTH 1007 or P/C WMST 2100 or P/C WMST 2103. Gender relations and representations in different cultures, historical periods, and discourses.

ANTH 3300 BIOLOGICAL ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007 or BIOL 1000 or BIOL 1010. Overview of biological anthropology, including evolutionary theory and genetics, primatology, human origins, and biological variation of contemporary human populations. Concepts will be applied during in-class exercises and discussions.

ANTH 3410 APPLIED & PRACTICING ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores application and practice of anthropology in settings such as cultural resource management, museums, social and environmental policy, and healthcare. This course emphasizes how careers in anthropology contribute to resolving contemporary social problems.

ANTH 3500 ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Archaeology is the study of human societies based on the material remains they left behind. This course explores the history, theories, methods, and applications of archaeology.

ANTH 3600 MEDICAL ANTHROPOLOGY (3) LEC. 3. Any Social Science Core course. Explores biological and cultural dimensions of global health from an anthropological perspective. Topics include the political economy of health, gendered health disparities, cross-cultural healing traditions, pluralistic medical systems, and evolutionary medicine.

ANTH 3620 FORENSIC ANTHROPOLOGY II: ADVANCED METHODS, THEORY, AND CASE STUDIES (3) LAB. Pr. ANTH 2610. Forensic Anthropology II is a hybrid seminar and lab course that teaches practical applications and methods in forensic anthropology through the exploration of case studies and laboratory exercises.

ANTH 3700 ENVIRONMENTAL ANTHROPOLOGY (3) LEC. 3. Problems in environmental anthropology including ethnoecology, cultural ecology, political ecology and environmentalism.

ANTH 3810 ARCHAEOLOGY OF NORTH AMERICA (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores archaeological evidence for the history of indigenous peoples in North America during the past 10,000 years.

ANTH 3850 ARCHAEOLOGY OF THE SOUTHEASTERN AND MIDWESTERN U.S. (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Diversity and complexity of late prehistoric cultures of the Southeastern and Midwestern United States.

ANTH 3900 BIOARCHAEOLOGY (3) LEC. 3. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007). Archaeologically-derived skeletal remains provide essential information for reconstructing broad patterns of human health and behavior over time. Students will learn to apply methods and theory in social bioarchaeology to understand demography, diet, disease, and physical activity in past populations.

ANTH 3950 CURATION (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. History, legislation, and ethical concerns associated with the accumulation and curation of archaeological collections.

ANTH 4310 THEORIES OF CULTURE IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Major thinkers in anthropology and their theoretical models considered in historical perspective.

ANTH 4400 ARCHAEOLOGICAL FIELD SCHOOL (3) LEC. 1. LAB. 2. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Field methods, including archaeological surveying and excavation procedures at selected locations. Course may be repeated for a maximum of 6 credit hours.

ANTH 4910 BIOLOGICAL ANTHROPOLOGY LABORATORY PRACTICUM (3) LEC. 1. LAB. 2. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007). Investigation of specific biological anthropology problem or problems, involving students in laboratory techniques and research.

ANTH 4920 INTERNSHIP IN ANTHROPOLOGY (1-3) AAB/INT. 1-3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Internship for practical work with anthropological/archaeological collections or anthropological research in a professional setting, including federal or state agencies, NGOs, NPOs, community and voluntary organizations, and industry (e.g., healthcare and medicine, advertising/media, architecture/design, high technology, Cultural Resource Management and historic preservation, etc.). Course must be approved by the faculty advisor and department. Internship must be a supervised, closely monitored work experience, appropriate to the major. Course may be repeated for a maximum of 6 credit hours.

ANTH 4930 CULTURAL ANTHROPOLOGY FIELD SCHOOL (3) FLD. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. This practice anthropology course examines the relationship between culture, community, and environment in a particular field setting, in the United States or abroad.

ANTH 4940 ARCHAEOLOGY LABORATORY PRACTICUM (3) LEC. 1. LAB. 2. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Analysis, preservation, cataloging, and restoration of archaeological materials. May count either ANTH 4940 or ANTH 3910.

ANTH 4960 SPECIAL PROBLEMS (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College. ANTH 1000. Departmental approval. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 3 credit hours.

ANTH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ANTH 1000. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

ANTH 5200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Role of gender and culture in Third World development from an anthropological perspective.

ANTH 5600 CULTURE, MEDICINE, AND POWER (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Power in the context of illness and healing at local, national, and international levels.

ANTH 5700 CRITIQUE OF DEVELOPMENT (3) LEC. 3. Pr. ANTH 3700. Meanings and structures of national and international development.

ANTH 5930 DIRECTED STUDIES (1-3) IND. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 5970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

ANTH 6200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Role of gender and culture in Third World economic development from an anthropological perspective.

ANTH 6600 CULTURE MEDICINE AND POWER (3) LEC. 3. Power in the context of illness and healing at local, national, and international levels.

ANTH 6930 DIRECTED STUDY (1-3) IND. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 6970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

Art Courses

ARTS 1040 BASIC PAINTING FOR NON MAJORS (3) STU. 6. Instruction in painting concepts, materials, and techniques. Oil and water-based paints and other media are used to explore a variety of approaches and subject matter. Not open to ARTF, ARTH, and ATLA majors.

ARTS 1110 DRAWING I (3) AAB/STU. 6. Basic drawing with emphasis on accurate observation, pictorial organization, and the depiction of space; development of drawing skills using various black and white media.

ARTS 1210 STUDIO FOUNDATIONS I: MATERIALS AND CONCEPTS (3) STU. 6. An introductory course on the application of two-dimensional and three-dimensional art materials and conceptual development.

ARTS 1220 STUDIO FOUNDATIONS II: PROCESS AND CONCEPT (3) STU. 6. Pr. P/C ARTS 1210. An introductory art course focusing on in-depth creative research in conjunction with artmaking.

ARTS 1230 INTRODUCTION TO DIGITAL ART (3) STU. 6. An introduction to the skills and concepts of digital art such as imaging, time, and 3D modeling using computer-based tools and techniques.

ARTS 1250 ORIENTATION TO STUDIO ART FOR THE MAJOR (0) LEC. 0. SU. Introduction to the BA and BFA studio arts major, photo documentation, and portfolio development.

ARTS 1510 LOOKING AT ART: APPROACHES TO INTERPRETATION (3) LEC. 3. Introduces the fundamental structures of the art world and multiple approaches to looking at and responding to art.

ARTS 1610 INTRODUCTION TO ART HISTORY (3) LEC. 3. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 1617 HONORS INTRODUCTION TO ART HISTORY (3) LEC. 3. Pr. Honors College. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 2100 FOUNDATIONS OF ART HISTORY I (3) LEC. 3. A history of art from ancient cultures to approximately 1300 CE, with an introduction to basic art historical research and writing skills.

ARTS 2150 FOUNDATIONS OF ART HISTORY II (3) LEC. 3. A history of art from approximately 1300 CE to the contemporary period, with an introduction to basic art historical research and writing skills.

ARTS 2970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (3) LEC. 3. Topics in studio art and art history. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

ARTS 3020 2-D ANIMATION (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 and ARTS 1230. Introduction to the fundamental principles of animation and storytelling in 2-D traditional and digital formats.

ARTS 3030 B.F.A. PORTFOLIO REVIEW (0) IND. SU. Pr. ARTS 1110 and ARTS 1210 and ARTS 1220 and ARTS 1230 and ARTS 1250 and ARTS 2100 and ARTS 2150. Preparation, presentation, and faculty advisory review of a portfolio of artworks, a statement of academic and career goals, and a declaration of a BFA concentration area. Completed by ARTF students after 24 credit hours of ARTS courses.

ARTS 3110 FIGURE DRAWING I (3) STU. 6. Pr. ARTS 1110 and ARTS 1210 and (ARTS 2100 or ARTS 2150). The human figure as form and as compositional element. Measuring and sighting for proportion. Drawing from casts, skeletons, and nude models.

ARTS 3120 3-D ANIMATION (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 3020 and ARTS 3110. Introduction to the fundamental principles of 3D modeling and animation.

ARTS 3130 THEMES IN CONTEMPORARY ANIMATION (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 3120. Creative exploration of varying topics in contemporary animation. Studio work supplemented with lectures, critiques, and reading. Course may be repeated for a maximum of 6 credit hours.

ARTS 3140 ADVANCED DRAWING I (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3110. Concepts, materials and techniques with emphasis on the development of a personal vision and individual approach. Nude models may be used.

ARTS 3150 ADVANCED DRAWING II (3) STU. 6. Pr. ARTS 3140 and (ARTS 2100 and ARTS 2150). Medium and subject determined by student with approval of instructor. Emphasis on strengthening the student's aesthetic awareness and technical skills.

ARTS 3160 FIGURE DRAWING II (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3110. Continued study of life-drawing from nude models and casts. Materials and techniques emphasize building observational drawing skills and strengthening aesthetic awareness. Repeatable up to 6 hours. Course may be repeated for a maximum of 6 credit hours.

ARTS 3210 INTRODUCTION TO PHOTOGRAPHY (3) STU. 3. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Departmental approval. Fine art photographic concepts and techniques including camera operation, tonal control of black and white prints, presentations of historical and contemporary photography.

ARTS 3220 DIGITAL AND COLOR PHOTOGRAPHY (3) AAB/STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3210. Departmental approval. Concepts and practices of contemporary art photography including digital production techniques and color photographic theory.

ARTS 3230 INTERMEDIATE PHOTOGRAPHY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3210. Departmental approval. Intermediate study of photographic processes with emphasis on technique, classroom craftsmanship, medium and large camera formats, approaches to content and researching concepts to inform studio production.

ARTS 3310 PAINTING I (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Instruction in painting concepts, materials, and methods.

ARTS 3320 PAINTING II (3) AAB/STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3310. Departmental approval. Instruction in painting concepts, materials, and techniques with emphasis on the development of technical skills and a personal vision and individual approach.

ARTS 3330 PAINTING III (3) AAB/STU. 6. Pr. ARTS 3140 and ARTS 3320 or Departmental approval. Medium and subject determined by student and instructor. Emphasis on strengthening aesthetic awareness and technical skills.

ARTS 3410 PRINTMAKING: RELIEF (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Introduction to relief printmaking. Studio work supplemented with lectures, critiques, and readings.

ARTS 3420 PRINTMAKING: INTAGLIO (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and (ARTS 3410 or ARTS 3430) or Departmental approval. Introduction to intaglio printmaking. Studio work with lectures, critiques, and readings.

ARTS 3430 PRINTMAKING: SCREEN-PRINTING (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 and ARTS 1230. Departmental approval. Introduction to water based screen-printing. Studio work supplemented with lectures, critiques, and reading.

ARTS 3510 INTRODUCTION TO SCULPTURE (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Introduction to wood working, metal fabrication, casting, and additional materials, processes, and issues involved in mixed media sculpture production. Department approval.

ARTS 3520 INSTALLATION ART (3) STU. 6. Pr. ARTS 2100 and ARTS 2150 and ARTS 1220 and ARTS 1230 and ARTS 3510. Investigation of the methods, theory, and technologies involved in contemporary indoor and outdoor installations and site-specific intervention. Readings and discussions on relevant sculptural practices. Department approval.

ARTS 3530 CASTING AND FOUNDRY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3510. Instruction in mold making, casting, papermaking, and figure modeling as it applies to metal, plaster, and additional materials. Department approval.

ARTS 3620 COLONIAL LATIN AMERICAN ART (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. Study of the major art and architectural traditions of Latin America from the early 16th to the early 19th centuries.

ARTS 3630 ART OF THE ANCIENT NEAR EAST (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. This course examines the visual arts and architecture of the Near East within their social and historical contexts. Departmental Approval needed.

ARTS 3640 ANCIENT GREEK ART (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. This course examines the visual arts and architecture of ancient Greece (Early Bronze Age to Hellenistic Period) in their social and historical contexts. Departmental Approval needed.

ARTS 3650 HISTORY OF PHOTOGRAPHY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to the history and theory of photography from its 19th-century origins to contemporary global practices.

ARTS 3660 EIGHTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture in 18th-century Europe.

ARTS 3670 CONSTRUCTING RACE IN THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the role of visual imagery in inscribing and. challenging racial hierarchies in the history of art.

ARTS 3680 20TH-CENTURY ART II: 1945-2000 (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). An introduction to the artists, movements, institutions, concepts, and themes of late 20th-century art.

ARTS 3690 ARTS OF AFRICA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Introduction to the art, artists, themes and issues in African art from the pre-colonial period to the contemporary era.

ARTS 3700 ART OF THE UNITED STATES (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of architecture, painting, and sculpture from colonial to recent times. Selected movements and works are considered in relationship both to European and to indigenous conditions and attitudes.

ARTS 3710 ANCIENT ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Examination of major art traditions of the ancient world, including for example: Egypt, Near East, Aegean, Greece, and Rome.

ARTS 3720 MEDIEVAL ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of major art traditions of the West from the fall of Rome to CE 1400, with a selective focus on the major art traditions, including Migration period, Carolingian, Ottonian, Romanesque, Gothic, and Italo-Byzantine.

ARTS 3730 RENAISSANCE ART IN ITALY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of the architecture, painting, and sculpture of the 15th and 16th centuries in Italy.

ARTS 3740 SEVENTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture of 17th-century Europe.

ARTS 3750 19TH CENTURY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Introduction to major art movements from Neo-Classicism to Post-Impressionism and Art Nouveau.

ARTS 3760 20TH CENTURY ART I 1900–1945 (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. Study of major developments in painting, sculpture, and architecture in Europe and the United States from 1900 to 1945. Departmental Approval.

ARTS 3770 MESOAMERICAN ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of the major art and architectural traditions of Mesoamerica from 1800 BCE until 1519 CE.

ARTS 3790 ARTS OF ASIA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Introduction to major art traditions of Asia from the beginnings to the present.

ARTS 3800 ISSUES AND CRITICISM IN CONTEMPORARY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). and one 3000-level art history class or Departmental approval. Readings and discussions about contemporary art.

ARTS 3810 GENDER AND THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to gender issues in the visual arts in historical and contemporary contexts. Examines the cultural notions of both masculine and feminine gender roles at play in works of art and explores key issues that have affected women's production of works of art in the past and present.

ARTS 3820 INTRODUCTION TO WHEEL-THROWN CERAMICS (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Departmental approval. Introduction to wheel-thrown pottery. Presentation of historical and contemporary contexts for fine arts ceramics. Work with glazes and firing.

ARTS 3840 INTRODUCTION TO HAND-BUILT CERAMICS (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Departmental approval. Introduction to handforming methods for sculpture and vessel forms in clay. Work with glazes and firing.

ARTS 3850 INTERMEDIATE CERAMICS (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and (ARTS 3820 or ARTS 3840). Departmental approval. Individual approaches to ceramic sculpture and vessel forms, techniques building on previous experience with hand-building and/or wheel-throwing, with emphasis on stylistic and conceptual concerns.

ARTS 3920 INTERNSHIP IN STUDIO ART/ART HISTORY (3) AAB/PRA. 15. SU. Junior standing and 3.0 GPA in major and completion of at least two 3000-level courses in ARTF, ARTH, or ATLA major. Internships appropriate to the major with a departmental-approved sponsor providing hands-on, practical learning experiences in a professional setting.

ARTS 3930 STUDIO ART ABROAD (3) AAB/LEC. 6. Studio art taught on site in foreign destination.

ARTS 3940 ART HISTORY ABROAD (3) LEC. 3. Art History taught on site in foreign destination.

ARTS 4100 SEMINAR IN PRE-MODERN ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in art history from the ancient era until 1750 CE. Course may be repeated for a maximum of 6 credit hours.

ARTS 4140 ADVANCED ANIMATION (3) STU. 6. Pr. ARTS 3130. An advanced investigation of theory, history, contemporary practice, and techniques through research and studio practice. Emphasis on mature creative expression and production as an animator. Course may be repeated for a maximum of 6 credit hours.

ARTS 4150 SEMINAR IN MODERN AND CONTEMPORARY ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in modern and contemporary art history, 1750 CE-present. Course may be repeated for a maximum of 6 credit hours.

ARTS 4240 ADVANCED PHOTOGRAPHY (3) STU. 6. Pr. ARTS 3220 and ARTS 3230. Advanced investigations of theory, history, and methods to inform photographic practice. Emphasis on production of mature work and individual artistic identity. Frequent individual and group critiques. Course may be repeated for a maximum of 9 credit hours.

ARTS 4340 PAINTING IV (3) STU. 6. Pr. ARTS 3330. Advanced painting with medium and subject idea determined by student with approval of the instructor. Emphasis on strengthening the student's awareness and technical skills as a maturing painter. Nude models may be used. Course may be repeated for a maximum of 9 credit hours.

ARTS 4440 ADVANCED PRINTMAKING (3) STU. 6. Pr. ARTS 3410 and ARTS 3420 and ARTS 3430. Individual research in printmaking. Students focus on conceptual and technical development through continued research in relief, intaglio, or screen-printing. Course may be repeated for a maximum of 9 credit hours.

ARTS 4540 ADVANCED SCULPTURE (3) STU. 6. Pr. ARTS 3520 and ARTS 3530. Advanced study of sculpture techniques and concepts. Students create an independently designed, instructor-approved body of work. Individual instruction and supervision of material exploration, research and reading. Course may be repeated for a maximum of 9 credit hours.

ARTS 4700 SENIOR CAPSTONE: ART HISTORY (3) SEM. 3. Declared ARTH major or minor and completion of 18 hours of 3000-level art history courses. Capstone course for ARTH majors.

ARTS 4840 ADVANCED CERAMICS (3) STU. 6. Pr. ARTS 3820 and ARTS 3840 and ARTS 3850. Advanced study of ceramic techniques and concepts. Student will create an independently-designed, instructor-approved body of work. Individual instruction and supervision of material exploration, research and reading. Frequent individual and group critiques. Course may be repeated for a maximum of 6 credit hours.

ARTS 4850 PROFESSIONAL STUDIO PRACTICES (3) LEC. 3. Pr. ARTS 3030. Instruction in portfolio preparation, professional practices, and information on studio art careers and graduate study. Must have completed ARTS 3030 and nine credit hours in one concentration; taken concurrently with 4000-level studio in same concentration and prior to ARTS 4980 Senior Project in Studio Arts.

ARTS 4860 BFA CRITIQUE SEMINAR (1) LEC. 1. SU. Pr. ARTS 3030. Rigorous group critiques of artwork produced in media concentration courses, discussions and writing about art, art documentation, and exhibition practices. Course may be repeated for a maximum of 3 credit hours.

ARTS 4930 DIRECTED STUDIES (2-3) IND. Pr., Open only to ARTS students who have shown ability, initiative, and industry. Departmental approval and 3.0 minimum GPA in 3000-level ARTS courses in area of directed study. Directed studies are offered in painting, printmaking, sculpture, art history, photography, animation, and ceramics. Course may be repeated for a maximum of 6 credit hours.

ARTS 4950 BA STUDIO ART CAPSTONE (1) LEC. 1. SU. Students must have Senior Standing and have completed a minimum of 39 hours in the Major. Professional skills development and career strategies for BA Studio Art Majors.

ARTS 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

ARTS 4970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (3) ST1/STU. 3. Topics in studio art and art history. Focus will vary according to the instructor. Departmental approval needed. Course may be repeated for a maximum of 6 credit hours.

ARTS 4980 SENIOR PROJECT FOR STUDIO ARTS (3) STU. 6. Pr. ARTS 3030 and ARTS 4860 and (ARTS 3820 and ARTS 3840 and ARTS 3850 and ARTS 4840) or (ARTS 3310 and ARTS 3320 and ARTS 3330 and ARTS 4840) or (ARTS 3410 and ARTS 3420 and ARTS 3430 and ARTS 4440) or (ARTS 3510 and ARTS 3520 and ARTS 3530 and ARTS 4540) or (ARTS 3210 and ARTS 3220 and ARTS 3230 and ARTS 4240) or (ARTS 3020 and ARTS 3120 and ARTS 3130 and ARTS 4140). And three additional courses in a single studio art concentration. Must be taken in the student's final semester concurrent with third enrollment in ARTS 4860. Directed terminal studio project with faculty-approved choice of content and medium. Project will be exhibited.

ARTS 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours.

Aviation Management Courses

AVMG 1010 INTRODUCTION TO AVIATION (3) LEC. 3. Orientation to aviation management career opportunities. The history of significant events and accomplishments in the attempt to move through the air and space.

AVMG 2050 INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS (UAS) (3) LEC. 3. Orientation to unmanned aircraft systems with emphasis on pilot and operating rules, National Airspace System (NAS) integration, safety, and commercial uses of Small UAS (sUAS).

AVMG 2400 THEORY OF FLIGHT (3) LEC. 2.5. Introduction to the many systems that make up the aviation ecosystem, including aircraft, the humans and organizations that interact with them, and the principles and aerodynamics of flight.

AVMG 2600 HUMAN FACTORS IN AVIATION (3) LEC. 3. Principles of human cognitive and physical performance, and man/machine interface and design, in aviation. Study of information processing, workload management, situational awareness, and decision-making.

AVMG 2810 LEADERSHIP FOR THE AVIATION PROFESSIONAL (3) LEC. 3. Pr. AVMG 1010. AVMN and AVPF majors only. The course is designed to socialize the student into the roles, activities, and responsibilities essential for the emerging aviation leader, and is foundational to preparation for a career in the aviation industry or aviation-related environments.

AVMG 3050 AVIATION WEATHER (3) LEC. 3. Pr. AVMG 1010. Meteorology as it applies to the operation of aircraft with emphasis on observation of weather elements and interpretation of flight planning weather information.

AVMG 3140 AIR TRANSPORT INDUSTRY DEVELOPMENT (3) LEC. 3. Pr. AVMG 1010. Principles and analysis of air transport industry development, its regulatory environment, and associated certification processes.

AVMG 3200 APPLIED ANALYSIS IN AIR TRANSPORTATION (3) LEC. 3. Pr. (AVMG 1010 or AVMG 1013) and (ECON 2020 or ECON 2023 or ECON 2027). Economic theory and applications in the evolving air transport industry. Analysis of market forces and government regulation that drive resource allocation and industry performance.

AVMG 3500 AIRPORT OPERATIONS (3) LEC. 3. Pr. (AVMG 1010 and AVMG 2400) or AVMF 2150. Practices in managing airport operational systems at air carrier airports.

AVMG 3600 AIRCRAFT MAINTENANCE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Aircraft maintenance program fundamentals, procedures, and practices, with an emphasis on regulatory requirements.

AVMG 3710 STRESS MANAGEMENT IN AVIATION (3) LEC. 3. Pr. AVMG 2600. Examine stress and stress management techniques related to pilot decision-making, situational awareness, crew coordination, communication, human error, fatigue, fitness, attitudes, workload management and Crew Resource Management (CRM). Senior, Junior, or departmental approval required.

AVMG 3810 PROFESSIONAL DEVELOPMENT IN AVIATION (1) LEC. 1. AVMN and AVPF majors only. Career planning and preparation for aviation internships and professional experience opportunities.

AVMG 4040 BUSINESS AVIATION MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Current principles and practices in commercial and business/corporate flight operations including organizational sources of revenue, functions, domestic and international operations, maintenance requirements, and the importance of a sound safety culture.

AVMG 4060 COMMERCIAL AVIATION SAFETY (3) LEC. 3. Pr. AVMG 1010. Analysis of safety principles and regulatory practices of the FAA, NTSB, and ICAO, emphasizing FAA and ICAO Safety Management Systems.

AVMG 4080 AIR TRANSPORT PLANNING (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 and AVMG 3600. Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers.

AVMG 4130 AIRPORT MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Practices in management of a civil public airport, including organization, functions, operations, sources of revenue, funding, maintenance and administration.

AVMG 4140 AIRPORT PLANNING AND DESIGN (3) LEC. 3. Pr. AVMG 4130. Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region.

AVMG 4190 AIRSPACE MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation.

AVMG 4200 AIR CARGO OPERATIONS (3) LEC. 3. Pr. AVMG 1010. Domestic and international air cargo operations with emphasis on cargo economics, equipment, domestic and international regulatory activities, agents, operational techniques, systems and problems.

AVMG 4920 INTERNSHIP IN AVIATION MANAGEMENT (1-6) INT. Practical on-the-job training under supervision with aviation agencies. Written reports are required by designated faculty supervisors. Course may be repeated for a maximum of 6 credit hours.

AVMG 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. 1-3. Pr. Honors College. Honors College. Special topics presented to Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Honors College. Thesis for Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 5090 AVIATION LAW AND POLICY (3) LEC. 3. Pr. AVMG 1010. The legal structure of aviation including federal, local and state statutes, contracts, insurance and liability, regulatory statutes, and case law.

AVMG 5170 AIRLINE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010 and AVMG 3050. Airline manufacturing, economic, and operational/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 5180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200. Junior Standing or departmental approval. The economic development of international air transportation from its beginnings to present day. Explores a wide range of international aviation issues such as bilateral and open skies agreements, airline mega alliances, and joint ventures.

AVMG 5970 SPECIAL TOPICS IN AVIATION MANAGEMENT (3) LEC. 3. Investigation of current issues in the aviation industry.

AVMG 6090 AVIATION LAW AND POLICY (3) LEC. 3. The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes and case law.

AVMG 6170 AIRLINE MANAGEMENT (3) LEC. 3. Departmental approval. Airline manufacturing, economic, and operation/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 6180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 or departmental approval. International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares/ Junior standing

AVMG 6970 SPECIAL TOPICS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Investigation of current issues in the aviation industry. Credit will not be given for both AVMG 5970 and AVMG 6970. Course may be repeated for a maximum of 9 credit hours.

AVMG 7930 SPECIAL PROBLEMS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Special problems and current status of the aviation and aerospace industries are analyzed though a problem solving exercise. Course may be repeated for a maximum of 6 credit hours.

Communication Courses

COMM 1000 PUBLIC SPEAKING (3) LEC. 3. Oral communication theory and practice in a public speaking setting, with emphasis on content, organization, delivery, and adaptation to the audience.

COMM 1007 HONORS PUBLIC SPEAKING (3) LEC. 3. Pr. Honors College. This course will focus on numerous elements of oral communication - public speaking, group communication and interpersonal communication. This is different from a typical speech class that focuses solely on public speaking. An emphasis will also be placed on debate (forensics).

COMM 2010 COMMUNICATION IN SOCIETY (3) LEC. 3. Learn the foundations of critical thinking and audience analysis for message construction and consumption. Provides groundwork for intermediate and advanced courses. May count either COMM 2010 or COMM 2013.

COMM 2400 INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Learn the introductory principles of workplace communication, such as cultural awareness, collaboration, and professional interaction. May count either COMM 2400 or COMM 2403.

COMM 2407 HONORS INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Learn the introductory principles of workplace communication, such as cultural awareness, collaboration, and professional interaction. May count either COMM 2400 or COMM 2403.

COMM 2410 SMALL GROUP COMMUNICATION (3) LEC. 3. Learn the key principles of small group communication, including leadership, active listening, and conflict management. May count either COMM 2410 or COMM 2413.

COMM 3100 PROFESSIONAL PRESENTATIONS (3) LEC. 3. Pr. COMM 1000 or COMM 1003. Learn advanced public speaking skills for effective presentations, such as analyzing audiences, stylistic adaptation, and delivery techniques.

COMM 3110 PERSUASION (3) LEC. 3. Learn to make messages more persuasive in a variety of communication contexts. Considers theories and practical applications of persuasive messages as students learn and practice effective communication. May count either COMM 3110 or COMM 3113.

COMM 3300 COMMUNICATION AND CONFLICT (3) LEC. 3. Learn and increase mindfulness of important components of conflict in interpersonal relationships. Develop skills in managing conflict in personal and professional relationships. May count either COMM 3300 or COMM 3303.

COMM 3400 ORGANIZATIONAL COMMUNICATION (3) LEC. 3. Learn how communication practices shape organizations by studying topics related to leadership, conflict management, in a variety of contexts including work, non-profits, and religious organizations. May count either COMM 3400 or COMM 3403.

COMM 3450 INTERCULTURAL COMMUNICATION (3) LEC. 3. Learn skills that will prepare you to communicate across a variety of intercultural settings, both personal and professional. Develop an awareness of potential challenges and opportunities when communicating interculturally. May count either COMM 3450 or COMM 3453.

COMM 3500 FOUNDATIONS OF HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn foundational communication theories and how they are applied in various contexts including friendships, romantic relationships, workplaces, and more. May count either COMM 3500 or COMM 3503.

COMM 3510 RESEARCH IN HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn the ins and outs of research to better understand communication processes. Develop an understanding of qualitative methods such as in-depth interviews and quantitative methods such as surveys. May count either COMM 3510 or COMM 3513.

COMM 3600 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn rhetorical theory and analysis to understand the creation and consumption of persuasive discourse in our society. Theories covered equip students to be more conscientious of public messages. May count either COMM 3600 or COMM 3603.

COMM 3610 RESEARCH IN RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103). Learn how to apply rhetorical theories of persuasion to better understand how to create and analyze messages in public forums. May count either COMM 3610 or COMM 3613.

COMM 3700 ARGUMENTATION (3) LEC. 3. Learn the foundations of how argument works with a focus on how to create and evaluate persuasive arguments in a variety of contexts and for varied audiences. May count either COMM 3700 or COMM 3703.

COMM 3800 FAMILY COMMUNICATION (3) LEC. 3. Learn the role communication plays in family relationships, including how to evaluate and manage healthy interactions among members. May count either COMM 3800 or COMM 3803.

COMM 3970 SPECIAL TOPICS IN COMMUNICATION (3-6) LEC. Topics that range beyond what is covered in other courses within the COMM curriculum. Specific subject matter is left up to the individual instructor. Course may be repeated for a maximum of 6 credit hours.

COMM 4100 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the persuasive strategies used in a variety of social movements to attract members, solidify support, and advocate for social change.

COMM 4410 THEORIES OF LEADERSHIP (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Learn and apply communication theories and research to improve leadership skills and processes in organizations.

COMM 4420 COMMUNICATION AND CREATIVITY (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn to apply creativity research and communication principles to collaborative environments to generate unique solutions to problems facing organizations. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count either COMM 4420 or COMM 4423.

COMM 4430 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Learn to apply advanced communication theories to identify and address problems in a variety of organizations to improve workplace environments.

COMM 4480 HEALTH COMMUNICATION CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, PAOH, or Departmental approval. Learn the theories and skills needed to create compelling health communication campaigns.

COMM 4490 HEALTH MEDIA & COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Must have a declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Learn the communication principles common to health media, including how media influence how we think, talk, and behave in relation to our health.

COMM 4500 COMMUNICATION AND COGNITION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Explores theory and research related to cognitive and affective influences on communication in interpersonal and social interactions. May count either COMM 4500 or COMM 4503.

COMM 4700 LEGAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn how to identify and apply critical principles of communication to the legal system. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count either COMM 4700 or COMM 4703.

COMM 4800 INTERPERSONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn to apply communication practices, goals, and perceptions in the creation and development of friendships, romantic partnerships, and work relationships. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count as either COMM 4800 or COMM 4803.

COMM 4810 NONVERBAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3613) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the forms and functions of non-linguistic communication practices in personal and professional contexts.

COMM 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in COMM. Requires admission to internship program.

COMM 4930 DIRECTED STUDIES IN COMMUNICATION (3) IND. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Independent study on a specific topic of interest not already addressed in any regular COMM course.

COMM 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Honors level independent study on a specific topic of interest not already addressed in any regular COMM course. Course may be repeated for a maximum of 3 credit hours.

COMM 4997 HONORS THESIS (1-3) IND. Pr. Honors College. COMM 3500 or COMM 3503 and COMM 3600 or COMM 3603. and CMJN 2100 or CMJN 2103. and COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. 2.3 GPA. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

COMM 5430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the history, theory, and concepts central to the study of gender, work, and communication. Builds on organizational communication theories.

COMM 5440 CURRENT PROBLEMS IN ORGANIZATIONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3610 or COMM 3613 or COMM 3510 or COMM 3513). Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. This course examines current issues in organizations through the lens of cutting edge organizational communication theories.

COMM 5450 COMMUNICATION & IMMIGRATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study of immigration from a communication perspective. May count either COMM 5450 or COMM 5453.

COMM 5470 HEALTH COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the basics of the health communication field. Students learn and discuss how communication affects health in diverse settings.

COMM 5600 POLITICAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 5700 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Pr. (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the forms and functions of language in social interaction as they reflect and influence our identity.

COMM 5970 SPECIAL TOPICS IN COMMUNICATION (3) LEC. 3. Pr. COMM 3500 and COMM 3600 and (COMM 3510 or COMM 3610). Topics in Communication. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 6300 SEX, GENDER, AND SPORT (3) LEC. 3. Focuses on sport, as a gendered institution. The course examines intersections of gender with age, sexual orientation, social class, gender identity, race and ethnicity and politics.

COMM 6430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study of gender, work, and communication.

COMM 6470 HEALTH COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study and practice of health communication.

COMM 6500 GLOBAL MEDIA (3) LEC. 3. Global media is focused on the complex global dimensions of media production, distribution and reception.

COMM 6600 POLITICAL COMMUNICATION (3) LEC. 3. This course will examine the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 6700 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Advanced approaches to examining the challenges, problems, and ideal situations of social interaction in interpersonal, group, and institutional contexts. Graduate students only.

COMM 6800 EVERYDAY TALK AND IDENTITY (3) LEC. 3. Examines the building blocks of interpersonal and small group conversation as they combine to reflect and shape identities of self and others.

COMM 6970 SPECIAL TOPICS IN COMMUNICATION (3) AAB/LEC. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities not currently offered in the program. Course may be repeated for credit with change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 7000 COMMUNICATION THEORY (3) LEC. 3. Critical examination of contemporary theories in communication.

COMM 7010 QUALITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Qualitative research in communication; emphasis on understanding and engaging in a variety of qualitative methods.

COMM 7020 QUANTITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Quantitative research in communication; emphasis on understanding and doing empirical research.

COMM 7100 INSTRUCTIONAL COMMUNICATION THEORY & PRACTICE (3) SEM. 3. History, theory, and concepts central to the study and practice of instructional communication.

COMM 7230 RHETORICAL CRITICISM (3) LEC. 3. Advanced methods in rhetorical criticism, including tools for the analysis of persuasive messages.

COMM 7300 APPROACHES TO STUDYING LANGUAGE AND SOCIAL INTERACTION (3) LEC. 3. Major approaches to studying language and social interaction that collectively make up discourse analysis.

COMM 7410 DEVELOPMENT OF RHETORICAL THEORY (3) LEC. 3. Historical survey of rhetorical theory from ancient to contemporary era; special attention to the role of rhetoric in shaping attitudes towards persuasion.

COMM 7420 SEMINAR IN PERSUASION AND ATTITUDE CHANGE (3) LEC. 3. Critical examination of current theory and research in the persuasive act and its effects.

COMM 7430 SEMINAR IN AMERICAN PUBLIC ADDRESS (3) LEC. 3. Investigation of key issues and debates that have emerged in post-World War II America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3) SEM. 3. Analysis of the fundamental theories of argumentation.

COMM 7450 SEMINAR IN INTRAPERSONAL PROCESSES IN COMMUNICATION (3) SEM. 3. Theories of cognitive and affective processing of information during speaking and listening.

COMM 7460 SEMINAR IN INTERPERSONAL COMMUNICATION (3) SEM. 3. Theories of the structure and function of interpersonal (dyadic) communication focusing on conversational behavior, traits, relationships, and persuasion.

COMM 7470 SEMINAR IN SMALL GROUP COMMUNICATION (3) SEM. 3. Advanced study of the principles of communication as they apply to the small group setting.

COMM 7480 SEMINAR IN ORGANIZATIONAL COMMUNICATION (3) SEM. 3. In-depth approach to the study of communication processes within the setting of modern organizations.

COMM 7490 HEALTH COMMUNICATION (3) LEC. 3. Examination and application of social science research approaches to the study of health communication.

COMM 7500 GENDER COMMUNICATION (3) LEC. 3. Exploration of current theories and research on the relationship between communication and gender.

COMM 7600 MASS COMMUNICATION THEORY (3) LEC. 3. Exploration of major areas of concern to the theoretical study of mass communication and the social impact of mediated messages.

COMM 7610 STUDIES IN POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3. Critical approaches to identifying, interpreting and experiencing popular culture texts within historical, cultural and communication contexts.

COMM 7620 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Exploration of critical, theoretical, and organizational issues relevant to programming and the production of culture within mass media environments.

COMM 7630 MEDIA MANAGEMENT (3) LEC. 3. In-depth analysis of current management issues specific to media managers in a multi-cultural world.

COMM 7640 SEMINAR IN FILM THEORY AND CRITICISM (3) SEM. 3. Exploration of classical and contemporary film theories and criticism.

COMM 7660 CULTURAL STUDIES IN MASS MEDIA (3) LEC. 3. Examination of communication research approaches to the study of culture and media.

COMM 7670 CONTEMPORARY ISSUES IN FIRST AMENDMENT LAW (3) LEC. 3. Exploration of controversial issues and cases in First Amendment Law that have been recently decided, are currently before courts, and have shaped the constitutional landscape in the United States.

COMM 7680 SPORTS, MEDIA, AND CULTURE (3) LEC. 3. Cultural implications of the relationship between sports and media.

COMM 7810 PUBLIC RELATIONS THEORY (3) LEC. 3. Current areas of concern in the theoretical study of public relations.

COMM 7820 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Application of public relations and communication concepts to campaign challenges.

COMM 7830 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Examination of research on public relations case studies to provide a theoretical basis for analyzing similar situations in on the job.

COMM 7840 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Theory, concepts, and skills needed to be an effective communication trainer or consultant.

COMM 7850 PUBLIC RELATIONS ETHICS (3) LEC. 3. This course provides a framework for understanding ethics in public relations. We will discuss ethical behavior and thinking within the context of practicing public relations. Topics discussed will include relationships, accountability, responsibility, advocacy, truth, and transparency.

COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research, and reports in general communication, mass communication, or public relations. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS IN COMMUNICATION (3) SEM. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities. Course may be repeated for credit with change in topic.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATION (3-6) LEC. SU. Pr. COMM 7000 and COMM 7010 and COMM 7020. and Minimum 27 graduate hours. Professional experience in communication area of interest. Must include managerial experience. Only 3 hours will apply to the degree. Course may be repeated for a maximum of 6 credit hours.

COMM 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

Communication and Journalism Courses

CMJN 2100 CONCEPTS IN COMMUNICATIONS AND JOURNALISM (3) LEC. 2. LAB. 1. Introduction to the basic principles of various communication forms, the dominant communication theories, and communication industries. May count either CMJN 2100 or CMJN 2103.

CMJN 2910 COMMUNICATION AND JOURNALISM PRACTICUM (1-3) PRA. SU. Departmental Approval. Practical experiences in potential career fields gained while working in professional settings. One to three hours variable credit. Course may be repeated for a maximum of 3 credit hours.

CMJN 3350 VISUAL COMMUNICATION (3) LEC. 3. Visual literacy, cognition, aesthetics, critical evaluation, and technology in human communication, with emphasis on impact of visual media in informative, interpretive, and persuasive message.

CMJN 3550 SPORTS INTERVIEWING (3) LEC. 3. Pr. CMJN 2100. This course examines interviewing techniques in various sport media and technological contexts.

CMJN 3650 RHETORIC OF SPORTS (3) LEC. 3. Learn the role that persuasive messages and social expectations play in sports environments through communication and critical thinking research. May count either CMJN 3650 or COMM 3650.

CMJN 4000 MASS MEDIA LAW AND REGULATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. and junior or senior standing. Laws and regulations that govern journalists, media content and industries.

CMJN 4340 MASS COMMUNICATION AND FAMILY (3) LEC. 3. Examination of the relationship between the American family and the mass communication industry.

CMJN 4370 MASS COMMUNICATION AND RELIGION (3) LEC. 3. Examines the relationship between mass communication and religion. Portrayals and influences will be analyzed.

CMJN 4400 GENDER COMMUNICATION (3) LEC. 3. Learn the critical role gender plays in communication processes as well as skills for navigating difficult issues in organizations and other settings.

CMJN 4430 SPORTS, MEDIA AND SOCIETY (3) LEC. 3. Cultural and professional implications of the relationship between sports and media. May count either CMJN 4430 or JRNL 4430.

CMJN 4970 SPECIAL TOPICS IN COMMUNICATION AND JOURNALISM (3) LEC. 3. Specialized topics related to the study and practice of Communication, Journalism, Media Studies and/or Public Relations. Course may be repeated for a maximum of 6 credit hours.

CMJN 5100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

CMJN 6100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

Community Planning Courses

CPLN 5000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 5010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 5020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course teaches about connections that climate has with urban processes; how cities are affected by climate change, impact of local land use and transportation decisions, and Climate Action Planning at local level including GHG inventory, adaptation and mitigation strategies.

CPLN 5040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 5050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 5060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. This topical seminar addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester.

CPLN 5070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 5080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. This topical seminar addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080/6080.

CPLN 5090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 5100 URBAN DESIGN METHODS (3) LEC. 3. Departmental approval. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 5110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 5400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation, adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 5460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 5970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 6010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 6020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course focuses on connections that climate has with urban processes, climate action planning at local level, compiling greenhouse gas inventory, climate adaptation and mitigation strategies, and building sustainable and resilient cities.

CPLN 6040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 6050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 6060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. Addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester. May count either CPLN 5060 or CPLN 6060.

CPLN 6070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 6080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. Addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080 or CPLN 6080.

CPLN 6090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development. Content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 6100 URBAN DESIGN METHODS (3) LEC. 3. Techniques and methodologies in urban design problem- solving and strategies for implementation.

CPLN 6110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 6400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation and adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 6460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 6930 DIRECTED STUDIES IN COMMUNITY PLANNING (3) IND. Departmental approval. Through this directed studies course, students explore a community planning related topic or issue of interest in greater detail through independent work. Students work with an MCP faculty member, who will supervise their studies. Course topics and assignments will vary, but the course will result in enhancing the student's knowledge and skills within the community planning discipline. Course may be repeated for a maximum of 6 credit hours.

CPLN 6970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6AA0 MCP COMPREHENSIVE EXAMINATION (0) PR1. SU. A comprehensive examination is required of all students who have successfully completed 24 credit hours of the MCP program and/or before registration for the Synthesis Studio courses. Students are notified of their eligibility for the comprehensive exam by the MCP program director. Course may be repeated for a maximum of 10 credit hours.

CPLN 7200 URBAN DESIGN STUDIO (3) STU. 3. Basic principles of urban design are explored, with an emphasis on the planner's role in shaping the built environment. Exercises and projects provide hands-on experience in making good urban places.

CPLN 7240 QUANTITATIVE METHODS FOR PLANNING (3) LEC. 3. Development of working knowledge of planning techniques such as data collection, basic statistics, demographic analysis, economic analysis, social research, transportation, and evaluation.

CPLN 7300 COMMUNITY-BASED QUALITATIVE METHODS (3) LEC. 3. Introduces graduate students to the foundational principles of qualitative inquiry and community-based/community-engaged research.

CPLN 7350 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to be effective in the planning field.

CPLN 7430 LAND USE LAW (3) LEC. 3. This course covers three key elements of the planning profession: ethics, law and plan implementation.

CPLN 7600 SYNTHESIS STUDIO I (3) STU. 3. Pr. CPLN 7400. Serves as the primary opportunity for the student to demonstrate their competency in community design and planning by translating knowledge into action through the development of a practical plan.

CPLN 7610 SYNTHESIS STUDIO 2 (3) STU. 3. This class is the second required plan-making studio in the Master of Community Planning Program. Synthesis Studio 2 is the second in a two-semester series of classes that will critically consider a real-world planning project involving a city. Course may be repeated for a maximum of 6 credit hours.

CPLN 7920 PLANNING INTERNSHIP (1-6) AAB/INT. Departmental approval. Professional experience in public, private or non-profit planning or planning-related agency. Course may be repeated for a maximum of 6 credit hours.

Community and Civic Engagement Courses

CCEN 3000 CAPSTONE IN COMMUNITY AND CIVIC ENGAGEMENT (1) PRA. 1. SU. Completion of 15 credits toward Minor in Community and Civic Engagement. This course is required for minors in CEE. The capstone requires students to draw upon the knowledge obtained throughout their coursework and to perform relevant service projects.

CCEN 7900 COMMUNITY LEADERSHIP PRACTICUM (3) LEC. 3. This course provides graduates in CCL an opportunity to integrate course content, personal commitments, and real world experience. Completion of 9 credits toward Graduate Certificate in Collaborative Community Leadership.

Economics Courses

ECON 2020 PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2027 HONORS PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2030 PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy. May count either ECON 2030 or ECON 2033.

ECON 2037 HONORS PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy.

ECON 3020 INTERMEDIATE MICROECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theory of pricing under varying market conditions and distribution of income among the factors of production.

ECON 3030 INTERMEDIATE MACROECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. A study of national economic aggregates and the market determination of output, employment, and inflation. Introduction to economic monetary and fiscal policy on the economy.

ECON 3040 CONSUMER ECONOMICS (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) or (ECON 2030 or ECON 2033 or ECON 2037). A broad study of consumer economics at both the household level and the national consumption aggregates.

ECON 3100 LAW AND ECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Description of the many substantive areas in which law has an economics foundation and an analysis of how law affects economic relations.

ECON 3200 MONEY AND BANKING (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Theoretical and institutional analyses of monetary systems, foreign exchange, and commercial banking.

ECON 3300 ECONOMICS OF SPORTS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Economic analysis of professional and collegiate sports, including the structure of competition and performance in individual and team sports.

ECON 3400 AMERICAN ECONOMIC HISTORY I (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ECON 2030 or ECON 2033 or ECON 2037). Examines development of the American economy from colonial history to present. Topics include changes in institutions, the standard of living, income distributions, social mobility, labor markets, demographic structure, technological development, and the financial system.

ECON 3420 AMERICAN ECONOMIC HISTORY II (3) LEC. 3. Pr. ECON 2020. This class will study the history of American business cycle fluctuations with extended discussions of the Great Depression and the Great Recession. A point of emphasis in this class will be on the importance of data construction in interpreting historical economic events.

ECON 3500 COMPARATIVE ECONOMIC SYSTEMS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Analysis of alternative government approaches to solving basic economic problems.

ECON 3600 MATHEMATICAL METHODS FOR ECONOMISTS (3) LEC. 3. Pr. ECON 3020 and (MATH 1690 or MATH 2630 or MATH 2637). Fundamental mathematical and quantitative methods employed by economists. Application of calculus, probability, statistics, and linear algebra to economics.

ECON 3700 HISTORY OF ECONOMIC THOUGHT (3) LEC. 3. Pr. ECON 2030 or ECON 2037. Development of economic ideas, principles and systems of analysis from early times to the present.

ECON 3800 PUBLIC CHOICE (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic analysis of public sector decision making. Emphasis on actions taken by voters, bureaucrats, and lobbyists elected to influence public sector outcomes.

ECON 4000 ECONOMICS OF WORK AND PAY (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theoretical and institutional examination of the labor market, including wage theories, unionism, occupational choice, and public policy.

ECON 4100 INDUSTRIAL ORGANIZATION (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Relationship of market structure to the pricing behavior and economic performance of firms. Topics include regulation, research and development, and technical change.

ECON 4200 GOVERNMENT, BUSINESS AND SOCIETY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or ECON 2020 or ECON 2023 or ECON 2027. Economic role of government in a free enterprise economy. Application of microeconomic theory to policy issues, particularly antitrust and regulation.

ECON 4300 INTERNATIONAL ECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic consequences of free trade, including identification and measurement of gains and losses. Analysis of trade restrictions, such as quotes, tariffs, VERs. Examination of labor and capital movements between nations.

ECON 4600 ECONOMETRICS I (4) LEC. 3. LAB. 1. Pr. ECON 3600 and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3600 or PSYC 2130 or PSYC 2133 or BUAL 2600 or BUAL 2603). Basic statistical toolbox to analyze economic data and evaluate economic models. Topics include simple and multivariate linear regressions, maximum likelihood estimation, serial correlation and heteroscedasticity, simultaneous equations, qualitative response models, and basic time series.

ECON 4920 INTERNSHIP (1-3) AAB/INT. SU. Pr. (ECON 2030 or ECON 2033 or ECON 2037) or departmental approval. Course may be repeated for a maximum of 3 credit hours.

ECON 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

ECON 4970 SPECIAL TOPICS (1-3) AAB/IND. SU. Pr., Departmental approval. Investigation and research into economic problems of special interest to the student and instructor. Course may be repeated for a maximum of 6 credit hours.

ECON 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

ECON 5020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617) or Departmental approval. Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty, and strategic behavior.

ECON 5030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 5100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Cause and effects of economic growth and development, for example, ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 5400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 5600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.

ECON 5700 HEALTH ECONOMICS (3) LEC. 3. Pr., Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 5800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr., Departmental approval. The economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 6020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617). Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty and strategic behavior.

ECON 6030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 6100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Causes and effects of economic growth and development, for example ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 6400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. or Departmental approval.Survey of the economic advancement of the United States from European origins to the present.

ECON 6600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level

ECON 6700 HEALTH ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 6800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 7110 MICROECONOMICS I (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Consumer behavior and market models of competition and monopoly. Traditional and contemporary theories of consumer and household behavior under constraint; models of competitive behavior.

ECON 7120 MICROECONOMICS II (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of producer behavior, including production theory, cost theory, profit maximization, theories of various market structures, and derived demand for inputs.

ECON 7130 MATHEMATICAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 and ECON 6030 or Departmental approval. Fundamental mathematical methods in economics and econometrics, including linear and matrix algebra, calculus, comparative statistics, optimization, concavity, constrained optimization dynamics difference equations, and differential equations.

ECON 7210 MACROECONOMICS I (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Evaluation of fundamental theoretical and policy-oriented issues in macroeconomics, emphasizing post-Keynesian developments.

ECON 7220 MACROECONOMICS II (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Foundations of macroeconomics, neoclassical production and growth theory, overlapping generations models, optimal saving, open economy macroeconomics, applied time series macrodynamics.

ECON 7310 ECONOMETRICS I (3) LEC. 3. Pr., Departmental approval. Advanced treatment of the standard linear model of least square theory, including assumptions and properties of the SLM and the statistical testing of behavioral hypotheses.

ECON 7320 ECONOMETRICS II (3) LEC. 3. Pr. ECON 7310. Econometric techniques employed in advanced empirical research. Topics include estimation and inference in simultaneous equation systems, limited dependent variables, non-nested testing, time-series analysis.

ECON 7330 MICROECONOMETRICS (3) LEC. 3. Pr. ECON 7310. Econometric techniques for applied microeconomics. Limited dependent variable models, survival and count data analysis, and selection bias.

ECON 7340 MACROECONOMETRICS (3) LEC. 3. Pr. ECON 7310. Analysis of economic time series and identification and estimation of parameters in multi-equation models.

ECON 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

ECON 8110 ADVANCED MICROECONOMICS I (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Advanced analysis, integrating the economics of time and uncertainty into mainline price theory.

ECON 8120 ADVANCED MICROECONOMICS II (3) LEC. 3. Pr. ECON 7120. or Departmental approval. Advanced analysis, integrating imperfect information and strategic behavior into economic models of trade and investment.

ECON 8210 TOPICS IN MACROECONOMICS (3) LEC. 3. Pr. ECON 7220 or Departmental approval. Goals, procedures and achievements in attaining monetary objectives domestically and abroad. Emphasis on macro-money models and effects of monetary policy on economic activity.

ECON 8540 SEMINAR IN ENVIRONMENTAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Advanced analysis of pricing and allocation of renewable and non-renewable resources.

ECON 8610 INDUSTRIAL ORGANIZATION I (3) LEC. 3. Pr. ECON 7120. or Departmental approval.. Determinants of market structure, effects of market structure on industry performance, theory of the firm, research and development, advertising, and vertical integration.

ECON 8620 INDUSTRIAL ORGANIZATION II (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Case studies in the history and current practice of regulation in the United States at all levels.

ECON 8710 INTERNATIONAL TRADE (3) LEC. 3. Pr., Departmental approval. Trade theory, including classical, neoclassical, factor proportions, and industrial organization. Applied trade theory and empirical applications.

ECON 8720 INTERNATIONAL MACROECONOMICS (3) LEC. 3. Pr., Departmental approval.Theoretical and applied time series analysis at open economy macroeconomic models, international monetary and financial theory, balance of payments theory, and exchange rates.

ECON 8810 LABOR MARKET ANALYSIS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of labor markets, and determination of wages and other terms of employment. Emphasis on academic studies of labor market issues.

ECON 8820 TOPICS IN LABOR ECONOMICS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Selected topics, including education and on-the-job training. Labor mobility and immigration, employment discrimination, and the impact of labor unions.

ECON 8970 SPECIAL TOPICS (1-3) IND. Pr., Departmental approval. Advanced topics related to economics. Course may be repeated for a maximum of 12 credit hours.

ECON 8980 ECONOMICS WORKSHOP (1) LEC. 1. Pr., Departmental approval. Individual research projects, presentations, and discussions of the economics profession.

ECON 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

English Courses

ENGL 1100 ENGLISH COMPOSITION I (3) LEC. 3. English Composition Core. Intensive study of and practice in effective expository and argumentative writing. May not be taken concurrently with ENGL 1120 or ENGL 1127.

ENGL 1107 HONORS WRITING SEMINAR I (3) LEC. 3. Pr. Honors College. English Composition Core. Topics in writing for students in the Honors College.

ENGL 1120 ENGLISH COMPOSITION II (3) LEC. 3. Pr. ENGL 1100 or ENGL 1103 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 1127 HONORS WRITING SEMINAR II (3) LEC. 3. Pr. Honors College. ENGL 1100 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 2000 INTRODUCTION TO CREATIVE WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the genres of creative writing.

ENGL 2010 INTRODUCTION TO PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the disciplines of professional writing.

ENGL 2020 INTRODUCTION TO LITERARY STUDIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Introduces students to the academic study of literary texts in English with an emphasis on formulating an argument about a text, developing goals and strategies for research, and managing the different stages of the writing process.

ENGL 2200 WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2207 HONORS WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2210 WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2217 HONORS WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2230 BRITISH LITERATURE BEFORE 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of British literature from its beginnings to the end of the 18th century.

ENGL 2240 BRITISH LITERATURE AFTER 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of British literature from the end of the 18th century to the present.

ENGL 2250 AMERICAN LITERATURE BEFORE 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of American literature from its beginnings to 1865.

ENGL 2260 AMERICAN LITERATURE AFTER 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of American literature from 1865 to the present.

ENGL 2270 AFRICAN AMERICAN LITERATURE BEFORE 1900 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. African American literature from its beginnings to 1900.

ENGL 2280 AFRICAN AMERICAN LITERATURE AFTER 1900 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. African American literature from 1900 to the present.

ENGL 3000 WRITING ACADEMIC RESEARCH (3) LEC. 3. Pr. ENGL 1100 and ENGL 1120. Writing Academic Research teaches advanced instruction in writing and research beyond ENGL 1100 and 1120.

ENGL 3020 WRITING IN LAW AND JUSTICE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. This course introduces students to the writing situations they may encounter in legal professions.

ENGL 3040 TECHNICAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Writing in engineering, scientific, and technical fields.

ENGL 3060 WRITING IN THE HEALTH PROFESSIONS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. Writing in medical and health-related fields. This course is designed to introduce students to rhetorical principles and textual and critical practices in medical and health-related fields.

ENGL 3080 BUSINESS WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Writing in business, management, or governmental service fields.

ENGL 3110 SURVEY OF LINGUISTICS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Structure of language, especially American English sounds, words, and syntax, along with study in such areas as dialects and language change.

ENGL 3120 SURVEY OF RHETORIC (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2207 or ENGL 2203 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Survey of rhetoric from Ancient Greece to the present.

ENGL 3130 SURVEY OF CRITICAL THEORY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Introduction to critical methods and theoretical approaches to the study of literature.

ENGL 3200 TOPICS IN CREATIVE WRITING (3) LEC. 3. Pr. (ENGL 1120 or ENGL 1123 or ENGL 1127) and ENGL 2000. A concentrated investigation of varying topics in Creative Writing.

ENGL 3210 FICTION WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of fiction writing; reading, studying, and writing short stories.

ENGL 3230 POETRY WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of poetry writing; reading, studying, and writing poetry.

ENGL 3250 CREATIVE NONFICTION WRITING I (3) LEC. 3. Pr. ENGL 2000. Creative Nonfiction Writing I aims to familiarize students with the intricacies of the genre, with a primary focus on work that falls under the broad label of Narrative Nonfiction.

ENGL 3360 THE BIBLE FOR STUDENTS OF LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2270 or ENGL 2280. Biblical backgrounds to English and American literature; the Bible as literature.

ENGL 3700 TOPICS IN CREATIVE WRITING (3) SEM. 3. Pr. (ENGL 1120 or ENGL 1123 or ENGL 1127) and ENGL 2000. A concentrated investigation of varying topics in Creative Writing.

ENGL 3710 SURVEY OF AFRICAN AMERICAN LITERATURE BEFORE 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. African American literature from its beginnings to 1900.

ENGL 3720 SURVEY OF AFRICAN AMERICAN LITERATURE AFTER 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. African American literature from 1900 to the present.

ENGL 3730 REPRESENTATIONS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. This topics course in literature aims to explore how writers of texts represent things, ideas, or individuals. Course may be repeated for a maximum of 6 credit hours.

ENGL 3740 IDENTITIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. This topics course in literature examines how identity is constructed in texts. Course may be repeated for a maximum of 6 credit hours.

ENGL 3750 CULTURAL STUDIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. A topics course in Cultural Studies. Course may be repeated for a maximum of 6 credit hours.

ENGL 3760 POPULAR LITERATURE & CULTURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. ENGL 3760 is a topics course in literature that addresses a genre of popular fiction with texts in "high" and popular culture, such as sci-fi, detective fiction, fantasy, romance, etc. Course may be repeated for a maximum of 6 credit hours.

ENGL 3850 STUDY IN LONDON (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Study Abroad in London providing an introduction to London's and England's literature and culture.

ENGL 3870 WORLD ENGLISH LITERATURES (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Non-British and non-American literature written in English.

ENGL 3890 WRITING CENTER THEORY AND PRACTICE (3) SEM. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2270 or ENGL 2280. Introduction to writing center theory, pedagogy, and history.

ENGL 4000 ADVANCED COMPOSITION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Theory and practice of expository and argumentative writing.

ENGL 4010 TOPICS IN WRITING (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. An in-depth study of a specific topic of writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4020 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Pr. ENGL 2010 or Departmental approval. Introduction to technical and professional editing.

ENGL 4030 DOCUMENT DESIGN IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Document design in technical and professional communication.

ENGL 4040 PUBLIC WRITING (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Writing in the public sphere.

ENGL 4140 LANGUAGE VARIATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Social, regional, and contextual forces that contribute to dialect diversity.

ENGL 4150 TOPICS IN LANGUAGE STUDY (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Concentrated investigation of varying topics in linguistics or rhetoric. Course may be repeated for a maximum of 6 credit hours.

ENGL 4160 TECHNOLOGY, LITERACY, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280 or Departmental approval. Connections between technology, literacy, and culture, including instruction in advanced computer applications.

ENGL 4170 HISTORY OF THE ENGLISH LANGUAGE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2207 or ENGL 2210 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Chronological development of the English language. May count ENGL 5410 or ENGL 4170.

ENGL 4180 RHETORICAL THEORY AND PRACTICE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Advanced study of topics in rhetorical theory and practice.

ENGL 4210 FICTION WRITING II (3) LEC. 3. Pr. ENGL 3210 or ENGL 4200. Advanced fiction writing.

ENGL 4230 POETRY WRITING II (3) LEC. 3. Pr. ENGL 3230 or ENGL 4220. Advanced poetry writing.

ENGL 4250 CREATIVE NONFICTION WRITING II (3) LEC. 3. Pr. ENGL 3250. Creative Nonfiction Writing II explores writing lyric nonfiction.

ENGL 4300 MEDIEVAL LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British and continental medieval literature.

ENGL 4310 RENAISSANCE ENGLISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. English literature 1485-1660. Course may be repeated for a maximum of 6 credit hours.

ENGL 4320 RESTORATION AND 18TH-CENTURY LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1660-1800. Course may be repeated for a maximum of 6 credit hours.

ENGL 4330 AGE OF REVOLUTION IN BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1770-1830.

ENGL 4340 19TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1830-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4350 20TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1910-2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4360 TWENTY-FIRST CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature since 2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4370 IRISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Periods, movements, or major figures of the literature of Ireland.

ENGL 4400 EARLY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature from its beginnings to 1800.

ENGL 4410 19TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature 1800-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4420 20TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature 1910-2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4430 TWENTY-FIRST CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature since 2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4440 SOUTHERN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Literature of the American South.

ENGL 4450 TOPICS IN AFRICAN AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Concentrated investigation of varying topics in African American literature and culture.

ENGL 4500 STUDIES IN POETRY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study in one or more kinds of poetry.

ENGL 4510 18TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of novels produced in the 18th century.

ENGL 4520 19TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of novels produced in the 19th century.

ENGL 4530 20TH-CENTURY FICTION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of fiction produced in the 20th century.

ENGL 4540 STUDIES IN DRAMA (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more periods or kinds of drama.

ENGL 4550 STUDIES IN FILM AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Examining the interconnections between film and literature.

ENGL 4600 CHAUCER (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Major works of Chaucer in Middle English.

ENGL 4610 SHAKESPEARE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Shakespeare's works, career, and culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4620 MILTON (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Milton's principal poems, especially Paradise Lost, with some attention to his prose.

ENGL 4630 BRITISH AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more British authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4640 AMERICAN AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more American authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4700 TOPICS IN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Concentrated investigation of varying topics in literature. Course may be repeated for a maximum of 6 credit hours.

ENGL 4710 TOPICS IN GENDER AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Examination of varying topics related to the intersection between literature and gender. Course may be repeated for a maximum of 6 credit hours.

ENGL 4720 TOPICS IN ETHNIC STUDIES (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2233 or ENGL 2243 or ENGL 2253 or ENGL 2263 or ENGL 2270 or ENGL 2280. Literature of one or more ethnic groups. Course may be repeated for a maximum of 6 credit hours.

ENGL 4730 TOPICS IN POPULAR CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. One or more topics in popular culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4740 ENVIRONMENT, LITERATURE, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2210 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Topics related to the intersections between the environment, literature, and culture.

ENGL 4750 TOPICS IN MYTHOLOGY AND FOLKLORE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more topics in mythology or folklore. Course may be repeated for a maximum of 6 credit hours.

ENGL 4760 TOPICS IN DIASPORA LITERATURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. Topics class in the literature and culture of displaced groups. Course may be repeated for a maximum of 6 credit hours.

ENGL 4800 SEMINAR IN LITERATURE (3) LEC. 3. Pr. ENGL 3130. Research seminar in literature. Senior standing.

ENGL 4810 CAPSTONE IN PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 2010. Advanced course in developing complex professional writing projects.

ENGL 4820 CAPSTONE IN CREATIVE WRITING (3) LEC. 3. Pr. ENGL 4210 or ENGL 4230 or ENGL 4250. Capstone course in creative writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4830 EARLY AFRICAN AMERICAN LITERATURE (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of African American literature from beginnings to 1900 Course may be repeated for a maximum of 6 credit hours.

ENGL 4840 20TH-CENTURY AFRICAN AMERICAN LITERATURE (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of African American literature from 1900 to 2000 Course may be repeated for a maximum of 6 credit hours.

ENGL 4850 CONTEMPORARY AFRICAN AMERICAN LITERATURE (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of African American literature from 1945 to the present Course may be repeated for a maximum of 6 credit hours.

ENGL 4860 BLACK/AFRICAN AMERICAN LITERARY THEORY AND CRITICISM (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of Black/African American literary theory and criticism. Course may be repeated for a maximum of 6 credit hours.

ENGL 4920 INTERNSHIP IN ENGLISH STUDIES (3) AAB/IND. 3. SU. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Supervised experience in applying reading, writing, and research skills to the workplace.

ENGL 4960 SPECIAL PROBLEMS IN ENGLISH (3) IND. 3. Pr. 3.00 GPA. At least 5 courses in ENGL 4000-4999. Junior standing and Departmental approval. Individual reading programs determined by the instructor and student. Course may be repeated for a maximum of 6 credit hours.

ENGL 7000 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Research-based best practices in technical and professional editing.

ENGL 7010 TECHNICAL AND PROFESSIONAL COMMUNICATION: ISSUES AND APPROACHES (3) LEC. 3. Introduction to the history, practice, and profession of technical and professional communication.

ENGL 7020 PEDAGOGY IN WRITING STUDIES (3) LEC. 3. Methods, practices, and theories of technical and professional communication for prospective teachers.

ENGL 7030 STUDIES IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LEC. 3. Extensive study of selected types of research and writing for special purposes and novel situations. Course may be repeated for a maximum of 6 credit hours.

ENGL 7040 ENGLISH COMPOSITION: ISSUES AND APPROACHES (3) LEC. 3. Theory, research, and practice in English composition.

ENGL 7050 STUDIES IN COMPOSITION (3) LEC. 3. Advanced study of an approach or an issue in composition studies. Course may be repeated for a maximum of 9 credit hours.

ENGL 7060 WEB DEVELOPMENT (3) LEC. 3. Research-based best practices in web development.

ENGL 7070 GRANT AND PROPOSAL WRITING (3) LEC. 3. Research-based best practices in grant and proposal writing.

ENGL 7080 DOCUMENT DESIGN (3) LEC. 3. Research-based best practices in document design.

ENGL 7090 RESEARCH METHODS IN WRITING STUDIES (3) LEC. 3. An introduction to some of the most widely-used research methods and methodologies across the field (and varied subfields) of Writing Studies.

ENGL 7120 CREATIVE NONFICTION WRITING (3) LEC. 3. Workshop in the craft of writing creative nonfiction. Departmental approval required. Course may be repeated for a maximum of 9 credit hours.

ENGL 7130 FICTION WRITING (3) LEC. 3. Workshop in the craft and writing of fiction. Departmental approval required. Course may be repeated for a maximum of 9 credit hours.

ENGL 7140 POETRY WRITING (3) LEC. 3. Workshop in the craft and writing of poetry. Departmental approval required. Course may be repeated for a maximum of 9 credit hours.

ENGL 7150 STUDIES IN MEDIEVAL LITERATURE (3) LEC. 3. Major works and genres in Middle English and related literary traditions. Course may be repeated for a maximum of 9 credit hours.

ENGL 7160 EARLY MODERN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7170 18TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7180 19TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7190 AMERICAN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7200 LITERARY MODERNISMS (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7210 CONTEMPORARY LITERATURE AND CULTURE (3) LEC. 3. Major literary movements, authors, and /or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7280 STUDIES IN LINGUISTICS (3) LEC. 3. Selected topic in English linguistics, including historical syntax, dialectology, phonology. Course may be repeated for a maximum of 9 credit hours.

ENGL 7300 RHETORIC THEORY AND PRACTICE (3) LEC. 3. Issues and developments in rhetorical theory and analysis, with special attention to the rhetoric of written texts. Course may be repeated for a maximum of 9 credit hours.

ENGL 7770 AFRICAN AMERICAN LITERATURE (3) LEC. 3. Study of African American literature and literary theories of ethnicity and race. Course may be repeated for a maximum of 9 credit hours.

ENGL 7780 STUDIES IN RACE, GENDER, AND SEXUALITY (3) LEC. 3. Focused topics in literature and theory of ethnicity, sexuality, gender, race, class, or disability. Course may be repeated for a maximum of 9 credit hours.

ENGL 7790 LITERARY THEORY: ISSUES AND APPROACHES (3) LEC. 3. Overview of significant theoretical issues, approaches, and conversations in literary and cultural theory, historical and/or contemporary.

ENGL 7800 STUDIES IN LITERARY THEORY (3) LEC. 3. Close study of particular theoretical approaches to literary study, including cultural studies, postmodernism, textual criticism, anthropological approaches. Course may be repeated for a maximum of 6 credit hours.

ENGL 7810 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3. Comparative study of authors, genres, or issues from two or more cultures or critical perspectives. Course may be repeated for a maximum of 9 credit hours.

ENGL 7830 MAJORS AUTHOR(S) (3) LEC. 3. One or more major authors or a single work by a major author. Course may be repeated for a maximum of 9 credit hours.

ENGL 7850 STUDIES IN GENRE (3) LEC. 3. Study of one or more genres across literary periods. Course may be repeated for a maximum of 9 credit hours.

ENGL 7870 SPECIAL TOPICS IN ENGLISH STUDIES (3) LEC. 3. Special problems, topics, and materials in English studies not covered in other existing courses. Course may be repeated for a maximum of 9 credit hours.

ENGL 7910 PRACTICUM IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) PRA. 3. Pr., Departmental approval. Supervised client-based experience in tasks commonly performed by technical communicators analyzed through current research in technical communication.

ENGL 7920 INTERNSHIP IN ENGLISH STUDIES (3) INT. 3. SU. Departmental approval. Supervised professional experience in workplace or university outreach settings.

ENGL 7930 DIRECTED INDIVIDUAL STUDY (1-3) IND. Available on a limited basis for qualified students; requires advance permission of the department graduate committee. Credits are to be arranged. Course may be repeated for a maximum of 6 credit hours.

ENGL 7940 PRACTICUM IN TEACHING COLLEGE ENGLISH (1) LEC. 1. SU. An introduction to the teaching of English at Auburn University. Course may be repeated for a maximum of 2 credit hours.

ENGL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 20 credit hours.

ENGL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Flight Education Courses

AVMF 2141 FLIGHT ORIENTATION (1) LAB. 1. Basic flight experience for non-pilots to familiarize aviation majors, engineers, teachers, and other students desiring a limited exposure to flight. Includes ground discussion and aircraft time. Special fee.

AVMF 2150 PRINCIPLES OF PRIVATE FLIGHT (3) LEC. 3. General introduction and preparation for the FAA Private Pilot Knowledge Test. Theory of flight, aircraft and engine performance, regulations, meteorology, navigation, airspace utilization, and aviation physiology. Special Fee.

AVMF 2171 PRIVATE PILOT FLIGHT TRAINING I (2) LAB. 2. Pr. AVMF 2150. Dual and solo flight instruction and discussion to prepare for FAA Private Pilot Certificate. Special fees. Requires a valid FAA 1st Class Medical Certificate. Departmental approval required.

AVMF 2181 PRIVATE PILOT FLIGHT TRAINING II (2) LAB. 2. Pr. AVMF 2171. Departmental approval. Continuation of AVMF 2171 to prepare for FAA Private Pilot Certification. Special fees. Requires a valid FAA 1st Class Medical certificate and Student Pilot certificate.

AVMF 2230 PRINCIPLES OF INSTRUMENT FLIGHT (3) LEC. 3. Pr. AVMF 2181. Flight instruments, FAA regulations, air traffic procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Airplane Aeronautical Knowledge Test (IRA). Special Fee.

AVMF 2241 INSTRUMENT FLIGHT TRAINING I (2) LAB. 2. Pr. AVMF 2230. Instruments, FAA regulations, air traffic control procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Practical Test. Special fees. Requires a valid FAA 1st Class Medical Certificate. Departmental approval required.

AVMF 2251 INSTRUMENT FLIGHT TRAINING II (2) LAB. 2. Pr. AVMF 2241. Departmental approval. Continuation of AVMF 2241 in preparation for the FAA Instrument Rating - Airplane Practical Test. Special fees. Requires a valid FAA 1st Class Medical certificate.

AVMF 2260 PRINCIPLES OF COMMERCIAL FLIGHT (3) LEC. 3. Pr. AVMF 2251. FAA regulations, high altitude operations, aerodynamics, commercial flight maneuvers, environmental, ice control, retractable landing gear, and aircraft performance as applied to commercial flying. Preparation for the FAA Commercial Pilot Aeronautical Knowledge Test (CAX). Special Fee.

AVMF 2261 COMMERCIAL PILOT FLIGHT TRAINING I (2) LAB. 2. Pr. AVMF 2251. Flight training toward FAA Commercial Pilot Certification. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 2271 COMMERCIAL PILOT FLIGHT TRAINING II (2) LAB. 2. Pr. AVMF 2261. Continuation of AVMF 2261 towards FAA Commercial Pilot Certification. Emphasis on advanced commercial maneuvers, and cross country flying. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4271 MULTI-ENGINE FLIGHT TRAINING (2) LAB. 2. Pr. AVMF 2271. Specialized instruction in methods and techniques of multi-engine airplane operations. Sufficient ground and flight instruction is given towards an FAA Multi-Engine Airplane Rating. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4280 PRINCIPLES OF FLIGHT INSTRUCTION (3) LEC. 3. Pr. AVMF 4271. Principles of teaching as applied to instructing, analyzing, and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instructing (FOI) and the Flight Instructor-Airplane (FIA) Aeronautical Knowledge Tests. Special Fee.

AVMF 4281 FLIGHT INSTRUCTION TRAINING (3) LAB. 3. Discussion, instruction and arranged practice in flight instruction in preparation for the FAA Flight Instructor Certification with an Airplane Single-Engine rating. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4310 TRANSPORT CATEGORY AIRCRAFT SYSTEMS (3) LEC. 3. Pr. P/C AVMF 2260. Study of design and operation of the major systems in transport category aircraft, using the Boeing 737 as a model. Systems include turbine engine, fuel, lubrication, electrical, hydraulic, pneumatic, pressurization, environmental control, and flight management. Also examines the use of normal checklists, the Quick Reference Handbook (QRH), Minimum Equipment List (MEL), and Configuration Deviation List (CDL). School of Aviation, Junior or Senior, or Departmental approval required.

AVMF 4320 AIRLINE TRANSPORT CATEGORY SYSTEMS AND PROCEDURES (4) LEC. 3. LAB. 1. Pr. AVMF 2250 or AVMF 2260. Airbus A320 systems and operational procedures (normal, abnormal, and emergency). Part 121 carrier flight and crew management. Special fee.

AVMF 4331 TRANSPORT AIRCRAFT FLIGHT TRAINING (2) LAB. 2. Departmental approval. Includes instrument and night instruction, emergency procedures and actual air transportation operations. Preparation for the Airline Transport Pilot Certification, if otherwise qualified. Special fees. Requires a valid FAA 1st Class Medical Certificate.

AVMF 4351 INSTRUMENT FLIGHT INSTRUCTOR TRAINING (2) LAB. 2. Discussion, instruction, and arranged practice in instrument flight instruction in preparation for FAA Instrument-Airplane Flight Instructor Certification. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4371 MULTI-ENGINE FLIGHT INSTRUCTOR TRAINING (2) LAB. 2. Departmental approval. Discussion, instruction and arranged practice in multi-engine flight instruction in preparation for FAA Multi-Engine Airplane Flight Instructor Certification. Special fees. Requires a valid FAA 1st Class Medical certificate and Flight Instructor Certificate (ASE).

AVMF 4400 APPLIED AERODYNAMICS AND PROPULSION SYSTEMS (3) LEC. 3. Pr. PHYS 1400 or PHYS 1000. Private Pilot Certificate or departmental approval. The principles of aerodynamics and propulsion and how aerodynamic factors affect lift, thrust, drag, in-air performance, stability, and flight control.

Foreign Languages Courses

FLNG 1000 ELEMENTARY WORLD LANGUAGE ABROAD (1-10) AAB/FLD. Pr., Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 1010 ELEMENTARY WORLD LANGUAGE (4) LEC. 4. Pr., Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures.

FLNG 1020 ELEMENTARY WORLD LANGUAGE (4) LEC. 4. Pr. FLNG 1010 or Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures.

FLNG 2000 INTERMEDIATE WORLD LANGUAGE (1-10) AAB/LEC. Pr., Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 2150 FOUNDATIONS OF TRANSLATION AND INTERPRETING (3) LEC. 3. LAB. 0. Pr. Completed courses from FLNG 1010-1017 or FLNG 1020-1027 or FLCN 1010-1017 or FLCN 1020-1027 or FLFR 1010-1017 or FLFR 1020-1027 or FLGR 1010-1017 or FLGR 1020-1027 or FLGK 1010-1017 or FLGK 1020-1027 or FLIT 1010-1017 or FLIT 1020-1027 or FLJP 1010-1017 or FLJP 1020-1027 or FLKN 1010-1017 or FLKN 1020-1027 or FLLN 1010-1017 or FLLN 1020-1027 or FLRU 1010-1017 or FLRU 1020-1027 or FLSP 1010-1017 or FLSP 1020-1027. Introduction to the theory and skills necessary for written translation and oral interpreting.

FLNG 3110 INTRODUCTION TO LINGUISTICS: A MULTILINGUAL APPROACH (3) LEC. 3. In this course, students will learn about language structure, language history, and language acquisition through a multilingual perspective.

FLNG 4997 HONORS THESIS (1-6) IND. Pr. Honors College or Departmental approval. Directed readings and research culminating in a thesis. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng - Arabic Courses

FLAR 1010 ELEMENTARY ARABIC I (4) LEC. 4. Elementary Arabic I is a course for students who have no prior knowledge of Arabic. The course offers students the opportunity for authentic practice in speaking, listening, reading, writing, grammar, and culture.

FLAR 1020 ELEMENTARY ARABIC II (4) LEC. 4. This course Arabic 1020 is a continuation of Arabic 1010 taken in first semester of the first year of Modern Standard Arabic (MSA). The course aims to develop students' reading, writing, listening and speaking skills.

FLAR 2010 INTERMEDIATE ARABIC I (4) LEC. Pr. FLAR 1020. Intermediate Arabic I is for students who have completed Elementary Arabic II or acceptable score on language placement test. The course emphasizes the development of reading, writing, listening, and speaking skills in Modern Standard Arabic (MSA).

FLAR 2020 INTERMEDIATE ARABIC II (4) LEC. Pr. FLAR 2010. Intermediate Arabic II is for students who have completed Intermediate Arabic I or acceptable score on language placement test. Continued development of Arabic vocabulary and grammar. Increased emphasis on developing practical listening and speaking skills. Exposure to Arab culture through media and literature.

Foreign Lng-Asian Culture Courses

FLAS 2050 ASIAN FILM (3) LEC. 3. Major works of Asian film from China, Japan, and Korea. No knowledge of world language required.

FLAS 2450 SURVEY OF MODERN ASIAN LITERATURE (3) LEC. 3. Major works of modern Asian literature from China, Japan, and Korea in translation.

FLAS 2550 GATEWAY TO ASIA (3) LEC. 3. Introduction to Asia from an interdisciplinary perspective, including scholarship on history, anthropology, political science, philosophy, literature, and film.

FLAS 3450 TOPICS IN ASIAN CULTURE (3) LEC. 3. Study of traditional and/or modern Asian culture with special emphasis on cross-cultural and transnational interactions with in Asia, as well as with the west. Course may be repeated for a maximum of 6 credit hours.

FLAS 3550 TOPICS IN ASIAN AMERICAN CULTURE (3) LEC. 3. Topics of interest in Asian American culture. No knowledge of world language required. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Chinese Courses

FLCN 1000 ELEMENTARY CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Elementary coursework on approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 1010 ELEMENTARY CHINESE I (4) LEC. 4. Exposure to Chinese language and culture for students with little or no knowledge of Chinese.

FLCN 1020 ELEMENTARY CHINESE II (4) LEC. 4. Pr. FLCN 1010 or Departmental approval. Continued exposure to Chinese language and culture. Departmental approval. Fulfills College of Liberal Arts world language core requirement.

FLCN 2000 INTERMEDIATE CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by the department. Intermediate course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 2010 INTERMEDIATE CHINESE I (4) LEC. 4. Pr. FLCN 1020 or Departmental approval. Continued exposure to Chinese culture; introduction to intermediate language skills.

FLCN 2020 INTERMEDIATE CHINESE II (4) LEC. 4. Pr. FLCN 2010 or Departmental approval. Continued exposure to Chinese culture; intermediate language skills with emphasis on grammar.

FLCN 3000 ADVANCED CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by department. Advanced course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 3010 CHINESE COMPOSITION AND CONVERSATION (3-6) AAB/LEC. Pr. FLCN 2010 or Departmental approval. Intense practice in spoken and written Chinese, both text-and situation-based. Course may be repeated for a maximum of 6 credit hours.

FLCN 3020 CHINESE COMPOSITION AND CONVERSATION II (3) LEC. 3. Pr. FLCN 3010. In this course, students will continue to develop integrated Chinese language skills of listening, speaking, reading, and writing. There will be increased focus on reading and writing skills in Chinese and on learning grammar patterns needed to write in Chinese.

FLCN 3050 CHINESE CINEMA (3) LEC. 3. Major works of Chinese cinema from 1920s to present with emphasis on cultural and literary aspects.

FLCN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN CHINESE (1) IND. 1. Pr. FLCN 1020 or Departmental approval. Language component with reading and in-class discussion to complement a lecture course in English and in a discipline other than Chinese. Course may be repeated for a maximum of 3 credit hours.

FLCN 3450 TOPICS IN CHINESE LITERATURE AND CULTURE (3-6) AAB/LEC. Directed study of topics of interest. Course may be repeated for a maximum of 6 credit hours.

FLCN 3510 INTRODUCTION TO CHINESE CULTURE IN ENGLISH (3-6) LEC. Chinese culture as depicted in art, film, literature, history. Course may be repeated for a maximum of 6 credit hours.

FLCN 3650 SURVEY OF MODERN CHINESE LITERATURE (3) LEC. 3. Introduction to major works of modern Chinese literature translated into English.

FLCN 3750 SURVEY OF TRADITIONAL CHINESE LITERATURE (3) LEC. 3. Introduction to major works of traditional Chinese literature translated into English.

FLCN 3930 DIRECTED STUDY IN CHINESE (1-6) IND. Pr. FLCN 2010. Directed study in area of special interest for the superior student in Chinese. Course may be repeated for a maximum of 6 credit hours.

FLCN 5010 TEACHING CHINESE AS A WORLD LANGUAGE (3) LEC. 3. Teaching Chinese as a world language is an introduction course to world language teaching theories with an emphasis on their application to Chinese language teaching. Students who are fluent in speaking Chinese will acquire basic knowledge of teaching Chinese.

FLCN 5020 SYNTACTIC STRUCTURE OF THE CHINESE LANGUAGE (3) LEC. 3. Pr. FLCN 2010. Exploration of the fundamentals of Chinese syntax.

FLCN 6010 TEACHING CHINESE AS A WORLD LANGUAGE (3) LEC. 3. Teaching Chinese as a world language is an introduction course to world language teaching theories with an emphasis on their application to Chinese language teaching. Students who are fluent in speaking Chinese will acquire basic knowledge of teaching Chinese as a world language and practical teaching skills and strategies through the critical reading of course materials, classroom discussion, class observation, and research project.

FLCN 6020 SYNTACTIC STRUCTURE OF THE CHINESE LANGUAGE (3) LEC. 3. Exploration of the fundamentals of Chinese syntax.

Foreign Lng-French Courses

FLFR 1000 ELEMENTARY FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in French. Course may be repeated for a maximum of 10 credit hours.

FLFR 1010 ELEMENTARY FRENCH I (4) LEC. 3. LAB. 2. Basic language skills with emphasis on conversation. Exposure to culture.

FLFR 1020 ELEMENTARY FRENCH II (4) LEC. 3. LAB. 2. Pr. LFRE score of 0241 or FLFR 1010. Basic language skills with emphasis on conversation. Exposure to culture. Fulfills College of Liberal Arts core world language requirement.

FLFR 1030 READING PROFICIENCY IN FRENCH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly materials in French related to their field of study. May not be used to satisfy undergraduate language requirements.

FLFR 2000 INTERMEDIATE FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level, taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLFR 2010 INTERMEDIATE FRENCH I (4) LEC. 3. LAB. 2. Pr. LFRE score of 0325 or FLFR 1020. Language skills, grammar review, readings in French culture, literature, and history.

FLFR 2020 INTERMEDIATE FRENCH II (4) LEC. 3. LAB. 2. Pr. LFRE score of 0372 or FLFR 2010. Systematic review of problems in French grammar for speakers of English. Prepares students for conversation, composition and civilization in the third-year sequence.

FLFR 3000 JUNIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 3010 THE SOUNDS OF FRENCH (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Basic principles of French phonetics through sound recognition discrimination and intensive practice.

FLFR 3030 FRENCH CONVERSATION AND CULTURE I (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Intensive practice in spoken French, based on texts and everyday situations, especially in contemporary French society. Includes review of vocabulary.

FLFR 3040 READING & WRITING IN FRENCH I (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLFR 3050 GLOBAL FRENCH CINEMA (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Sampling of important films from the beginnings of French cinema in 1895 to the present day, including the intellectual, historical, cultural, and literary matrix of each film.

FLFR 3100 INTRO TO LITERATURE, ARTS, & MEDIA (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 3040 or FLFR 3030 or Departmental approval. Grounding in basic analytical approaches, language, and organizational skills needed to discuss French literature effectively and coherently, orally or in writing.

FLFR 3110 CONTEMPORARY CULTURE & POLITICS (3) LEC. 3. Pr. FLFR 2020 or Departmental approval. Cultural heritage of France as reflected in present-day life patterns, traditions, and institutions.

FLFR 3140 LITERATURE, ARTS, & MEDIA I (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. The Middle Ages to the 1800s, emphasizes coherent and effective writing in French.

FLFR 3150 LITERATURE, ARTS, & MEDIA II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Readings in French literature prose, drama, and poetry from the 19th century to the present, centered on a theme or topic.

FLFR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN FRENCH (1) LEC. 1. Pr. FLFR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than French. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLFR 3310 FRENCH BUSINESS COMMUNICATION (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428. Intensive practice in preparing commercial correspondence and reading contracts, agreements, and related documents in French. Emphasis will be placed on the acquisition of a business vocabulary.

FLFR 3510 TOPICS IN FRENCH LITERATURE AND CULTURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Topics drawing from French literature, history, fine arts, or culture of general interest to students with little or no previous study of French.

FLFR 3930 DIRECTED STUDIES (1-3) AAB/IND. Pr., Departmental approval. Directed study in an area of special interest to the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4000 SENIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior or advanced level, taken on an approved Study Abroad program. Students should consult with the undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 4020 APPLIED FRENCH SKILLS (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Practice in writing and analyzing French texts, with emphasis on advanced grammar topics and stylistics.

FLFR 4030 FRENCH CONVERSATION AND CULTURE II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in spoken French to maintain and upgrade proficiency. Major credit will not be given for FLFR or FLFT majors.

FLFR 4040 READING & WRITING IN FRENCH II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in written French to maintain and upgrade proficiency.

FLFR 4310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. A grade of D or higher in FLFR 3000-3999 or Departmental approval. Practical exercises in preparing and translating trade correspondence and documents in French as well as assigned group work and case studies under simulated on-the-job pressures.

FLFR 4410 ADVANCED TOPICS IN FRENCH LITERATURE, CULTURE, OR LANGUAGE (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428 or Departmental approval. Study of a special aspect or theme of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

FLFR 4740 TRANSLATION (3) LEC. 3. Basic techniques and problem areas in translating from French into English and from English into French.

FLFR 4930 ADVANCED DIRECTED STUDY (1-3) IND. Pr. A least 3 courses in FLFR 3000-3999. Directed study in area of special interest for the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4980 FRENCH SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLFR 5310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Practice in managing, preparing, and translating international trade correspondence documents and related legal procedures in French. Development of case studies and other international trade group work in French and in English under simulated real-life pressures.

FLFR 5970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999. Pr., Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 5980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Seminar in advanced languages skills or topics from French literary genres and movements.

FLFR 6310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Departmental approval. Practice in handling, preparing, and translating international trade correspondence documents and related legal procedures in French.

FLFR 6970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 6980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) AAB/SEM. 3. Seminar in advanced languages skills or topics from French literary genres and movements. Course may be repeated for a maximum of 9 credit hours.

FLFR 7000 GRADUATE FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken in an approved Study Abroad program. Students should consult with the French graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 7010 ADVANCED CONTEMPORARY CULTURE & POLITICS (3) LEC. 3. Pr., Departmental approval. In-depth study of French civilization with emphasis on the relationship of history, arts, and literature from prehistoric times to the present.

FLFR 7020 ADVANCED APPLIED FRENCH SKILLS (3) LEC. 3. Pr., Departmental approval. Acquisition of advanced writing skills in French. Techniques and strategies of appropriate stylistic expression through analysis of various sources of texts, including literary, historical, commercial, and popular.

FLFR 7430 FRENCH PRESS (3) LEC. 3. Pr., Departmental approval. Political, intellectual, and cultural events in France, Europe, and the world as reflected in major French daily and weekly publications.

FLFR 7740 ADVANCED TRANSLATION (3) LEC. 3. Pr., Departmental approval Acquisition of skills for translation from French to English and from English to French using a wide variety of texts including historical, literary, commercial, and popular sources.

FLFR 7920 WORLD LANGUAGE CAREER INTERNSHIP (1-6) INT. Pr., Departmental approval. Experiential learning either in the business community or in university-sponsored programs outside the United States. Course may be repeated for a maximum of 6 credit hours.

FLFR 7930 DIRECTED STUDIES IN LANGUAGE SKILLS (3) IND. 3. Departmental approval. Pr., Course may be repeated for a maximum of 6 credit hours.

FLFR 7960 SPECIAL PROBLEMS IN FRENCH LANGUAGE, LITERATURE OR CULTURE (1-3) IND. Pr., Departmental approval. Study in a specialized area under close supervision of an instructor. Course may be repeated for a maximum of 6 credit hours.

FLFR 7970 SPECIAL TOPICS (1-3) AAB. Pr., Departmental approval. Study of a specific aspect of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

Foreign Lng-German Courses

FLGR 1000 ELEMENTARY GERMAN ABROAD (1-10) AAB/IND. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in German. Course may be repeated for a maximum of 10 credit hours.

FLGR 1010 ELEMENTARY GERMAN I (4) LEC. 3. LAB. 2. Fundamentals of German language skills stressed. Exposure to German-speaking cultures. For students with no previous background or less than two years of high school German.

FLGR 1020 ELEMENTARY GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0241 or FLGR 1010. or acceptable score on the FL placement test. Review of basic German grammar and vocabulary. Fundamentals of German language skills with progressive emphasis on conversation. Fulfills the College of Liberal Arts world language core requirement.

FLGR 1030 READING PROFICIENCY IN GERMAN (3) LEC. 3. Instruction to enable graduate students to read and understand scholarly material in German related to their field of student. requirements. May not be used to satisfy undergraduate language requirements. Fall.

FLGR 1100 ACCELERATED ELEMENTARY GERMAN (6) LEC. 6. Basic concepts of German grammar, vocabulary, and culture. Fulfills the College of Liberal Arts world language requirement.

FLGR 2000 INTERMEDIATE GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 2010 INTERMEDIATE GERMAN I (4) LEC. 3. LAB. 2. Pr. LGER score of 0325 or FLGR 1020. or acceptable score on FL placement test. Language skills stressed; structural review and composition; introduction of longer reading texts and cultural comparisons.

FLGR 2020 INTERMEDIATE GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0372 or FLGR 2010. or acceptable score on FL placement test. Structural review and extemporaneous language skills stressed; additional work in composition; longer reading texts and cultural comparisons.

FLGR 3000 JUNIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 3010 GERMAN FLUENCY I: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German, German grammar, syntax, and vocabulary building for more formal settings.

FLGR 3017 HONORS GERMAN FLUENCY I: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German, German grammar, syntax, and vocabulary building for more formal settings.

FLGR 3020 GERMAN FLUENCY II: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German; continued review of German grammar and syntax; vocabulary building for formal settings.

FLGR 3027 HONORS GERMAN FLUENCY II: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German; continued review of German grammar and syntax; vocabulary building for formal settings.

FLGR 3030 THE SOUNDS OF GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Introduction of linguistic principles governing mechanics of spoken German; emphasizes English-German contrast and pronunciation difficulties; further development of conversation skills.

FLGR 3037 HONORS THE SOUNDS OF GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Introduction of linguistic principles governing mechanics of spoken German; emphasizes English-German contrast and pronunciation difficulties; further development of conversation skills.

FLGR 3050 EXPLORING GERMAN CINEMA (3) LEC. Sampling of important films from the 1920's to the present, including the intellectual, historical, cultural, and literary matrix of each film. Course may be repeated by majors for a maximum of 6 credit hours. Course may be repeated for a maximum of 6 credit hours.

FLGR 3100 TEXT AND CONTEXT: INTRODUCTION TO GERMAN LITERATURE (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Basic literary genres and important texts in the German-speaking literary landscape from the 18th century to the present. Analysis within their respective historical and cultural contexts. Learning critical concepts and skills around storytelling, narrative, and creative agency. Required of all majors.

FLGR 3110 GERMAN CULTURE THROUGH THE AGES (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political, and cultural history of German-speaking peoples from the Germanic tribes to 1870.

FLGR 3120 CONTEMPORARY ISSUES IN GERMAN CULTURE AND SOCIETY (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political, and cultural history of German-speaking countries from 1870 to the present.

FLGR 3150 TOPICS IN GERMAN LITERATURE, LANGUAGE, AND CULTURE (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428 or Departmental approval. Critical study of specific literary, linguistic, and/or cultural topics related to Germany. Course may be repeated with change in topics.

FLGR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN GERMAN (1) LEC. 1. Pr. FLGR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than German. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLGR 3930 DIRECTED STUDIES IN GERMAN (1-3) IND. Pr. LGER score of 0428 or Departmental approval. Directed study in area of special interest for the superior student in German. Course may be repeated for a maximum of 9 credit hours.

FLGR 4000 SENIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 4110 GERMAN LITERATURE IN CONTEXT I (3) LEC. 3. Pr. FLGR 3010 or Departmental approval. Selected readings by representative authors from the periods of Classicism, Romanticism, Realism, Naturalism. Analysis within their respective historical and cultural contexts. Mastering critical concepts and skills around storytelling, narrative, and creative agency.

FLGR 4120 GERMAN LITERATURE IN CONTEXT II (3) LEC. 3. Pr. FLGR 3010. or Departmental approval.Readings by representative German-speaking authors from the early 20th century to the post-war era. Textual analysis within their respective historical and cultural contexts. Mastering critical concepts and skills around storytelling, narrative, and creative agency.

FLGR 4150 UNDERSTANDING GERMAN THROUGH THEATER (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438. or Departmental approval.Consideration and analysis of selected theatrical works by German-speaking authors, playwrights, and performers from classical to contemporary traditions. Emphasis placed on audience awareness, performative practices, and mastering interactive language skills.

FLGR 4160 PERSPECTIVES ON GERMAN LITERATURE TODAY (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438 or Departmental approval. Consideration and analysis of contemporary texts. Focus on the broad diversity of genres and voices in the German literary scene.

FLGR 4310 GERMAN FOR THE PROFESSIONS AND THE WORKFORCE I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Refinement of language proficiency skills and cultural awareness in the context of professional and commercial German. Familiarization with German and European business practices.

FLGR 4317 HONORS GERMAN FOR THE PROFESSIONS AND THE WORKFORCE I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Refinement of language proficiency skills and cultural awareness in the context of professional and commercial German. Familiarization with German and European business practices.

FLGR 4320 GERMAN FOR THE PROFESSIONS AND THE WORKFORCE II (3) LEC. 3. Departmental approval. Continued development of German proficiency skills and cultural comparisons in the context of professional settings. Analysis of German and European business practices.

FLGR 4327 HONORS GERMAN FOR THE PROFESSIONS AND THE WORKFORCE II (3) LEC. 3. Continued development of German proficiency skills and cultural comparisons in the context of professional settings. Analysis of German and European business practices.

FLGR 4330 GERMAN FOR BUSINESS, SOCIETY, AND MEDIA (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428. Continued refinement of German proficiency skills and intercultural competence. Focus on current events, language variation, and debate culture through media.

FLGR 4337 HONORS GERMAN BUSINESS, MEDIA, AND SOCIETY (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428. Continued refinement of German proficiency skills and intercultural competence. Focus on current events, language variation, and debate culture through media.

FLGR 4910 PRACTICUM IN GERMAN (1-6) PRA. Pr., Departmental approval. Practical work experience related to major field. Number of credit hours and applicability toward major to be determined in consultation with the undergraduate director. Course may be repeated for a maximum of 6 credit hours.

FLGR 4950 SEMINAR IN GERMAN LITERATURE (3) SEM. 3. Pr. At least 3 credits in FLGR 3000-3999 or Departmental approval. Focused attention to texts from a specific period or genre. Analysis within their respective historical and cultural contexts. Mastering skills involved in literary analysis and rhetorical argument.

FLGR 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written paper and oral exam. Fall, Spring.

Foreign Lng-Global Cultures Courses

FLGC 1150 GLOBAL FLUENCY AND AWARENESS (3) LEC. 3. Introduction to non-native languages as representational reflections of two different cultural regions and impetus for in-depth analysis of global identities. May count either FLGC 1150 or FLGC 1153.

FLGC 3150 GLOBAL FLUENCY FOR THE WORKPLACE (1) LEC. 1. Pr. FLGC 1150. Capstone course for the Workplace Intercultural Competency Certificate in which students are required to demonstrate awareness of and respect for differing cultural perspectives in professional settings.

Foreign Lng-Greek Courses

FLGK 1010 ELEMENTARY ANCIENT GREEK I (4) LEC. 3. LAB. 2. Introduction to the knowledge and skills necessary for reading ancient Greek.

FLGK 1020 ELEMENTARY ANCIENT GREEK II (4) LEC. 3. LAB. 2. Pr. FLGK 1010. Pr. FLGK 1010 or Departmental approval. Introduction to the knowledge and skills necessary for reading ancient Greek.

FLGK 2010 INTERMEDIATE CLASSICAL GREEK I (4) LEC. 3. LAB. 2. Pr. FLGK 1020 or Departmental approval. Introduction to reading ancient Greek. prose and poetry.

FLGK 2020 INTERMEDIATE CLASSICAL GREEK II (4) LEC. 3. LAB. 2. Pr. FLGK 2010 or Departmental approval. Classical Greek. Continuation of FLGK 2010.

FLGK 2200 CLASSICAL MYTHOLOGY (3) LEC. 3. Survey, in English, of the major divine and heroic myths of ancient Greece and Rome, based on the ancient literary and artistic sources, their meanings/uses within cultural, literary, and historical contexts, and the long-lasting influence of classical mythology beyond antiquity.

FLGK 3110 CLASSICAL GREEK LITERATURE (3) LEC. 3. LAB. 2. Pr. FLGK 2010 or Departmental approval. Advanced readings in ancient Greek prose and poetry. Course may be repeated with change in topics.

FLGK 3510 CLASSICAL GREEK LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Classical Greek cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLGK 3930 DIRECTED STUDIES IN ANCIENT GREEK LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of classical Greek text(s). Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topics.

Foreign Lng-Italian Courses

FLIT 1000 ELEMENTARY ITALIAN ABROAD (1-10) AAB/FLD. Pr. Departmental approval. Course work at the elementary level taken in an approved Study Abroad program. Students should consult the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 1010 ELEMENTARY ITALIAN I (4) LEC. 3. LAB. 2. Basic language skills in Italian; exposure to culture.

FLIT 1020 ELEMENTARY ITALIAN II (4) AAB/LLB. Pr. FLIT 1010 or FLIT 1013 or Departmental approval. Continuation of basic language skills; exposure to culture. Fulfills the College of Liberal Arts world language core requirement.

FLIT 2000 INTERMEDIATE ITALIAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 2010 INTERMEDIATE ITALIAN I (4) LEC. 3. LAB. 2. Pr. FLIT 1020 or Departmental approval. Special emphasis on conversation and Italian culture. Language skills stressed, grammar review. Fall.

FLIT 2020 INTERMEDIATE ITALIAN II (4) LEC. 3. LAB. 2. Pr. FLIT 2010 or Departmental approval. Special emphasis on reading skills and Italian culture. Review of Italian grammar for English speakers. Spring.

FLIT 3000 JUNIOR ADVANCED ITALIAN ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLIT 3030 ITALIAN CONVERSATION (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Intensive practice in spoken Italian, based on texts and everyday situations, especially in contemporary Italian society; includes review of vocabulary.

FLIT 3040 ITALIAN COMPOSITION (3) LEC. 3. Pr. FLIT 2020 or Departmental approval. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLIT 3050 ITALIAN CINEMA (3) LEC. 3. Sampling of important films from the time of the telefoni bianchi (1937) to the present (major directors and trends), including the intellectual, historical, cultural, and literary matrix of each film.

FLIT 3110 SPECIAL TOPICS IN ITALIAN (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Supplementary instruction in Italian language, literature, culture. Course may be repeated for a maximum of 9 credit hours.

FLIT 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN ITALIAN (1) LEC. 11. Pr. FLIT 1020 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Italian. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLIT 3510 INTRODUCTION TO ITALIAN CULTURE IN ENGLISH (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Italian culture, as reflected in arts, film, literature, history. Course may be repeated for a maximum of 9 credit hours.

FLIT 3930 DIRECTED STUDIES IN ITALIAN (1-3) IND. Departmental approval. Directed study in area of special interest for the superior student in Italian. Course may be repeated with change in topics.

FLIT 5970 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Pr., Departmental approval. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval.

FLIT 6970 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval. Course may be repeated for a maximum of 9 credit hours.

Foreign Lng-Japanese Courses

FLJP 1000 ELEMENTARY JAPANESE ABROAD (1-10) LEC. Course work at the elementary level take on an approved Study Abroad program. Learning modern Japanese listening, writing, and reading in an integrated manner through an approved Study Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLJP 1010 ELEMENTARY JAPANESE I (4) LEC. 3. LAB. 2. Fundamentals of Japanese. Stress on language skills with progressive emphasis on conversation; exposure to Japanese civilization. Fall.

FLJP 1020 ELEMENTARY JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 1010 or Departmental approval. Stress on language skills; structural review and composition: readings in Japanese literature and exposure to Japanese culture and civilization.

FLJP 2000 INTERMEDIATE JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 2010 INTERMEDIATE JAPANESE I (4) LEC. 3. LAB. 2. Pr. FLJP 1020 or Departmental approval. Stress on language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 2020 INTERMEDIATE JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 2010 or Departmental approval. Continuation of FLJP 2010. Language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 3000 ADVANCED JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 3010 JAPANESE COMPOSITION AND CONVERSATION (3-6) AAB. Pr. FLJP 2010 or Departmental approval. Intensive practice of written and spoken Japanese, based on contemporary social situations and texts. Course may be repeated for a maximum of 6 credit hours.

FLJP 3020 JAPANESE COMPOSITION AND CONVERSATION II (3) LEC. 3. Pr. FLJP 3010. Additional intensive practice of written and spoken Japanese, based on contemporary social situations and texts.

FLJP 3050 JAPANESE CINEMA (3) LEC. 3. Introduction to Japanese films, with particular focus on representations of history from the 1930s to the present. Course may be repeated for a maximum of 6 credit hours.

FLJP 3100 EXTENSIVE READING: TADOKU (1) LEC. 1. SU. Pr. FLJP 1010. Development of Japanese reading skills, the acquisition of vocabulary and grammar and understandings of culture and context. Course may be repeated for a maximum of 3 credit hours. May need instructor’s approval. Students do not have to be currently enrolled in a Japanese language course.

FLJP 3450 TOPICS IN JAPANESE LITERATURE AND CULTURE (3-6) AAB/LEC. Critical study of specific Japanese literary and cultural topics. Course may be repeated for a maximum of 6 credit hours.

FLJP 3650 SURVEY OF MODERN JAPANESE LITERATURE (3) LEC. 3. Introduction to major works of modern Japanese literature translated into English, from the late 19th century to present.

FLJP 3750 SURVEY OF TRADITIONAL JAPANESE LITERATURE (3) LEC. 3. Introduction to major works of traditional Japanese literature translated into English, from Early (to 794 CE) to Edo (1600-1868) period.

FLJP 3930 DIRECTED STUDY IN JAPANESE (3) LEC. 3. Pr. FLJP 2020. Directed study in area of special interest for the superior student in Japanese. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Korean Courses

FLKN 1000 ELEMENTARY KOREAN ABROAD (1-10) LEC. 1-10. This is an entry level course for beginners without any background in Korean. This class will help students learn all four skills of modern Korean--speaking, listening, writing, and reading--while studying abroad. Course may be repeated for a maximum of 10 credit hours.

FLKN 1010 ELEMENTARY KOREAN I (4) LEC. 4. Course for beginners without any background in Korean. This class will help students learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 1020 ELEMENTARY KOREAN II (4) LEC. 4. Pr. FLKN 1010. Course to help students continue to learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 2000 INTERMEDIATE KOREAN ABROAD (1-10) LEC. 1-10. Pr. FLKN 1020. This course will help students learn all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level while studying abroad. Permission from instructor required. Course may be repeated for a maximum of 10 credit hours.

FLKN 2010 INTERMEDIATE KOREAN I (4) LEC. 4. Pr. FLKN 1020. Students will continue learning all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level.

FLKN 2020 INTERMEDIATE KOREAN II (4) LEC. 4. Pr. FLKN 2010. Students will master all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level.

FLKN 2100 KOREAN FOR HERITAGE LEARNERS (4) LEC. 4. The focus of this course is to help heritage learners of Korean improve all four skills of modern Korean--speaking, listening, writing, and reading, with a focus on reading and writing. Permission by instructor required.

FLKN 3000 ADVANCED KOREAN ABROAD (1-10) LEC. 1-10. Pr. FLKN 2020. This course will help students learn all four skills of modern Korean--speaking, listening, writing, and reading--at the advanced level while studying abroad. Approval by instructor required. Course may be repeated for a maximum of 10 credit hours.

FLKN 3010 ADVANCED KOREAN I (3) LEC. 3. Pr. FLKN 2010. Students will continue learning all four skills of modern Korean--speaking, listening, writing, and reading--at the advanced level.

FLKN 3020 ADVANCED KOREAN II (3) LEC. 3. Pr. FLKN 3010. Students will master all four skills of modern Korean--speaking, listening, writing, and reading--at the advanced level.

FLKN 3050 KOREAN CINEMA (3) LEC. 3. Major works of Korean film.

FLKN 3150 KOREAN PROFICIENCY THROUGH POPULAR CULTURE (3) LEC. 3. Pr. FLKN 3010. Students will improve their Korean proficiency through studying popular culture. Course may be repeated for a maximum of 6 credit hours.

FLKN 3450 TOPICS IN KOREAN LITERATURE AND CULTURE (3) LEC. 3. Pr. FLKN 3010. Advanced Korean class, focusing on the study of Korean language, culture, history, and religion. Course may be repeated for a maximum of 6 credit hours.

FLKN 3510 INTRODUCTION TO KOREAN CULTURE IN ENGLISH (3) LEC. 3. Introductory knowledge of Korean culture as depicted in literature, film, and history. No knowledge of Korean required. Course will be taught in English. Course may be repeated for a maximum of 6 credit hours.

FLKN 3930 DIRECTED STUDY IN KOREAN (3) LEC. 1, IND/ST1. 2. Pr. FLKN 2010. Departmental approval. Directed study in area of special interest for the superior student in Korean. Course may be repeated for a maximum of 6 credit hours.

FLKN 4010 ORAL PROFICIENCY IN KOREAN (3) LEC. 3. Proficiency oriented course designed to further develop speaking and comprehension skills in Korean on a variety of topics.

FLKN 4310 KOREAN FOR CAREER PROFESSIONALS (3) LEC. 3. Pr. FLKN 3010. Students will build advanced-level communication skills needed for a variety of Korean business settings.

Foreign Lng-Latin Courses

FLLN 1010 ELEMENTARY LATIN I (4) LEC. 3. LAB. 2. For students with little or no knowledge of Latin. Knowledge and skills necessary for reading classical Latin.

FLLN 1020 ELEMENTARY LATIN II (4) LEC. 3. LAB. 2. Pr. FLLN 1010 or FLLN 1013. Departmental approval. Introduction to the knowledge and skills necessary for reading classical Latin. Fulfills College of Liberal Arts core world language requirement.

FLLN 2010 INTERMEDIATE LATIN I (4) LEC. 4. Pr. FLLN 1020 or FLLN 1023. Four years of high school Latin or Departmental approval. Review of classical Latin grammar with reading of selections from Latin literature. Fall.

FLLN 2020 INTERMEDIATE LATIN II (4) LEC. 3. LAB. 2. Pr. FLLN 2010. or Departmental approval.. Continuation of FLLN 2010. Review of classical Latin grammar with reading of selections from Latin literature. Fulfills the College of Liberal Arts world language core requirement.

FLLN 3110 LATIN LITERATURE (3) LEC. 3. Pr. FLLN 2010 or Departmental approval. Advanced readings in Latin prose and poetry. Course may be repeated with change in topic.

FLLN 3510 ROMAN LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Roman cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLLN 3930 DIRECTED STUDIES IN LATIN LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of Latin texts. Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topic.

Foreign Lng-Russian Courses

FLRU 1010 ELEMENTARY RUSSIAN I (4) LEC. 3. LAB. 2. Fundamentals of Russian. Language skills; progressive emphasis on conversation; exposure to Russian culture and civilization.

FLRU 1020 ELEMENTARY RUSSIAN II (4) LEC. 3. LAB. 2. Pr. FLRU 1010 or FLRU 1013. Fundamentals of Russian. Stress on language skills; progressive emphasis on conversation; exposure to Russian culture and civilization. Fulfills College of Liberal Arts world language core requirement.

Foreign Lng-Spanish Courses

FLSP 1000 ELEMENTARY SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program credit may substitute for required 1000-level courses in Spanish. Course may be repeated for a maximum of 10 credit hours.

FLSP 1010 ELEMENTARY SPANISH I (4) LEC. 3. LAB. 2. Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than two years of high school Spanish.

FLSP 1017 HONORS ELEMENTARY SPANISH I (4) LEC. 5. Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than two years of high school Spanish.

FLSP 1020 ELEMENTARY SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0241 or FLSP 1010 or FLSP 1013. or acceptable score on FL placement test. Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts world language core requirement.

FLSP 1027 HONORS ELEMENTARY SPANISH II (4) LEC. 5. Pr. LSPA score of 0241 or FLSP 1010 or FLSP 1013. or acceptable score on FL placement test. Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts world language core requirement.

FLSP 1030 READING PROFICIENCY IN SPANISH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly material in Spanish related to their field of study. May not be used to satisfy undergraduate language requirements. Spring.

FLSP 2000 INTERMEDIATE SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 2010 INTERMEDIATE SPANISH I (4) LEC. 3. LAB. 2. Pr. LSPA score of 0325 or FLSP 1020. or acceptable score on FL placement test or Departmental approval. Review of grammatical structures, development of reading, writing, and conversation skills, in addition to increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2017 HONORS INTERMEDIATE SPANISH I (4) LEC. 2. LAB. 2. Pr. Honors College. FLSP 1020 or LSPA minimum score of 325. Review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 2020 INTERMEDIATE SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0372 or FLSP 2010 or FLSP 2017. or acceptable score on FL placement test. Continued review of grammatical structures, development of reading, writing, and conversation skills, in addition to increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2027 HONORS INTERMEDIATE SPANISH II (4) LEC. 2. LAB. 2. Pr. Honors College. FLSP 2010 or FLSP 2013 or FLSP 2017 or LSPA minimum score of 372. Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 3000 JUNIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 3010 SPANISH PHONETICS (3) LEC. 45, AAB/LEC. 0. Pr. FLSP 3060 or FLSP 3063. Training in practical phonetics with an emphasis on pronunciation correctives. Fall, Spring.

FLSP 3050 SPANISH SYNTAX (3) LEC. 3. Pr. FLSP 2020 or FLSP 2027. or exam. In this course, the function of the different parts of speech (e.g., prepositions, adverbs, determiners, pronouns, verbs, conjunctions) will be examined, and students will learn to diagram simple and complex hierarchical sentence structure using syntactic trees.

FLSP 3060 COMMUNICATIVE SKILLS IN SPANISH I (3) LEC. 3. Pr. LSPA score of 0428 or FLSP 2020 or FLSP 2027. The first in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3070 COMMUNICATIVE SKILLS IN SPANISH II (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. The second in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3080 INTRO TO CULTURAL ANALYSIS (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. A general introduction to the analysis of Hispanic societies through their diverse cultural practices, local customs, and languages. This class explores how were Hispanic societies formed, the effects of globalization, and their diverse cultural and national identities. Spring.

FLSP 3090 SPANISH FOR HEALTH PROFESSIONS (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. Advanced Spanish for students interested in healthcare careers. Designed to improve spoken and written communicative skills in a Spanish-speaking environment.

FLSP 3097 HONORS SPANISH FOR HEALTH PROFESSIONS (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. Advanced Spanish for students interested in healthcare careers. Designed to improve spoken and written communicative skills in a Spanish-speaking environment.

FLSP 3100 INTRODUCTION TO HISPANIC LITERATURE (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. Study of literary genres, rhetorical figures, and other critical concepts. Literary analysis of Spanish and Spanish-American texts. Fall.

FLSP 3110 CULTURES OF SPAIN (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. An introduction to the social and cultural diversity of Spain. This class explores the ethnic and linguistic diversity of the country, the historical events that forged contemporary Spain, and the cultural plurality of the country.

FLSP 3130 TOPICS IN HISPANIC FILM (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Study of film as a window into Hispanic cultures, both Spanish and Spanish American. Course may be repeated for a maximum of 6 credit hours.

FLSP 3140 TOPICS IN HISPANIC MUSIC (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Study of the interrelationship of Hispanic music and Spanish and Spanish-American cultures. Course may be repeated for a maximum of 6 credit hours.

FLSP 3150 TOPICS IN HISPANIC MEDIA (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Develops students' cultural awareness through a series of written assignments organized around major journalistic and academic genres. We will investigate contemporary issues as presented in the media of Spain, Latin America and U.S. Latino communities. Course may be repeated for a maximum of 6 credit hours.

FLSP 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN SPANISH (1) LEC. 1. Pr. FLSP 2010 or FLSP 2017 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Spanish. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLSP 3210 CULTURES OF SPANISH AMERICA (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. An introduction to the social and cultural diversity of Spanish America. This class explores the cultural, ethnic and linguistic diversity of the Spanish American countries, and the historical events that forged them.

FLSP 3220 HISPANIC CULTURES IN THE U. S. (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. An introduction to the social and cultural diversity of Hispanic U.S. This class explores the diversity in ethnicity, traditions, and arts of Hispanics in the country, the historical events that forged such diversity, and their cultural plurality.

FLSP 3310 SPANISH TRANSLATION AND INTERPRETATION (3) LEC. 3. Pr. FLSP 3070. Introduction to the techniques of English/Spanish and Spanish/English translation in a commercial environment, including correspondence, technical documents, advertising and oral translation. Fall.

FLSP 3930 DIRECTED STUDY IN SPANISH (3) IND. 3. Pr. FLSP 3060. Departmental approval. Development of an advanced-level of Spanish proficiency in listening, speaking, reading, and writing. Course may be repeated for a maximum of 6 credit hours.

FLSP 4000 SENIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 4010 ORAL PROFICIENCY IN SPANISH (3) LEC. 3. Pr. FLSP 3060. Proficiency oriented course designed to further develop speaking and comprehension skills in Spanish in a variety of topics.

FLSP 4020 CONTINUING SPANISH SYNTAX (1-3) AAB/IND. Departmental approval. Continuing practice in Spanish syntax. Course may be repeated for a maximum of 3 credit hours.

FLSP 4030 SPANISH LINGUISTICS (3) LEC. 3. Pr. FLSP 3070. This course introduces students to Spanish linguistics and the basic concepts of some of its principal branches. The primary areas include phonetics and phonology, syntax, morphology, semantics, pragmatics, history of the Spanish language, and linguistics as a cognitive science.

FLSP 4110 MASTERPIECES OF SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100 or FLSP 3080. Major works of Spanish literature from medieval times to the present.

FLSP 4120 TOPICS IN SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100 or FLSP 3080. Readings in Spanish literature. Course may be repeated with change in topic.

FLSP 4210 MASTERPIECES OF SPANISH-AMER LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100 or FLSP 3080. Major works of Spanish American literature from colonial times to the present.

FLSP 4220 TOPICS IN SPANISH-AMERICAN LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100 or FLSP 3080. Readings in Spanish-American Literature. Course may be repeated with a change in topic.

FLSP 4310 BUSINESS SPANISH (3) LEC. 3. Pr. FLSP 3060. Business vocabulary and terminology, business practices, and cultural influences in the Hispanic world.

FLSP 4330 TOPICS IN HISPANIC COMMERCIAL WORLD (3) LEC. 3. Pr. FLSP 3070. Study of an aspect of Spanish business terminology or documentation. Course may be repeated with change in topic. Course may be repeated for a maximum of 6 credit hours.

FLSP 4420 TOPICS IN HISPANIC LITERATURE, CULTURE, AND LINGUISTICS (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Study of specialized periods or concepts in Hispanic literature, culture, or linguistics. Course may be repeated for a maximum of 6 credit hours.

FLSP 4910 PRACTICUM IN SPANISH (1-3) AAB/PRA. Pr., Departmental approval. Practical work experience related to the major field. Course may be repeated for a maximum of 3 credit hours.

FLSP 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLSP 5010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. FLSP 3070. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 5020 ADVANCED SPANISH SYNTAX (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3070. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students.

FLSP 5030 ADVANCED CULTURE AND LITERATURE OF THE SPANISH SPEAKING WORLD (3) LEC. 3. Pr. FLSP 3070 and FLSP 3080. A grade of C or better in at least 4 courses FLSP 3000-3999 or departmental approval. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 6010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Four courses or Departmental approval. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 6020 ADVANCED SPANISH SYNTAX (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Advanced training in Spanish syntax and morphology to carry out syntactic analysis for graduate students and undergraduate students who have previously completed FLSP 3050.

FLSP 6030 ADVANCED CULTURE AND LITERATURE OF SPANISH SPEAKING WORLD (3) LEC. 3. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 7000 GRADUATE SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken on an approved Study Abroad program. Students should consult with the Spanish graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 7010 HISTORY OF THE SPANISH LANGUAGE (3) LEC. 3. Diachronic study of the development of the Spanish language from its Latin origins to the present.

FLSP 7020 SPANISH LINGUISTICS (3) LEC. 3. Synchronic study of the Spanish language focusing on phonology, morphology, syntax, and lexicon, taking into consideration dialectal differences.

FLSP 7030 APPLIED SPANISH LINGUISTICS (3) LEC. 3. Critical study of current research in applied linguistics regarding the acquisition of Spanish by non-native speakers, with emphasis on the problems faced by adult English-speaking individuals.

FLSP 7050 LITERARY CRITICISM AND THEORY (3) LEC. 3. Contemporary literary criticism and theory as it relates to Spanish and Spanish-American literature.

FLSP 7060 RESEARCH METHODS (1) LEC. 1. SU. Methods of scholarly investigation in literary history and criticism. Credit may not be used to satisfy degree requirements.

FLSP 7090 INTRODUCTION TO COLLEGE LEVEL SPANISH INSTRUCTION (3) LEC. 3. Instruction for GTAs, including critical observation in performance and guidance by a designated supervisory professor. Required of all students who hold a graduate teaching assistantship.

FLSP 7100 SPANISH MEDIEVAL LITERATURE I (3) LEC. 3. Critical and historical study of medieval Spanish literature through representative texts from the various genres of the period beginning with the origins of Spanish literature until 1299.

FLSP 7110 SPANISH MEDIEVAL LITERATURE II (3) LEC. 3. Study of medieval Spanish literature through representative texts from the various genres of the period 1300-1500.

FLSP 7120 16TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres from around 1492 to the end of the 16th century.

FLSP 7130 17TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres in the 17th century with emphasis on Baroque literature.

FLSP 7140 SURVEY OF 18TH AND 19TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Survey of the major literary, cultural, and historical trends in 18th and 19th century Spanish literature.

FLSP 7150 HISPANIC COLONIAL LITERATURE OF THE UNITED STATES (3) LEC. 3. Literature about the colonial Hispanic exploration and colonization of the United States from the 16th to 19th centuries.

FLSP 7160 20TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of 20th-century Peninsular literature from the Generation of 98 to Spanish post-war literature through representative works in all genres.

FLSP 7170 CONTEMPORARY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of contemporary literature from the Spanish Civil War to the present through representative works in all genres.

FLSP 7210 COLONIAL SPANISH-AMERICAN LITERATURE (3) LEC. 3. Study of representative literary genres and authors of Vice Regal America from Spanish transcription of pre-Columbian works to those just prior to the Wars of Independence.

FLSP 7220 SPANISH-AMERICAN POETRY I (3) LEC. 3. Critical and historical study of Spanish-American poetry from 1824 to the first generation of modernism.

FLSP 7230 SPANISH-AMERICAN POETRY II (3) LEC. 3. Critical and historical study of Spanish-American poetry from post-modernism to the present.

FLSP 7240 SPANISH-AMERICAN POST-COLONIAL PROSE TEXTS TO THE NEW NARRATIVE (3) LEC. 3. Critical and historical study of representative essayists and fiction writers of the 19th and 20th centuries predating the New Narrative.

FLSP 7250 THE NEW NARRATIVE IN SPANISH-AMERICAN FICTION: MODERNIST AND POST-MODERNIST TEXTS (3) LEC. 3. Critical and historical study of major works of modernist and post-modernist fiction that achieved international acclaim during the second half of the 20th century.

FLSP 7270 SPANISH AMERICAN THEATER I (3) LEC. 3. Critical and historical study of the Spanish-American theater, with emphasis on the period prior to 1900.

FLSP 7280 SPANISH AMERICAN THEATER II (3) LEC. 3. Critical and historical study of the Spanish-American theater from 1900 to present.

FLSP 7300 DON QUIJOTE (3) LEC. 3. Critical study of Cervantes' masterpiece.

FLSP 7970 SPECIAL TOPICS IN LINGUISTICS, LITERATURE AND CULTURE (3) AAB. 3. Pr., BA in Spanish or BS in Foreign Language Education in Spanish. In-depth study of an author or authors and analysis of the cultural milieu influencing their creativity or investigation of a specific linguistic phenomenon in Spanish. Course may be repeated with a change in topic. Course may be repeated with change in topics.

FLSP 7990 RESEARCH AND THESIS (1-10) MST. Directed readings and research culminating in a thesis. Course may be repeated with change in topic.

Health Administration Courses

HADM 2100 MEDICAL TERMINOLOGY (3) LEC. 3. Prefixes, suffixes, and word roots used in the language of medicine; medical vocabulary and terms related to the health care field.

HADM 3000 GATEWAY TO HEALTH CARE ADMINISTRATION (3) LEC. 3. Basic concepts and principles of health care administration.

HADM 3300 HEALTH CARE POLICY (3) LEC. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (P/C HADM 2100 or P/C HADM 2103). Political policies that affect health care services.

HADM 3700 HEALTH LAW (3) LEC. 3. Legal issues that arise between patients and health care providers.

HADM 3800 HEALTH CARE ANALYTICS (3) LEC. 3. Pr. (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610) and (MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683) and (ACCT 2110 or ACCT 2117). Majors only. This course focuses on using big data to drive decision making and improve health care quality through data aggregation and validation, strategic management data manipulation and technical reporting implementation.

HADM 4000 HEALTHCARE MANAGEMENT & LEADERSHIP (3) LEC. 3. Pr. HADM 3300 and HADM 3800. Health Services Administration major only. Organizational strategies for effective interfacing of medical, nursing, allied health and administrative staff with patient needs.

HADM 4200 HEALTH CARE INSURANCE AND REIMBURSEMENT (3) LEC. 3. Pr. HADM 3000 and HADM 3700 and HADM 3800. Health Services Administration major only. Health insurance operations, principles, payment methods and contracts.

HADM 4810 CHANGE IN HEALTH ADMINISTRATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Changes in modern technology, cultural diversity, and governmental policies on the administration of health services organizations.

HADM 4820 LONG-TERM CARE ADMINISTRATION (3) LEC. 3. Pr. P/C HADM 4000. Health Services Administration major only. Analysis of the components (e.g. nursing homes, home health care) of the long-term care system for the elderly.

HADM 4830 COMPARATIVE HEALTH CARE SYSTEMS (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Comparative Study and analysis of health care systems around the world.

HADM 4840 DATA-DRIVEN DECISION MAKING IN HEALTH CARE (3) LEC. 3. LAB. 0. Pr. P/C HADM 4200 and HADM 3800. An evaluation of current healthcare quality reporting requirements and how quality reporting relates to improving patient outcomes across all healthcare venues.

HADM 4850 LONG-TERM CARE POLICY (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Policy issues surrounding the provision of long-term care to the elderly.

HADM 4880 HEALTH INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HADM 4000 and HADM 4200. Health Services Admiistration major only. Overview and utilization of health care information technology in health care administration.

HADM 4890 ELECTRONIC HEALTH RECORD APPLICATIONS (3) LEC. 3. Pr. HADM 4000 and HADM 3300 and HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. This course covers the definition, benefits, regulations, standards, functionality, and impact of Electronic Health Records (EHR) in the healthcare environment. The course provides the student with a thorough understanding of the terminology of EHR systems as well as practical experience with the clinical and administrative use of EHRs in a medical settings.

HADM 4920 INTERNSHIP (6) AAB/INT. 6. SU. Pr. HADM 4000 and HADM 4200 and FINC 3810 or (FINC 3610 or FINC 3613 or FINC 3617) and (HRMN 3420 or HRMN 3423) or (MNGT 3423 or MNGT 3420). Health Services Administration major only. Internship in selected areas of Health Administration.

HADM 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. HADM 3000 and ACCT 2100 and (MATH 1680 or MATH 1683) and (MATH 1610 or MATH 1613 or MATH 1617) and (STAT 2010 or STAT 2017) or (STAT 2510 or STAT 2513) or STAT 2610. Health Services Administration major only. This course is designed to facilitate an independent study in an area of special interest of the student and a sponsoring faculty member. Course may be repeated for a maximum of 3 credit hours.

HADM 4950 CAPSTONE SEMINAR (3) LEC. 3. Pr. HADM 4000 and HADM 4200 and (FINC 3810 or FINC 3610 or FINC 3613 or FINC 3617). Health Services Administratrion major only. Integrates knowledge from courses and internship; applies managerial and research skills to the completion of a research project and the organization of a research symposium.

HADM 4960 SPECIAL PROBLEMS IN HEALTH ADMINISTRATION (1-6) IND. Pr. HADM 3300. Directed readings in Health Administration. Course may be repeated for a maximum of 6 credit hours.

HADM 4970 SPECIAL TOPICS (3) ST1. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683) or (MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. Special Topics courses are used to inform and educate students about new and emerging changes within the health care field. The Topics addressed change to coincide with changes in the health care environment. Course may be repeated for a maximum of 6 credit hours.

History Courses

HIST 1000 AUBURN IN THE WORLD: INDUSTRY AND SOCIETY (4) LEC. 3. LAB. 1. Part of the Auburn Global International Accelerator Program, HIST1000 exposes first-year students to Auburn, Alabama, and regional history from a wide range of perspectives, among them social, cultural, and environmental changes, economics, technology, and politics.

HIST 1010 WORLD HISTORY I (3) LEC. 3. History Core. Survey of world history from early humanity to the 1500s. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures. May count either HIST 1010 or HIST 1013.

HIST 1017 HONORS WORLD HISTORY I (3) LEC. 3. Pr. Honors College. History Core. Survey of world history from early humanity to the 1500s. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures.

HIST 1020 WORLD HISTORY II (3) LEC. 3. History Core. Survey of world history from the 1500s to the present. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures.

HIST 1027 HONORS WORLD HISTORY II (3) LEC. 3. Pr. Honors College. History Core. Survey of world history from the 1500s to the present. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures.

HIST 1210 TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1217 HONORS TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1220 TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 1227 HONORS TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 2010 SURVEY OF UNITED STATES HISTORY TO 1877 (3) LEC. 3. Social, political, and economic development of the United States from earliest occupation through Reconstruction. May count either HIST 2010 or HIST 2013.

HIST 2020 SURVEY OF UNITED STATES HISTORY SINCE 1877 (3) LEC. 3. Social, political, and economic development of the United States from the end of Reconstruction to the present.

HIST 2070 SURVEY OF EUROPEAN HISTORY FROM THE RENAISSANCE TO 1789 (3) LEC. 3. Survey of European history from the first outbreak of the bubonic plague to the eve of the French Revolution.

HIST 2080 SURVEY OF EUROPEAN HISTORY FROM 1789 PRESENT (3) LEC. 3. European history from the French Revolution to the present.

HIST 2100 SURVEY OF LATIN AMERICAN HISTORY (3) LEC. 3. Latin American history from its Amerindian beginnings to the present.

HIST 2110 SURVEY OF ASIAN HISTORY (3) LEC. 3. Asian history from prehistoric times to the present.

HIST 2120 SURVEY OF MODERN AFRICAN HISTORY (3) LEC. 3. Modern African history, from the end of the slave trade to the rise of nationalism and independence.

HIST 2130 SURVEY OF MIDDLE EASTERN HISTORY I (3) LEC. 3. The course examines the history of the Middle East from late antiquity to the Ottoman era.

HIST 2140 SURVEY OF MIDDLE EASTERN HISTORY II (3) LEC. This course is a survey of Middle Eastern history from the Ottoman era to the present.

HIST 3000 HISTORY OF SOUTHEASTERN INDIANS (3) LEC. 3. History of the southeastern Indians from pre-contact to removal, including native culture, cultural change, trade, imperial rivalries, and wars.

HIST 3010 HISTORY OF ALABAMA (3) LEC. 3. Broad study of Alabama history since its European settlement.

HIST 3020 HISTORY OF WOMEN IN THE UNITED STATES (3) LEC. 3. History of women in America from colonial period to the present; explores differences of region, race, and class.

HIST 3030 AFRICAN-AMERICAN HISTORY (3) LEC. 3. History of African Americans from African origins to the modern era, focusing on enslavement, emancipation and the struggle for equal rights.

HIST 3040 AMERICAN RELIGIOUS HISTORY (3) LEC. 3. Religious ideas and institutions from the colonial period to the present, including how religion has intersected with political and social history.

HIST 3060 ISSUES IN AFRICAN-AMERICAN HISTORY (3) LEC. 3. Issues and personalities in African-American history. Course may be repeated for a maximum of 6 credit hours.

HIST 3080 THE CIVIL RIGHTS MOVEMENT (3) LEC. 3. History of the civil rights movement and its place in the broader African-American struggle for freedom. Social, political, and cultural history, with geographic and chronological focus on the United States South in the post-World War II period.

HIST 3090 HISTORY OF APPALACHIA (3) LEC. 3. Survey of the history of the Appalachian region from before European contact to the present.

HIST 3100 THE CIVIL WAR IN AMERICAN MEMORY (3) LEC. 3. A survey of the ways that Americans have remembered their civil war from 1865 to the present.

HIST 3300 GRECO-ROMAN CIVILIZATION (3) LEC. 3. Classical civilizations of the Greeks and Romans as well as the Egyptian and Persian civilizations that influenced them.

HIST 3310 EUROPE IN THE MIDDLE AGES (3) LEC. 3. Survey of the thousand years that has been called the birth of Europe.

HIST 3330 ISSUES IN THE HISTORY OF GERMANY AND CENTRAL EUROPE (3) LEC. 3. Variable topics in the history of Germans, Slavs, and other Central Europeans from the Era of Enlightened Absolutism through the fall of the Berlin Wall. Course may be repeated for a maximum of 6 credit hours.

HIST 3340 ISSUES IN THE HISTORY OF MODERN FRANCE (3) LEC. 3. Focus on specific issues, themes, or topics within the political, social, or cultural history of France between the 18th and 20th centuries. Themes will vary.

HIST 3350 SURVEY OF RUSSIAN HISTORY (3) LEC. 3. Russian history from the earliest development of a state in the area of Kiev down to the present Russian Federation.

HIST 3370 EUROPE AND THE WORLD (3) LEC. 3. Variable topics in the history of European interactions with non-European peoples, cultures, politics, and societies.

HIST 3500 HISTORY OF AVIATION (3) LEC. 3. History of aviation from the beginnings of human flight to the present.

HIST 3510 HISTORY OF SPACE EXPLORATION (3) LEC. 3. Origins, motivations, and culture of space exploration in a global context.

HIST 3520 SCIENTIFIC REVOLUTIONS (3) LEC. 3. History of science, focusing on the concept of scientific revolutions in their social and intellectual context.

HIST 3530 SCIENCE FICTION AS INTELLECTUAL HISTORY (3) LEC. 3. Interaction between science, technology, and other aspects of modern culture as dramatized in classic and contemporary works of science fiction.

HIST 3540 ISSUES IN TECHNOLOGY AND CULTURE (3) LEC. 3. Issues such as the automobile, environment, industrialization, and popular culture relating to the role technology plays in society and culture. Course may be repeated for a maximum of 6 credit hours.

HIST 3550 AMERICAN ENVIRONMENTAL HISTORY (3) LEC. 3. Environmental history of the United States from colonial era to present.

HIST 3560 TECHNOLOGY AND GENDER HISTORY (3) LEC. 3. Exploration of the relationship between gender and technology in comparative cultural, social, and historical perspectives from 18th century to present.

HIST 3570 THE AUTOMOBILE IN HISTORY (3) LEC. 3. Global history of the automobile, including technological developments as well as role of the automobile in culture.

HIST 3580 ISSUES IN THE HISTORY OF MEDICINE (3) LEC. 3. In this course students will explore the changing relationship between medicine, health, and society in different historical and geographic contexts. Themes will vary. Course may be repeated for a maximum of 6 credit hours.

HIST 3590 ISSUES IN FOOD AND AGRICULTURE (3) DSL/LEC. This course looks at the history of agricultural systems, foodways, and food politics. It explores debates and trends in food and agriculture and the social and cultural forces driving them.

HIST 3600 ISSUES IN WOMEN'S AND GENDER HISTORY (3) LEC. 3. Topics in the history of women and gender. Course may be repeated for a maximum of 6 credit hours.

HIST 3610 PRIVATE LIVES AND PUBLIC PLACES (3) LEC. 3. Examination of the shifting boundaries between the public and private in history including topics such as work, family, sexuality, and the state. Course may be repeated for a maximum of 6 credit hours.

HIST 3640 WORLD MILITARY HISTORY (3) LEC. 3. Economic, social, political, and technological roots of the ways of war employed by different civilizations throughout the ages.

HIST 3650 20TH-CENTURY WORLD WARS (3) LEC. 3. Causes, conduct, and consequences of World Wars I and II.

HIST 3660 WORLD NAVAL HISTORY (3) LEC. 3. Naval history from its origins in ancient times to the present, including the evolution of strategy and tactics, and the influences of, foreign policy and technological change.

HIST 3670 CONTEMPORARY HISTORY (3) LEC. 3. Examination of developments in the contemporary world to provide historical background on developments in selected areas or nations across the globe.

HIST 3800 HISTORIAN'S CRAFT (3) LEC. 3. Historical research methods and an introduction to historiography. For history majors only.

HIST 3920 HISTORY INTERNSHIP (3) LEC. 3. Pr., Departmental approval. Supervised on-the-job experience at archives, historical museums, historic preservation authorities, historical editing projects, and similar historical agencies.

HIST 3930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval and; 3.0 overall GPA. Individual reading or research projects in a specific area of history. Course may be repeated for a maximum of 3 credit hours.

HIST 3970 SPECIAL TOPICS (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 4950 SENIOR THESIS: HISTORICAL RESEARCH AND WRITING (3) LEC. 3. Pr. HIST 3800. with minimum grade of "C." Writing an original paper based on research in primary source materials.

HIST 4970 SENIOR SEMINAR (3) LEC. Pr. HIST 3800. Senior Seminar is a capstone course for upper-level undergraduate students. It may be research-based or historiography-based. Topics vary widely. HIST 4970 may be repeated once for credit. Course may be repeated for a maximum of 6 credit hours.

HIST 4997 HONORS THESIS (3) LEC. 3. Pr. Honors College. Writing an original paper based on research in primary materials.

HIST 5000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the North American colonies from European settlement to 1763.

HIST 5010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Revolutionary era and the foundations of the United States, including the struggle with England, Declaration of Independence, Revolutionary War, Confederation, Constitution, and Federalist-Republican conflicts.

HIST 5020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the early nation, including the influences of Thomas War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflicts.

HIST 5030 SOUTH TO 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 5040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Sectional conflict, Civil War, and Reconstruction including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 5050 THE SOUTH SINCE 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.

HIST 5060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the American economy, rise of big business, agrarian and labor protests, immigration, race relations, role of women, and role of government.

HIST 5070 MODERN UNITED STATES HISTORY: 1929 TO THE PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. United States history since 1929 with particular emphasis on the economy, changing role of government, America's role in world affairs and social changes.

HIST 5090 AMERICAN LEGAL HISTORY (3) LEC. 3. Pr. HIST 3800 or departmental approval. Survey of American legal history from the Constitution to the World Wars. Topics include citizenship, criminal justice, and economic regulation. C or better in HIST 3800

HIST 5300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 5310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 5320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Pr. HIST 3800. Departmental approval. Students not majoring in history must obtain a waiver from the department. Cultural, economic, and social developments as well as the politics and international relations of the major European states.

HIST 5330 20TH CENTURY EUROPE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 5360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the Roman period to the Tudor dynasty.

HIST 5370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from 1485 to the early 18th century.

HIST 5380 MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the political unification of England and Scotland to the present.

HIST 5500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. The Industrial Revolution of 18th, 19th and 20th centuries, with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 5580 THE HISTORY OF FLIGHT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of flight in political, economic, social, and cultural perspective.

HIST 5620 MODERN LATIN AMERICA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Latin America in the 19th and 20th centuries, using a thematic approach arranged chronologically.

HIST 5640 HISTORY OF ISLAM (3) LEC. 3. Pr. HIST 3800. HIST 3800 with grade of "C" or better. This course examines the history of Islam and Islamic Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 5650 HISTORY OF MODERN SOUTH ASIA (3) LEC. 3. Pr. HIST 3800. Development of the Indo-Islamic culture, the British rule of India, and the creation of Muslim Pakistan and secular India. Attention to role of individuals and events in history of nation-building.

HIST 5660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in China from 1800-2000.

HIST 5680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Pr. HIST 3800. Students not majoring in history must obtain a waiver from the department. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 5710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 5810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 5820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 5970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in the history must obtain a waiver from the department. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 6000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Development of the North American colonies from European settlement to 1763.

HIST 6010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3. Revolutionary era and the foundations of the United States, including struggle with England, Declaration of Independence, Revolutionary War, Confederation, Constitution, and Federalist-Republican conflicts.

HIST 6020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Development of the early nation, including the influences of Thomas Jefferson, War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflict.

HIST 6030 SOUTH TO 1877 (3) LEC. 3. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 6040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Sectional conflict, Civil War, and Reconstruction, including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 6050 THE SOUTH SINCE 1877 (3) LEC. 3. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.

HIST 6060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3. Development of the American economy, rise of big business, agrarian and labor protest, immigration, race relations, role of women, and role of government.

HIST 6070 MODERN UNITED STATES HISTORY: 1929 PRESENT (3) LEC. 3. United States history since 1929, with particular emphasis on the economy, changing role of government, America's role in world affairs, and social changes.

HIST 6090 AMERICAN LEGAL HISTORY (3) LEC. 3. This course provides an upper-level chronological survey of American Legal History from the Constitution to the Civil Rights Era through broad themes that include: race and law, economic development, citizenship and belonging, marriage and family law, and criminal justice. The course will examine how major events and processes like Emancipation, Industrialization, and the World Wars brought changes in the workings of American law. At its heart, legal history investigates how law actually worked, how it affected the lives of individuals, and how that shifted over time. This course helps students refine universally-applicable skills, such as conducting original legal-historical research, writing, oral communication, and teaching, all while focusing on those areas of American Legal History that most interest them. The class requires regular reading quizzes, two exams, and a research project that is broken up into smaller assignments throughout the semester. This course also requires a teaching demonstration for graduate students.

HIST 6300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 6310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 6320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Cultural, economic, and social developments as well as the politics and international relations of the major European states between 1815-1918.

HIST 6330 20TH CENTURY EUROPE (3) LEC. 3. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 6360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. British history from the Roman period to the Tudor dynasty.

HIST 6370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. British history from 1485 to the early 18th century.

HIST 6500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. The Industrial Revolution of 18th, 19th, and 20th centuries with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 6580 TOPICS IN THE HISTORY OF FLIGHT (3) LEC. 3. The history of flight in political, economic, social, and cultural perspective.

HIST 6620 MODERN LATIN AMERICA (3) LEC. 3. History of Latin America in 19th and 20th centuries using a thematic approach arranged chronologically.

HIST 6640 HISTORY OF ISLAM (3) LEC. 3. This course examines the history of Islam and Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 6660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Examination and analysis of the political, social, economic and intellectual changes in China from 1800-2000.

HIST 6680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 6710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 6810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 6820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 6970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 7110 SEMINAR IN AMERICAN COLONIAL HISTORY (3) SEM. 3. Development of the British North American colonies, including discussions concerning Indians, English background, exploration, settlement, rebellions, religion, slavery, imperial rivalries, and women.

HIST 7120 SEMINAR IN AMERICAN REVOLUTION AND EARLY NATION (3) SEM. 3. Birth of the American nation and its re-birth under the Constitution.

HIST 7130 SEMINAR IN EARLY AMERICAN REPUBLIC (3) SEM. 3. Issues in the Early Republic, including political transformations, sectional conflict, women and gender roles, industrialization, and reform movements.

HIST 7140 SEMINAR IN OLD SOUTH (3) SEM. 3. History of the Old South, including discussions of colonial settlement, slavery, political transformations, sectional conflict, women and gender roles, and religion.

HIST 7150 SEMINAR IN CIVIL WAR ERA (3) SEM. 3. Sectional conflict, Civil War, and Reconstruction, including political, military and social development.

HIST 7160 SEMINAR IN NEW SOUTH (3) SEM. 3. The South in United States history since 1877.

HIST 7180 SEMINAR IN MODERN UNITED STATES HISTORY (3) LEC. 3. Broad introduction to United States history since 1929.

HIST 7190 SEMINAR IN AFRICAN-AMERICAN HISTORY (3) SEM. 3. Analysis of the major historiographical works on the social, political, and economic history of African Americans.

HIST 7200 SEMINAR IN UNITED STATES WOMEN'S HISTORY (3) SEM. 3. Change and continuity in the lives of American women.

HIST 7210 SEMINAR IN AMERICAN RELIGIOUS HISTORY (3) SEM. 3. Role of religion in American history; recent writing on religion; and sociological and anthropological theories of religion.

HIST 7220 DEVELOPMENT IN CIVIL RIGHTS MOVEMENT (3) LEC. 3. In-depth study of the civil rights movement, with emphasis on the United States South in the post-World War II period. Major topics, basic literature, and historiographical debates examined.

HIST 7230 SEMINAR IN AMERICAN SLAVERY (3) SEM. 3. This course will explore the history of the institution of chattel slavery in the Americas. Focusing primarily on North American slavery, the course will begin with an overview of the development and continuation of the slave systems of the Americas. The course explores the many ways that slavery differed based on the particular time, place, and colonial power or government structure in place at that time. This seminar investigates slaves' lives and experiences from the perspectives of legal history, medical history, gender history, and social history, encompassing such themes as resistance, culture, work lives, and politics. The course will conclude with a look at the Mississippi Valley, its slave system, and its commitment to slavery's economy and politics in the late antebellum years. The course will require weekly book review assignments and students will give one short lecture each semester.

HIST 7240 DEBATES IN EARLY AMERICAN HISTORY (3) SEM. A reading intensive course that introduces students to some of the major debates, methods, and controversies in Early American historiography. Course may be repeated for a maximum of 6 credit hours.

HIST 7250 DEBATES IN MODERN AMERICAN HISTORY (3) SEM. A reading intensive course that introduces students to some of the major debates, methods, and controversies in Modern American historiography. Course may be repeated for a maximum of 6 credit hours.

HIST 7380 THE GLOBAL COLD WAR (3) SEM. This course uses a global approach to explore the post-World War Two rivalry between the United States and the Soviet Union over ideologies, governments, and economic systems.

HIST 7420 SEMINAR IN POPULAR CULTURE IN EARLY MODERN EUROPE (3) SEM. 3. Major themes in the popular culture of Early Modern Europe, 1450-1800.

HIST 7440 SEMINAR IN MODERN EUROPEAN CULTURAL POLITICS (3) SEM. 3. Traditional and revisionist approaches to the study of the political uses of culture in 19th and 20th century Europe.

HIST 7450 SEMINAR IN THE FRENCH REVOLUTION (3) SEM. 3. Historiography in the French Revolution's origins and legacy.

HIST 7460 SEMINAR IN EARLY MODERN BRITAIN (3) SEM. 3. Main themes and events of British history between 1603 and the 1760s.

HIST 7470 SEMINAR IN FASCISM (3) SEM. 3. Seminar on the history of fascism in interwar Europe and the debates over the definition of fascism as an ideology.

HIST 7480 DEBATES IN EUROPEAN HISTORY (3) SEM. A reading intensive course that introduces students to some of the major debates, methods, and controversies in European historiography. Course may be repeated for a maximum of 6 credit hours.

HIST 7510 INTRODUCTORY SEMINAR IN HISTORIOGRAPHY OF TECHNOLOGY (3) SEM. 3. Problems and issues in the history of technology; reviews important, literature.

HIST 7520 SEMINAR IN POLITICS AND TECHNOLOGY IN THE SPACE AGE (3) SEM. 3. Political and technological context of the space age.

HIST 7540 SEMINAR IN AEROSPACE HISTORY (3) SEM. 3. Central problems, issues, and literature in aerospace history.

HIST 7590 AMERICAN LABOR AND WORKING CLASS HISTORY (3) SEM. This course surveys the historiographical themes and issues of the history and lives of the working class in the modern United States from the late 19th through the early 21st centuries.

HIST 7690 SEMINAR IN MODERN WORLD HISTORY (3) SEM. 3. Examination of world historiography and theory, with topical readings on comparative themes such as imperialism and colonialism, catch-up industrialization, decolonization, the Atlantic world, gender systems, religious diasporas, trade, and exploration.

HIST 7700 SEMINAR IN HISTORICAL METHODS (3) SEM. 3. Methodology and theory of historical research. Preparation of a significant original research paper.

HIST 7710 GRADUATE RESEARCH AND WRITING SEMINAR (3) SEM. 3. Pr. HIST 7700. A writing-intensive course designed to sharpen graduate students' research and writing skills.

HIST 7720 SEMINAR IN ARCHIVAL THEORY AND PRACTICE (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Development of archival theory in the major functional areas of archival practice, including appraisal, acquisition, description, preservation, reference and access, outreach, and advocacy.

HIST 7730 SEMINAR IN THE HISTORY OF RECORDS AND ARCHIVES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Origins, organization, and development of records, record keeping systems, and archival institutions in Europe and North America.

HIST 7760 PRACTICUM IN PUBLIC DIGITAL HUMANITIES (3) PRA/SEM. 3. Only graduate students in History or Public History Certificate program. An interdisciplinary course on the theory, method, and practice of public facing digital humanities.

HIST 7770 PRACTICUM IN MUSEUM STUDIES (3) SEM. 3. This course acquaints students with issues relating to the history and contemporary practice of museums. With a focus on both theoretical concepts and current professions within the field, the class balances practical applications with methodological training.

HIST 7810 RESEARCH SEMINAR IN UNITED STATES HISTORY SINCE 1865 (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7820 RESEARCH SEMINAR IN EARLY MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7830 RESEARCH SEMINAR IN MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7840 RESEARCH SEMINAR IN HISTORY OF TECHNOLOGY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7860 RESEARCH PROJECT DESIGN (3) SEM. SU. This course introduces students to the task of formalizing a research project proposal, typically referred to as a thesis or dissertation prospectus. Students will produce a draft project proposal that includes 1) a review of the relevant historiography that justifies the topic as a meaningful contribution to the literature; 2) an historical context that situates the topic within a chronological timeline, a geography, and an overall theme; 3) a reasonable plan for accomplishing the research.

HIST 7910 PUBLIC HISTORY INTERNSHIP (3) PRA. 3. Pr. HIST 6810 and P/C HIST 7700. Application of principles of public history practice within a functioning venue or site under supervision of public historian; final written report required. Course may be repeated for a maximum of 6 credit hours.

HIST 7920 ARCHIVAL INTERNSHIP (1-6) INT. Pr. HIST 6710 or Departmental approval. Application of the principles of archival practice within the context of a functioning archival repository under the supervision of professional archivists. Course may be repeated for a maximum of 6 credit hours.

HIST 7970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 9 credit hours.

HIST 7990 RESEARCH AND THESIS (1-10) MST. Research and writing of the MA thesis. Course may be repeated with change in topic.

HIST 8000 READING COURSE IN AMERICAN HISTORY TO 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history to 1877. Course may be repeated for a maximum of 6 credit hours.

HIST 8010 READING COURSE IN AMERICAN HISTORY SINCE 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history since 1877 Course may be repeated for a maximum of 6 credit hours.

HIST 8300 READING COURSE IN EUROPEAN HISTORY TO 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history to 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8310 READING COURSE IN EUROPEAN HISTORY SINCE 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history since 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8500 READING COURSE IN THE HISTORY OF TECHNOLOGY (3) PRL. 3. Pr., Departmental approval. Selected topics in the history of technology. Course may be repeated for a maximum of 6 credit hours.

HIST 8600 READING COURSE IN LATIN AMERICAN HISTORY (3) PRL. 3. Pr., Departmental approval. Selected topics in Latin American history. Course may be repeated for a maximum of 6 credit hours.

HIST 8610 READING COURSE IN WORLD HISTORY (3) LEC. 3. Pr., Departmental approval. Directed readings in modern world history, focusing on one or two geographic areas or themes.

HIST 8700 HISTORIOGRAPHY AND THEORY OF HISTORY (3) SEM. 3. Exploration of the nature of history by tracing changing conceptions of historical thought and practice from their origins to the present.

HIST 8710 INTRODUCTION TO THE TEACHING OF HISTORY (3) SEM. SU. Introduction to some of the challenges involved in teaching history at the college level.

HIST 8720 INTRODUCTION TO GRADUATE STUDIES (1) SEM. SU. This course is required for all graduate students in their first semester to prepare them for the history department's graduate program and to introduce them to the fundamentals of the history profession. Students are introduced to various aspects of graduate level study in history.

HIST 8730 INTRODUCTION TO THE HISTORICAL PROFESSION (1) SEM. SU. This course is a required pass/fail course that students take in the second semester of their second year (for M.A. students) or in the second semester of their third year (for PhD students) to further prepare them for the history profession. Students are introduced to various aspects of "professional life after graduate school."

HIST 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and writing of the PhD dissertation. Course may be repeated with change in topics.

Journalism Courses

JRNL 1000 FOUNDATIONS OF JOURNALISM (3) LEC. 3. An introduction to the field of journalism; including its role in democracy and society, history, and ethics, with an emphasis on media literacy and professional writing skills. This course replaces JRNL 1100. Credit will not be given for both (JRNL 1AA0/1100/1103) and JRNL 1000.

JRNL 1100 JOURNALISM FUNDAMENTALS (3) LEC. 3. Emphasis on Associated Press Stylebook, word usage, and punctuation for students interested in print, broadcast, public relations, and web-based writing.

JRNL 1AA0 JOURNALISM FUNDAMENTALS ENTRANCE EXAM (0) LAB. 1.5. SU. JRNL 1AA0 is an exam option for students who are required to take JRNL 1100. The course will test students on punctuation, grammar, Associated Press Style and word usage to mirror content covered in the in-person course.

JRNL 2210 NEWSWRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 or JRNL 1000 or PRCM 1000. Introduction to newswriting techniques, with emphasis on learning news values, recognizing parts of a story, and writing stories that meet standards of accuracy, grammar, style, spelling, law, and ethics.

JRNL 2310 REPORTING (3) LEC. 3. Pr. JRNL 2210 or JRNL 2213. Preparation for careers in gathering and telling the news. Course emphasizes the writing of accurate, clear, and meaningful news stories for print and digital formats.

JRNL 3010 BROADCAST & DIGITAL NEWS PRODUCTION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or JRNL 1000 or PRCM 1000). Introduction to the basics of digital video production. Emphasis on techniques used in producing newscasts for broadcast, web and mobile devices.

JRNL 3020 BROADCAST & DIGITAL NEWS REPORTING (3) LEC. 3. Pr. JRNL 2210 and JRNL 3010. Writing and reporting digital news stories on deadline for broadcast, online, social media, and mobile outlets.

JRNL 3100 GLOBAL JOURNALISM AND MEDIA SYSTEMS (3) LEC. 3. The Internet and social media have created a world more connected than ever. Examines the economic, political, technological, and cultural changes that impact media and journalism globally.

JRNL 3110 INTRODUCTION TO APPLIED JOURNALISM (3) LEC. 3. Pr. (JRNL 2310 or JRNL 2313) and (CMJN 2100 or CMJN 2103). Introduction to how a media organization operates; provides an opportunity for students to gain practical, hands-on journalism experience.

JRNL 3220 MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Introduction to writing colorful, human-interest non-fiction pieces that illustrate drama and impact. Students will learn how to pitch their ideas to editors in print and digital markets.

JRNL 3410 PHOTOJOURNALISM (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Uses, techniques, and processes of digital photography for the newspaper, magazine, and web-based industries. Operations of digital SLRs and Photoshop and techniques for variety of assignments are addressed.

JRNL 3470 EDITING AND DESIGN (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Introduction to the basics of design, layout, headline writing, typography, use of color, and selection of images for visual impact. Students will learn how to design news, sports, and magazine layouts, using Adobe InDesign and Photoshop.

JRNL 3510 MULTIMEDIA JOURNALISM (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Introduction to multimedia journalistic storytelling. Reporting and production course where students use various technologies to produce journalism stories for digital platforms.

JRNL 3530 SPORTS REPORTING (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Sports reporting for print, broadcast, and online media, with emphasis on interviewing athletes, covering sporting events, and learning about issues surrounding sports.

JRNL 4230 ADVANCED REPORTING (3) LEC. 3. Pr. (JRNL 2313 or JRNL 2310) and (JRNL 3220 or JRNL 3510 or JRNL 3530 or JRNL 3020). Developing and writing news stories under deadline pressure; investigative and interpretative reporting.

JRNL 4320 ENTREPRENEURIAL JOURNALISM (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or PRCM 1000 or JRNL 1000) and (CMJN 2100 or CMJN 2103). Emphasis on content, advertising, audience, and marketing in news organizations and applying entrepreneurial principles to journalism start-ups.

JRNL 4410 JOURNALISM HISTORY (3) LEC. 3. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues.

JRNL 4470 ADVANCED MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (JRNL 2310 or JRNL 2313) and (JRNL 3220 or JRNL 3223) and (JRNL 3020 or JRNL 3023 or JRNL 3530 or JRNL 3533 or JRNL 3510 or JRNL 3513). Emphasis on creating long-form, non-fiction articles for print and digital publications through graceful and innovative writing techniques and skillful reporting.

JRNL 4490 LITERARY JOURNALISM (3) LEC. 3. Survey course on the best non-fiction produced by journalists.

JRNL 4530 ADVANCED SPORTS REPORTING (3) LEC. 3. Pr. (JRNL 3530 or JRNL 3533). JRNL 4530 provides the capstone course experience for students in the sports journalism emphasis. Students will build skills in areas such as writing long form articles, personality features, enterprise reporting, oral history projects, and comprehensive game coverage, and working with tight deadlines.

JRNL 4850 REPORTING ISSUES OF SOCIAL CHANGE (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or PRCM 1000 or JRNL 1000). Engagement with solutions-based journalism wherein story narratives about people, communities, and societal issues give voice and weight to problems and solutions.

JRNL 4870 COMMUNITY JOURNALISM (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Civic role of community journalists.

JRNL 4920 JOURNALISM INTERNSHIP (3) INT. Pr. JRNL 2310 and (JRNL 3020 or JRNL 3220 or JRNL 3510 or JRNL 3530) and (JRNL 3010 or JRNL 3110 or JRNL 3410 or JRNL 3470). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in JRNL. Requires admission to internship program.

JRNL 4930 DIRECTED STUDIES (1-4) IND. Research and analysis of specific areas of journalism. Course may be repeated for a maximum of 6 credit hours.

JRNL 4970 SPECIAL TOPICS IN JOURNALISM (3) AAB. 3. Pr. JRNL 2210. Study of narrowly defined journalism topics not already covered in the current JRNL curriculum. Course may be repeated for a maximum of 6 credit hours.

Journalism-Sports Production Courses

JRSP 3110 SPORTS MEDIA RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Focuses on the major concepts and theories of the management of sports media relations. Will include discussion of issues, philosophies and cases. May count CMJN 3110 or CMJN 3113 or JRSP 3110.

JRSP 3210 NEWS AND SPORTS ANNOUNCING (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. This class focuses on the theory and practical technique of studio and field announcing. Primary emphasis will be placed on announcing for news and sports. Additional attention will be given to voice over announcing. May count either CMJN 3210 or JRSP 3210.

JRSP 3410 INTRODUCTION TO SPORTS VIDEO PRODUCTION (3) LEC. 2, DSL/LST. 1. Introduction to multi-camera live sports production, video and audio editing techniques, how to operate equipment, create basic animated graphics, learn work crew positions and understand a script. Students will complete work for the SEC Network and War Eagle Productions. May count CMJN 3410 or JRSP 3410.

JRSP 3510 CONTROL ROOM OPERATIONS (3) LEC. 3. Pr. JRSP 3410 or CMJN 3410 or CMJN 3413. Introduction to various control room positions and equipment associated with a live broadcast. Students will learn the skills needed to set up, adjust and operate production equipment before and during broadcasts. May count CMJN 3510 or JRSP 3510.

JRSP 4320 SPORTS MEDIA MANAGEMENT (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Addresses principles and practices of managing sports media properties across multiple platforms. May count JRSP 4320 or CMJN 4320.

JRSP 4410 ADVANCED SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Pr. (CMJN 2100 or CMJN 2103) and (CMJN 3410 or CMJN 3413 or JRSP 3410). This course is designed to give students in-depth training that covers advanced video editing techniques and effects. In addition, students will gain experience with advanced camera operation and techniques, focusing on high-quality production throughout the process. May count CMJN 4410 or JRSP 4410.

JRSP 4510 SPORTS STORYTELLING & VIDEO PROFILES (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (CMJN 3410 or JRSP 3410 or CMJN 3413) and (JRNL 2210 or JRNL 2213). Technology has changed the landscape of how sports stories are seen and ingested today. Students will explore the art of sports storytelling and learn the foundational skills needed to effectively use cameras, lighting, editing equipment and other industry-standard tools to tell a visual story. May count CMJN 4510 or JRSP 4510.

JRSP 4610 LIVE SPORTS PRODUCING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213) and (CMJN 3510 or JRSP 3510). Students will learn how to produce live events for broadcast and in-venue video boards. Students will gain the necessary knowledge and skills for producing a high-quality live event. This includes preparation, decision making skills and industry-standard terminology. May count CMJN 4610 or JRSP 4610.

JRSP 4920 JOURNALISM SPORTS PRODUCTION INTERNSHIP (3) INT. Pr. JRSP 3410 and JRSP 3510. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in JRSP. Requires admission to internship program.

JRSP 4970 SPECIAL TOPICS IN JOURNALISM: SPORTS PRODUCTION (3) LEC. 3. Specialized topics related to the study and practice of sports media production. Course may be repeated for a maximum of 6 credit hours.

Liberal Arts, General Courses

LBAR 1210 THINKING THROUGH THE ARTS (3) LEC. 3. In this course, students will attend and critically engage with a broad range of the semester’s local art exhibitions and performances. Students will reflect on their experiences as arts participants and put those responses into dialogue with secondary readings, guest lectures, and workshops with visiting artists.

LBAR 2010 LIBERAL ARTS CAREERS PREPARATION (2) LEC. 2. This course helps Liberal Arts majors to identify their strengths and talents as liberal arts students, to seek appropriate educational and extracurricular experiences, and to plan for a successful transition from college to career. May cont either LBAR 2010 or LBAR 2013.

LBAR 2020 LIBERAL ARTS ORIENTATION AND CAREERS PREPARATION (2) LEC. 2. Designed for transfer students. An introduction to the College of Liberal Arts, campus resources and involvement, and career preparation strategies to facilitate a successful transition to the college, university, and beyond.

LBAR 3910 PRACTICUM IN LIBERAL ARTS (1-3) AAB. Focused civic engagement or study abroad experiences designed to develop leadership, social responsibility, and cross-cultural awareness. Course may be repeated for a maximum of 6 credit hours.

LBAR 4010 LIBERAL ARTS CAREER PLANNING (1) DSL/PR1. 1. SU. Pr. LBAR 2010. This course aids Liberal Arts students in obtaining positions consistent with their career goals. It is a hybrid course with class meetings, career coach meetings, online lessons, career-related assignments, and experiential learning events. Must be a junior or senior student in CLA.

LBAR 4800 INTERNATIONAL STUDIES SENIOR CAPSTONE (3) LEC. 3. Pr. (LBAR 2010 or LBAR 2020) and POLI 1050 and POLI 3090 and COMM 3450 and FLGC 1150. Capstone research project involving multidisciplinary research, writing, and presentation by a student completing the International Studies major.

LBAR 4920 INTERNATIONAL STUDIES INTERNSHIP (3) LEC. 3. The International Studies internship is an opportunity for students to gain practical experience in an international organization, to expand their professional networks, identify personal learning goals that will enhance their career prospects. The applied experience will enable students to integrate academic coursework with work experience, career development goals, and personal values. They will see the practical way in which cross cultural issues and second language usage are manifested in a work environment.

Media Studies Courses

MDIA 2350 INTRODUCTION TO FILM STUDIES (3) LEC. 2. LAB. 2. Introduction to film analysis, modes of film practice and critical approaches to the study of cinema. May count either MDIA 2350/MDIA 2353.

MDIA 3210 SOUNDTRACKS, MUSIC AND MEDIA (3) LEC. 3. Historical, artistic, sociocultural and economic contexts of music and media.

MDIA 3300 FOUNDATION OF MEDIA STUDIES (3) LEC. 2. LAB. 2. Pr. MDIA 2350 or MDIA 2353. This is a foundational course that provides students with a survey of the key theoretical approaches to studying the cultural, social, political and economic dimensions of entertainment media.

MDIA 3310 HISTORY OF NEW AND EMERGING MEDIA (3) LEC. 3. This course examines the origins and development of the Internet and related platforms including USENET, the World Wide Web, and social media. In the process, the course addresses many of the social, political, economic, and industrial implications that have accompanied the use of the Internet as a communication technology.

MDIA 3320 GENDER AND SEXUALITY IN MEDIA (3) LEC. 2. LAB. 2. Examines the relationship between gender, sexuality, identity and the media, from the perspective of key theories, representation, audience engagement and industry.

MDIA 3360 AUDIO STORYTELLING AND PODCASTING (3) STU. 3. Students will gain hands-on experience in producing audio stories and in designing and producing podcasts.

MDIA 3370 GLOBAL MEDIA (3) LEC. 2. LAB. 2. Global media is focused on the complex global dimensions of media production, distribution and reception, with a primary focus on entertainment media.

MDIA 3580 REPRODUCING POPULAR CULTURE (3) LEC. 3. Postmodern study on the widespread recycling of media artifacts. May count either MDIA 3580 or MDIA 3583 or RTVF 3580.

MDIA 3600 FILM GENRES (3) LEC. 2. LAB. 2. A critical examination of popular film genres and how they have been used historically within the film industry, film studies, media criticism and popular culture.

MDIA 3650 MEDIA INDUSTRIES (3) LEC. 2. LAB. 2. The course provides students a comprehensive overview of how the media industries work, why they work as they do, and the broader theoretical and practical implications of the media industries.

MDIA 3700 AUDIENCES AND FAN CULTURE (3) LEC. 2. LAB. 2. This course explores theories of the audience in media and cultural studies, the history of studying media audiences, while also considering contemporary scholarship, technology, identity and fan communities.

MDIA 3750 RACE AND AMERICAN FILM HISTORY (3) LEC. 2. LAB. 2. A critical examination of the historical and social constructions of race and ethnicity in popular U.S. films.

MDIA 3970 SPECIAL TOPICS (3) AAB. 3. Topics in Media Studies at the intermediate level. Course may be repeated for a maximum of 6 credit hours.

MDIA 4200 TV HISTORY (3) LEC. 2. LAB. 2. An examination of the development and evolution of U.S. television broadcasting as an art form, industry and social institution from the early twentieth century to the present day.

MDIA 4210 POPULAR CULTURE STUDIES (3) LEC. 3. Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes. Declared major in AGCO, COMM, JRNL, JRSP, MDIA or PRCM.

MDIA 4250 SCREEN CULTURE (3) LEC. 2. LAB. 2. A critical study of the historical development and the cultural meanings of dominant screen technologies (film screens, TVs, computer screens, mobile devices).

MDIA 4300 MEDIA PROGRAMMING (3) LEC. 3. Introduces organizational concepts, strategies, processes, and frameworks for programming in various media systems, including broadcast, cable and streaming sources.

MDIA 4310 MEDIA AND SOCIETY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of the relationship between the mass communication industry and a mass society. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4350 TELEVISION CRITICISM (3) LEC. 3. LAB. 1. This course prepares students to critically analyze television with a deep study of the aesthetics of television coupled with an overview of critical approaches to television research.

MDIA 4390 FILM AUTHORS (3) LEC. 2. LAB. 2. In-depth study of one or more filmmakers important to the development of film as a popular art form. Declared major in AGCO, COMM, JRNL, JRSP, MDIA or PRCM.

MDIA 4400 ADVERTISING AND CONSUMER CULTURE (3) LEC. 2. LAB. 2. This course is a critical examination of the relationship between the advertising industries and the media industries and how they have influenced each other as well as mainstream US culture.

MDIA 4420 HISTORY OF MEDIA TECHNOLOGY (3) LEC. 3. History of media technology from 18th-21st centuries.

MDIA 4500 CULTURE AND TECHNOLOGY (3) LEC. 3. This course explores the complex interrelations, issues and impacts between culture and technology through a range of interdisciplinary academic, professional and global settings, contexts and texts.

MDIA 4580 FAME, CELEBRITY, AND MEDIA CULTURE (3) LEC. 3. Examination of celebrity and fame as distinguishing cultural phenomena.

MDIA 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (MDIA 3300 or MDIA 3303). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in MDIA or MDIV/MFLM. Requires admission to internship program.

MDIA 4930 DIRECTED STUDIES (3) IND. 3. Pr. MDIA 3300 or MDIA 3303. Study of narrowly-defined MDIA topic not already covered in the MDIA curriculum and under the direction of an MDIA faculty. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV/MFLM or PRCM. May count either MDIA 4930 or MDIA 4933 or MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

MDIA 4970 SPECIAL TOPICS (3) LEC. 3. Topics in Media Studies at the advanced level. Course may be repeated for a maximum of 6 credit hours.

MDIA 5500 GLOBAL MEDIA (3) LEC. 3. LAB. 0, SEM. 0. Pr. MDIA 2350 and MDIA 3300. Global media is focused on the complex global dimensions of media production, distribution and reception, situated within the study of critical theory.

Media Studies - Film Courses

FILM 2420 INTRODUCTION TO FILMMAKING (3) DSL/STU. 3. A studio course introducing students to the theory and practice of cinematography and editing for the short film.

FILM 2700 INTRODUCTION TO VISUAL MEDIA (3) DSL/STU. A studio course introducing students to concepts and techniques of digital image-making for the short film.

FILM 3100 INTERMEDIATE FILMMAKING (3) DSL/STU. 3. Pr. (MDIA 2420 or FILM 2420) and (MDIA 2700 or MDIA 2703 or FILM 2700). An intermediate studio course in which students develop sound design skills for the short film.

FILM 3110 CINEMATOGRAPHY (3) STU. 3. Pr. (MDIA 2420 or FILM 2420) and (MDIA 2700 or FILM 2700). An intermediate studio course in which students explore the art of filmmaking through methods and techniques of cinematography for the short film. The course structure will emphasize short scene studies which focus on visual outcomes including cameras technology, motion, lighting, composition and post-production.

FILM 3120 FILM EDITING (3) STU. 3. Pr. (MDIA 2700 or FILM 2700) and (MDIA 2420 or FILM 2420). An intermediate studio course in which students explore the theory and practice of editing for the short film.

FILM 3350 SCREENWRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (MDIA 2350 or MDIA 2353). A writing course introducing students to the basic concepts of screen storytelling and the craft of turning story ideas into screenplays.

FILM 3820 SEQUENCE DESIGN (3) STU. 3. A studio course in which students develop animation skills for title design.

FILM 4600 ADAPTATION FOR THE SHORT FILM (3) LEC. 3. Pr. MDIA 3100 or MDIA 3103 or FILM 3100. A survey of ways in which film can be adapted from pre-existing sources to create new works that stand on their own. Declared major in AGCO, COMM, JRNL, MDIA, MDIV/MFLM or PRCM. May count either MDIA 4600 or MDIA 4603 or RTVF 4600.

FILM 4940 FILM PROJECTS (3) DSL/STU. 3. Pr. MDIA 3100 or MDIA 3103 or FILM 3100. Capstone course in which students work as a team on an advanced film project.

Music Courses

MUSI 1000 PERFORMANCE ATTENDANCE (0) LEC. 1. SU. Pr., Enrollment in MUAP. Required during each semester of MUAP enrollment. Monitored attendance at studio and departmental convocations, as well as approved concerts, lectures, and special presentations within the Department of Music and the community. Course may be repeated with change in topics.

MUSI 1020 PIANO SKILLS I - RUDIMENTS (1) LEC. 2. Group instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1030, MUSI 2040, or MUSI 2050.

MUSI 1030 PIANO SKILLS II (1) LEC. 2. Pr. MUSI 1020 or Departmental approval. Group Instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2040 or MUSI 2050.

MUSI 1050 SINGER'S DICTION (1) LEC. 2. Coreq., Enrolled in MUAP (Applied Voice) class. Introduction to the rules of singing in English, Italian, German, and French as applied to art songs and arias through use of the IPA.

MUSI 1310 MUSIC THEORY I (2) LEC. 2. Coreq. MUSI 1320. Systematic study of music composition procedures, form, and style during the Period of Common Practice. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1410 or MUSI 2310.

MUSI 1320 MUSIC SKILLS I (1) LEC. 3. Coreq. MUSI 1310. Development of aural, keyboard and sight singing skills with an understanding of basic harmonic practices. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1420 or MUSI 2320.

MUSI 1330 MUSIC THEORY AND SKILLS I (3) LEC. 3. LAB. 2. Pr. P/C MUAP 1110 or P/C MUAP 1520 or P/C MUAP 1530. The purpose of the course is to help students acquire an appreciation for, and understanding of, the compositional procedures, form, and style found during the Period of Common Practice through the systematic study of the fundamentals of music, chords, voice-leading, harmonic progressions, and analysis of musical scores.

MUSI 1410 MUSIC THEORY II (2) LEC. 2. Pr. MUSI 1310 or Departmental approval. Systematic study of music composition procedures, form, and style during the Period of Common Practice. For Music majors and minors. Normally taken with MUSI 1420. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2310. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1310 to enroll in this course.

MUSI 1420 MUSIC SKILLS II (1) LEC. 3. Pr. MUSI 1320 or Departmental approval. Development of aural, keyboard, and sight-singing skills with an understanding of basic harmonic practices. For Music majors and minors. Normally taken concurrently with MUSI 1410. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2320. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1320 to enroll in this course.

MUSI 1430 MUSIC THEORY AND SKILLS II (3) LEC. 3. LAB. 2. Pr. (MUSI 1330) and (P/C MUAP 1210 or P/C MUAP 1620 or P/C MUAP 1630). The second in the series of Music Theory and Skills courses. Designed to create an increased ability to understand and apply compositional procedures, forms, and styles found during the Period of Common Practice. This course is also designed to develop aural and sight-singing skills with melodic, harmonic, and rhythmic dictation and performance.

MUSI 2040 FUNCTIONAL PIANO I (1) LEC. 2. Pr. MUSI 1030 or Departmental approval. Development of functional piano skills for use in classroom, rehearsal or studio. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2050. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1030 to enroll in this course.

MUSI 2050 FUNCTIONAL PIANO II (1) LEC. 2. Pr. MUSI 2040 or Departmental approval. Development of functional piano skills for use in classroom, rehearsal or studio. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 2040 to enroll in this course.

MUSI 2150 ADVANCED DICTION (1) LAB. 2. Pr. MUSI 1050. Coreq., Enrolled in a MUAP (Applied Voice) class. Advanced study of the rules of singing in Italian, Spanish, German, and French through the use of the IPA. BA in Music and BM majors must receive a grade of "C" or better in MUSI 1050 to enroll in this course.

MUSI 2200 FUNDAMENTALS OF ARRANGING FOR COMMERCIAL MUSIC (2) LEC. 2. Pr. (MUSI 1430). A systematic study of the fundamentals of notation using Finale and/or Sibelius and the principles and techniques of writing and arranging for rhythm section and lead-line in a solo instrument or voice.

MUSI 2310 MUSIC THEORY III (2) LEC. 2. Pr. MUSI 1410 and MUSI 1320 or Departmental approval. Systematic study of music composition procedures, form and style from the advent of chromaticism through the music of late 19th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1320 and MUSI 1410 to enroll in this course.

MUSI 2320 MUSIC SKILLS III (1) LEC. 3. Pr. MUSI 1410 and MUSI 1420 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 1420 to enroll in this course.

MUSI 2330 MUSIC THEORY AND SKILLS III (3) LEC. 3. LAB. 2. Pr. (MUSI 1430) and (P/C MUAP 2110 or P/C MUAP 2520 or P/C MUAP 2530). The third course of a four-course sequence, Theory and Skills III is a systematic study of harmony, compositional procedures, form, and style of tonal music from the late 17th Century through the music of the early 20th Century. Because this course will also continue the development of aural dictation and sight-singing, mastery of material from the first two courses is assumed.

MUSI 2410 MUSIC THEORY IV (2) LEC. 2. Pr. MUSI 1420 and MUSI 2310 or Departmental approval. Systematic study of music composition procedures, form, and style from the late 19th century through the music of the 20th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1420 and MUSI 2310 to enroll in this course.

MUSI 2420 MUSIC SKILLS IV (1) LEC. 3. Pr. MUSI 1410 and MUSI 2320 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with the understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 2320 to enroll in this course.

MUSI 2430 MUSIC THEORY AND SKILLS IV (3) LEC. 3. LAB. 2. Pr. (MUSI 2330) and (P/C MUAP 2210 or P/C MUAP 2620 or P/C MUAP 2630). A systematic study of compositional procedures, form, and style from the late 19th Century through the music of the 20th Century. As the final course in a four semester sequence, mastery of material from the first three courses is assumed.

MUSI 2440 MUSIC THEORY AND SKILLS IV: COMMERCIAL MUSIC (3) LEC. 2. LAB. 2. Pr. MUSI 2330. A systematic study of compositional procedures, form and style from the late 19th century through the music of the 20th century with special focus on American popular music styles. As the final course in a four semester sequence, mastery of material from the first three courses is assumed.

MUSI 2450 ELECTRONIC MUSIC HISTORY (2) LEC. 2. Overview of the development and rise of electronic musical instruments, digital instruments, and circuitry-based music technologies.

MUSI 2480 FOUNDATIONS OF MUSIC TECHNOLOGY (3) LEC. 3. A foundational study of essential academic, creative, and professional music technology tools and techniques used in MIDI sequencing, digital recording, digital audio workstations, and digital music notation.

MUSI 2730 APPRECIATION OF MUSIC (3) LEC. 3. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2737 HONORS APPRECIATION OF MUSIC (3) LEC. 3. Pr. Honors College. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2740 SURVEY OF POPULAR MUSIC (3) LEC. 3. Fine Arts Core. Survey of popular music styles from the late 19th century to the present day. No previous music training required. May count either MUSI 2740, MUSI 2743, or MUSI 2747.

MUSI 2747 HONORS SURVEY OF POPULAR MUSIC (3) LEC. 3. Pr. Honors College. Fine Arts Core. Survey of popular music styles from the late 19th century to the present day. No previous music training required. May count either MUSI 2740 or MUSI 2743.

MUSI 2750 MUSIC AND SCIENCE (3) LEC. 3. Fine Arts Core. Music and its connection to science throughout history. No previous music training required.

MUSI 3040 BRASS INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching brass musical instruments.

MUSI 3060 WOODWIND INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Class instruction and practice in the techniques of playing and teaching woodwind musical instruments.

MUSI 3080 PERCUSSION INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching various percussion instruments.

MUSI 3090 STRING INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching upper and lower string musical instruments.

MUSI 3110 PIANO LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Renaissance to the Classical era, with emphasis on musical styles.

MUSI 3120 PIANO LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Romantic era to the present, with emphasis on musical styles.

MUSI 3130 VOCAL LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Survey of representative art song repertoire, including techniques and application of song study, musicianship, interpretation, and performance practice.

MUSI 3140 VOCAL LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the development of opera and oratorio literature from 1600 to the present time.

MUSI 3150 BRASS LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on brass instruments.

MUSI 3160 PERCUSSION LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on percussion instruments.

MUSI 3170 WOODWIND LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on woodwind instruments.

MUSI 3180 STRING LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on string instruments.

MUSI 3200 FORM AND ANALYSIS (3) LEC. 3. Pr. MUSI 2410. Study of the formal structure of music from 1700-1950 with an emphasis on standard forms and analytical techniques.

MUSI 3290 JAZZ THEORY AND IMPROVISATION (3) LEC. 3. Pr. MUSI 1410. Major practical and theoretical areas informing jazz performance.

MUSI 3300 SONGWRITING (3) LEC. 3. Pr. MUSI 1430. A systematic study of basic songwriting techniques covering a variety of styles, with an introduction to lyric considerations and an emphasis on compositional decisions and choices available to the lyricist. Prior musical training and performance experience required.

MUSI 3440 AUDIO ENGINEERING I (2) LEC. 1, LST. 1. An overview of digital recording studio equipment, recording techniques and procedures, signal flow and audio processing, microphone design and application, as well as digital audio editing and mixing.

MUSI 3450 AUDIO ENGINEERING II (3) LEC. 1.5. LAB. 1.5. Pr. (MUSI 3440). An in-depth study of advanced, professional level audio recording, editing, mixing, mastering, and live sound techniques through hands-on experiences in a recording studio setting.

MUSI 3510 MUSIC HISTORY I (3) LEC. 3. Pr. MUSI 1430. Study of the development of music from the earliest times through early 18th-century styles through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1430 to enroll in this course.

MUSI 3520 MUSIC HISTORY II (3) LEC. 3. Pr. MUSI 3510. Study of the development of music from the early 18th century to the present day through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3510 to enroll in this course.

MUSI 3610 CHORAL CONDUCTING I (2) LEC. 2. Pr. MUSI 2430. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3620 CHORAL CONDUCTING II (2) LEC. 2. Pr. MUSI 3610. Advanced conducting technique with practical experience in preparing choral groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3610 to enroll in this course.

MUSI 3630 INSTRUMENTAL CONDUCTING I (2) LEC. 2. Pr. MUSI 2430. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3640 INSTRUMENTAL CONDUCTING II (2) LEC. 2. Pr. MUSI 3630. Advanced conducting technique with practical experience in preparing instrumental groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3630 to enroll in this course.

MUSI 3700 ADVANCED DIGITAL AUDIO WORKSTATION OPERATIONS (2) LEC. 2, LST. 1. Pr. (P/C MUSI 2430 or P/C MUSI 2440). Advanced study of digital audio workstation operations focusing on Logic Pro.

MUSI 3800 JUNIOR PERFORMANCE RECITAL (1) PRL. 1. SU. Pr. MUAP 3520. Coreq., Enrollment in a MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a junior recital.

MUSI 3810 PORTFOLIO AND PROFESSIONAL DEVELOPMENT (2) LEC. 2. Analysis, evaluation and creation of portfolio materials needed for successful entry into the music business. Development of communication and interview skills.

MUSI 3830 MUSIC BUSINESS I: SURVEY OF THE MUSIC INDUSTRY (3) LEC. 3. An overview of the commercial music industry, including a focus on the professionals who comprise the artist's team, how music is distributed and the value of music in the marketplace.

MUSI 3840 MUSIC BUSINESS II: BRANDING AND PROMOTION (3) LEC. 3. Pr. MUSI 3830. An entrepreneurial approach to branding and promotion in the commercial music industry.

MUSI 3850 PROMOTION IN THE MUSIC INDUSTRY: HOW TO PROMOTE AN ARTIST (3) LEC. 3. A focused study of the essential elements of artist self-promotion or promotion of other artists, from traditional and non-traditional media to imaging, marketing and branding.

MUSI 3860 LEGAL ASPECTS OF THE MUSIC INDUSTRY (3) LEC. 3. Legal Aspects of the Music Industry examines the legal issues business leaders, artists, musicians, engineers, and producers encounter when building their companies and careers, focusing on important legal changes that have evolved as a result of the continuing shifts in the music business landscape.

MUSI 3970 SPECIAL TOPICS IN MUSIC (3) LEC. 3. Study of substantive topics and issues in music. Course may be repeated for a maximum of 6 credit hours.

MUSI 4000 MUSIC EDUCATION SENIOR RECITAL PROJECT (1) PRL. SU. Pr., Music Education major and MUAP 3120. Coreq., MUAP 3220. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital project.

MUSI 4010 VOCAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. For prospective voice teachers. Intensive study of the materials and methods of voice training.

MUSI 4020 INSTRUMENTAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. and BA in Music or BM major. For prospective instrumental teachers. Intensive study of the materials and methods of teaching various brass, woodwind and percussion instruments.

MUSI 4030 PIANO PEDAGOGY (2) LEC. 2. Music majors and minors specializing in piano or Departmental approval. Study of techniques, methods and experiences of former and current teachers to equip the student for future piano teaching.

MUSI 4280 AMERICAN ART MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. and BA in Music major or BM major or departmental approval. Survey of American art music from colonial times until the present.

MUSI 4290 FILM MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. History and analysis of film music. Basic scoring techniques will be applied to short scoring projects.

MUSI 4620 ORCHESTRATION FOR VIRTUAL ENSEMBLES (2) LEC. 2, LST. 1. Pr. MUSI 2430 or MUSI 2440. Techniques and sample technologies used in virtual orchestration and hybrid-music production with emphasis placed on the production values of the student work. Issues and techniques related to expression, musicality, idiomatic performance, and sonic quality will be addressed throughout the course.

MUSI 4660 COMMERCIAL MUSIC: RECORDING AND PRODUCTION (3) LEC. 3. Create, produce, and bring to market a product of recorded music. Develop and implement marketing materials and campaigns, and deliver that product across all media outlets.

MUSI 4670 COMMERCIAL MUSIC: CONCERT PROMOTION (3) LEC. 3. Create, produce, and promote two live concert events. Develop and implement marketing materials and campaigns and deliver that product across all media outlets.

MUSI 4700 BA CAPSTONE PROJECT (3) LEC. 1. SU. Pr. MUAP 2620. Capstone course requiring a culminating thesis or project bringing together prior music coursework.

MUSI 4800 SENIOR PERFORMANCE RECITAL (2) PRL. 2. SU. Pr. MUAP 4520. Coreq., Enrollment in MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital.

MUSI 4920 INTERNSHIP (3) INT. Pr. MUSI 3810 and MUSI 3830 and MUSI 3840 and MUSI 4660 and MUSI 4670. Supervised work experience in the student's preferred discipline of the commercial music industry, applying classroom concepts in a real-world setting. Departmental approval required.

MUSI 4930 DIRECTED STUDY (1-3) IND. Pr., Departmental approval. Independent study directed toward desired objectives related to student's areas of interest and specialization. Course may be repeated with change in topic. Course may be repeated for a maximum of 3 credit hours.

MUSI 5110 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 6110 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 7000 GRADUATE CHORAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7010 GRADUATE CHORAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7000 or MUSI 7006. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7040 GRADUATE INSTRUMENTAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7050 GRADUATE INSTRUMENTAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7040 or MUSI 7046. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7100 CHORAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7110 CHORAL ARRANGING II (3) LEC. 3. Pr. MUSI 7100 or MUSI 7106. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7140 ORCHESTRAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for the orchestra.

MUSI 7230 ADVANCED FORMAL ANALYSIS (3) LEC. 3. Advanced formal analysis of standard music literature.

MUSI 7240 WIND BAND LITERATURE I (3) LEC. 3. Coreq., Approved MUSE course. History of the development of the wind band to 1950. Advanced analysis of Grades 1-3 wind band literature.

MUSI 7250 WIND BAND LITERATURE II (3) LEC. 3. Coreq., Approved MUSE course. History of the development of the wind band from 1950 to present.

MUSI 7310 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 7320 AFRICAN-AMERICAN CHORAL MUSIC (3) LEC. 3. A study of the choral music of African-American composers and its interaction with western musical styles.

MUSI 7970 SPECIAL TOPICS IN MUSIC (1-6) DMU. Provides an opportunity for graduate students to pursue cooperatively selected topics. Course may be repeated for a maximum of 12 credit hours.

Music - Applied Courses

MUAP 1110 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1210 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1110. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1310 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1410 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1310. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1520 PERFORMANCE I (2) PRL. 1. Pr., Successful audition and Departmental approval. Instruction in major performance medium for the first-year BM or BA in Music major. One-hour private lesson per week.

MUAP 1620 PERFORMANCE II (2) PRL. 1. Pr. MUAP 1520. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year BM or BA in Music major. One hour private lesson per week.

MUAP 2110 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1210. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week

MUAP 2210 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2110. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week.

MUAP 2520 PERFORMANCE III (2) PRL. 1. Pr. MUAP 1620. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 2620 PERFORMANCE IV (2) PRL. 1. Pr. MUAP 2520. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3120 PERFORMANCE V (1) PRL. 1. Pr. MUAP 2210. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3220 PERFORMANCE VI (1) PRL. 1. Pr. MUAP 3120. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3520 PERFORMANCE V (2) PRL. 1. Pr. MUAP 2620. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3620 PERFORMANCE VI (2) PRL. 1. Pr. MUAP 3520. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4520 PERFORMANCE VII (2) PRL. 1. Pr. MUAP 3620. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4620 PERFORMANCE VIII (2) STU. 1. Pr. MUAP 4520. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week. Course may be repeated for a maximum of 4 credit hours.

MUAP 4630 PERFORMANCE (1) PRL. 1. Pr. MUAP 4530. Departmental approval. Instruction in major performance medium for the fourth-yearmusic theatre major. Two half-hour private lessons perweek. Successful audition and

Music Ensemble Courses

MUSE 1100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 1150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 1160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 1240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 1260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 1300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 1440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 1600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 1620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 2100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2120 SYMPHONIC BAND (1) LAB. 3. Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 2150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 2160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 2240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 2260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 2300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2310 CONDUCTOR'S CHORUS (1) LAB. 3. . Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 2440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 2600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 2620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 3100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 3150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 3160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 3240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 3260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 3300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 3360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 3440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 3480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 3600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 3620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 4100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 4150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 4160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 4240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 4260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 4300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4390 HORN ENSEMBLE (1) LAB. 3. Pr., Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Department approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 4440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 4600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 4620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 7400 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7410 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7510 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7610 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

Philosophy Courses

PHIL 1010 INTRODUCTION TO LOGIC (3) LEC. 3. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1017 HONORS LOGIC (3) LEC. 3. Pr. Honors College. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1020 INTRODUCTION TO ETHICS (3) LEC. 3. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought. May count either PHIL 1020 or PHIL 1023.

PHIL 1027 HONORS ETHICS (3) LEC. 3. Pr. Honors College. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought.

PHIL 1030 ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1037 HONORS ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Pr. Honors College. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1040 BUSINESS ETHICS (3) LEC. 3. Humanities Core. Types of ethical theory; application to such normative issues in commerce as advertising, management, and business abroad.

PHIL 1050 INTRODUCTION TO POLITICAL PHILOSOPHY (3) LEC. 3. Humanities Core. Principal theories and thinkers in political philosophy from antiquity to the present.

PHIL 1060 PHILOSOPHY EAST AND WEST (3) LEC. 3. Humanities Core. Principal thinkers and theories in four philosophical traditions: Indian, Chinese, European, and Arabic.

PHIL 1070 ART, VALUE, AND SOCIETY (3) LEC. 3. Humanities Core. Introduction to philosophical aesthetics, focusing on the relationship of artistic values and the extra-artistic values of societies that house them.

PHIL 1080 INTRODUCTION TO PHILOSOPHY OF RELIGION (3) LEC. 3. Humanities Core. Philosophy of religion, including questions about God's existence, relationship of reason and faith, religious epistemology, and language.

PHIL 1090 PHILOSOPHY OF RACE AND GENDER (3) LEC. 3. Humanities Core. Philosophical issues associated with race and gender, including role of biology and social construction, nature of prejudice, questions about justice and redress.

PHIL 1100 INTRODUCTION TO PHILOSOPHY (3) LEC. 3. Humanities Core. Methods of philosophical inquiry and examination of selected philosophical topics. May count either PHIL 1100 or PHIL 1103.

PHIL 1110 ETHICAL AND CONCEPTUAL FOUNDATIONS OF SCIENCE (3) LEC. 3. Introduction to the moral and conceptual foundations of science, concentrating on ethical facets of scientific research, theorizing, and knowledge production, as well as conceptual issues regarding the nature of causation, induction, scientific explanation and confirmation. May count either PHIL 1110 or PHIL 1113.

PHIL 1120 INTRODUCTION TO ENVIRONMENTAL ETHICS (3) LEC. 3. Ethical inquiry into environmental issues such as non-human animal welfare, environmental justice, global climate change, resource use, and conservationism versus preservationism.

PHIL 1130 MINDS AND MACHINES: THE PHILOSOPHY OF ARTIFICIAL INTELLIGENCE (3) LEC. 3. LAB. 0, LEC. 0. The course explores the foundations and ethical implications of Artificial Intelligences, including the nature of mind and consciousness, the moral ramifications of AI, and the relationship between AI and human creativity.

PHIL 2110 LOGIC AND REASONING (3) LEC. 3. Students will refine their ability to wield the tools of logical analysis in situations which call for precise reasoning, learning to apply these tools in a variety of contexts.

PHIL 2970 GATEWAY SEMINAR (3) LEC. 3. An introduction to philosophy through special topics. The course is designed to provide students with the basic skills required for more advanced work in philosophy. Topics vary. Course may be repeated for a maximum of 6 credit hours.

PHIL 3050 AESTHETICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Modern and contemporary theories of the nature of art.

PHIL 3060 PHILOSOPHY OF FILM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Consideration of philosophical issues raised within particular films and by the nature of cinematic representation in general.

PHIL 3100 ETHICAL THEORY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Overview of contemporary questions and positions in ethics, including moral realism, the rationality of moral action, subjectivism and non-cognitivism, naturalism, and various theories of practical reason.

PHIL 3110 SYMBOLIC LOGIC (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area IV) Propositional logic and predicate logic through relations; natural language and logic; some philosophical problems in logic.

PHIL 3200 RACE AND JUSTICE (3) LEC/SEM. Pr. A grade of D or higher in PHIL 1000-2999. This course is an intermediate introductory course that examines themes of race and justice from a philosophical perspective in both historical and contemporary contexts.

PHIL 3300 PHILOSOPHY OF RELIGION (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Nature of religion, religious experience, religious knowledge, religious theories of humanity and evil, arguments for the existence of God and immortality of the soul.

PHIL 3330 HISTORY OF ANCIENT PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from the Pre-Socratics through the Hellenistic philosophers, emphasizing Plato and Aristotle.

PHIL 3340 HISTORY OF EARLY MODERN PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Descartes to Kant, emphasizing major figures in the rationalist and empiricist traditions.

PHIL 3350 HISTORY OF LATE MODERN AND PRE-ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Kant to the Pre-Analytic philosophers, possibly including Schopenhauer, Hegel, Nietzsche, Kierkegaard, James, Brentano, Frege, Meinong, Cook-Wilson, Bradley, and Moore.

PHIL 3360 HISTORY OF EARLY ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought in the early Analytic period, including the works of Russell, Moore, Wittgenstein, and members of the Vienna Circle.

PHIL 3400 MEDIEVAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from late antiquity through the Middle Ages, with emphasis on the ideas of Plotinus, Islamic thinkers, Augustine, Abelard, Anselm, and Thomas Aquinas.

PHIL 3500 EPISTEMOLOGY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Origin, nature, kinds, and validity of knowledge, with considerations of faith, institution, belief, opinion, certainty, and probability.

PHIL 3510 PHILOSOPHY OF SCIENCE (3) LEC. 3. Student must have taken at least one philosophy course prior to taking PHIL 3510. Empirical meaning, verifiability, measurement, probability, causality and determinism.

PHIL 3530 PHILOSOPHY OF PHYSICS (3) LEC. 3. An overview of the philosophy of physics, with attention to topics such as the nature of matter, motion, change, space, time, space-time, time travel, Einstein's theories of special and general relativity, and non-relativistic quantum mechanics.

PHIL 3540 PHILOSOPHY OF MIND (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Classical and modern texts on the phenomenology of consciousness and mind-body problems.

PHIL 3550 PHILOSOPHY OF LANGUAGE (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Survey of contemporary philosophical discussions of the nature of language.

PHIL 3600 CLASSICAL POLITICAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. At least one course in philosophy at the 1000 level. Political thought of classical thinkers, including Plato, Aristotle, Machiavelli, Hobbes, Locke, Mill, Spencer, and Marx. (Area I for PHIL major)

PHIL 3620 CONTEMPORARY POLITICAL PHILOSOPHY (3) LEC. 3. Pr. POLI 3020. or at least one PHIL course at the 1000 or 2000 level. A survey of major schools of 20th- and 21st-century political thought, including liberalism, communitarianism, libertarianism, feminism, and anarchism. May count either PHIL 3620 or POLI 4340.

PHIL 3640 PHILOSOPHY OF LAW (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Functions of law, including judicial reasoning, ground of authority, natural law, legal responsibility, punishment, civil disobedience, and the relation of law to ethics.

PHIL 3660 APPLIED ETHICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Advanced philosophical study of the ethical issues that arise in intellectual endeavors, such as law, business, military science, and engineering.

PHIL 3700 METAPHYSICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Critical analysis of such topics as monism and pluralism, freedom and determinism, realism and nominalism, and the mind-body problem.

PHIL 3740 EXISTENTIALISM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Selected works of such authors as Kierkegaard, Neitzsche, Sartre, Jaspers, and Heidegger.

PHIL 3800 FEMINISM AND PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. This is an intermediate level philosophy course introducing students to feminist philosophers' attempts to grapple with traditional philosophical problems that either directly or indirectly bear on issues of gender and oppression. Texts may include historical and contemporary discussions of topics of concern to feminists, in any of the following areas: metaphysics, epistemology, ethics, philosophy of science, language, law and social political philosophy.

PHIL 3970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Topics vary. Course may be repeated for a maximum of 6hours.

PHIL 4110 ADVANCED LOGIC (3) LEC. 3. Pr. (P/C PHIL 3110 or P/C MATH 3100). Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics. May count either PHIL 4110 or MATH 4110.

PHIL 4920 INTERNSHIP (3) INT. 200. SU. Opportunity to apply skills acquired in classroom in career setting. Internship must be supervised and appropriate to major.

PHIL 4960 SPECIAL PROBLEMS IN PHILOSOPHY (1-6) IND. Pr., Departmental approval. Reading program on a particular philosopher, period, or problem. Course may be repeated for a maximum of 6 credit hours.

PHIL 4967 HONORS SPECIAL PROBLEMS IN PHILOSOPHY (1-3) IND. Pr. Honors College or Departmental approval. Reading program on a philosopher, period, or problem. Course may be repeated for a maximum of 3 credit hours.

PHIL 4970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 6 credits in PHIL 3000-3999. Advanced topics in ethics and value theory, metaphysics and epistemology, or history of philosophy. Emphasis on readings drawn from the contemporary, professional literature. Course may be repeated for a maximum of 9 credit hours. Area distribution requirement fulfilled depends on class content.

PHIL 4980 UNDERGRADUATE RESEARCH (3) PRA. Pr. A grade of D or higher in PHIL 4000-4999. Pr. One 3-hour philosophy class at the 4000 level or instructor permission. Capstone course in which students develop previously written paper into presentation to be delivered at end-of-semester conference.

PHIL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Senior thesis. Course may be repeated for a maximum of 3 credit hours.

PHIL 6950 SEMINAR (1-3) SEM. Pr., Departmental approval. Content varying from movements of thought to an extensive study of one of the great thinkers. Course may be repeated for a maximum of 3 credit hours.

Political Science Courses

POLI 1050 GLOBAL POLITICS AND ISSUES (3) LEC. 3. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1057 HONORS GLOBAL POLITICS AND ISSUES (3) LEC. 3. Pr. Honors College. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1090 AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the the United States has impacted its politics.

POLI 1097 HONORS AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Pr. Honors College. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the United States has impacted its politics.

POLI 2100 STATE GOVERNMENT AND POLICY (3) LEC. 3. Organization and operation of American state governments, including their relationship to the United States federal system and their role in public policy issues.

POLI 2120 URBANIZATION AND THE CITY (3) LEC. 3. This course introduces students to main themes and problems in the interdisciplinary field of urban studies.

POLI 2300 INTRODUCTION TO THE LEGAL PROFESSION (3) LEC. 3. This course introduces students to various aspects of the legal profession, including its procedural elements, practice areas, and practitioners.

POLI 2310 INTRODUCTION TO LEGAL RESEARCH AND WRITING (3) LEC. 3. Introduction to legal research and writing, including legal databases, legal citation, and basic components of effective legal writing.

POLI 3000 POLITICAL SCIENCE RESEARCH METHODS I (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Introduction to the basic concepts and methodology used in contemporary political analysis.

POLI 3020 INTRODUCTION TO POLITICAL THEORY (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1020 or PHIL 1023 or PHIL 1027. Selected major themes in political thought from ancient to modern times.

POLI 3080 MODEL UNITED NATIONS (3) LEC. 3. This course offers an in-depth analysis of the workings of the United Nations. It involves thorough studies of countries, the veto-power of the Security Council, and prepares students to participate in a Model United Nations exercise.

POLI 3090 INTRODUCTION TO INTERNATIONAL RELATIONS (3) LEC. 3. International relations, including a consideration of the bases of national power and the rudiments of international politics.

POLI 3100 INTRODUCTION TO WORLD AFFAIRS (3) LEC. 3. Contemporary international politics and an evaluation of foreign policy objectives and strategies of seven major countries and how their stability as sovereign states are affected.

POLI 3110 NATIONAL SECURITY LAW (3) LEC. 3. This course provides an overview of the law and historic use of U.S. national security power, with emphasis on constitutional issues, federal statutes, regulations, executive orders, and court decisions.

POLI 3120 INTRODUCTION TO COMPARATIVE POLITICS (3) LEC. 3. Methods of classifying governments by institutional and developmental characteristics.

POLI 3130 INTERNATIONAL AND COMPARATIVE LAW (3) LEC. 3. Examination of international law and different legal systems from around the world.

POLI 3140 AMERICAN FOREIGN POLICY (3) LEC. 3. Analysis of the decision-making process of American foreign policy and/or of selected current issues of American foreign policy.

POLI 3160 NATIONAL SECURITY POLICY (3) LEC. 3. Introduction to national security aspects of United States foreign policy.

POLI 3170 RUSSIAN FOREIGN POLICY (3) LEC. 3. Analysis of the decision-making process of Russian foreign policy and/or of selected current issues of Russian foreign policy.

POLI 3180 LATIN AMERICA AND THE UNITED STATES (3) LEC. 3. Analysis of the political, social, and economics aspects of Latin American-United States relations.

POLI 3190 INTERNATIONAL RELATIONS OF THE MIDDLE EAST (3) LEC. 3. Survey of contemporary issues in international relations, focusing on the Middle East.

POLI 3240 ADMINISTRATION OF JUSTICE (3) LEC. 3. Components of the American legal system responsible for administration of public justice.

POLI 3250 INTRODUCTION TO PUBLIC ADMINISTRATION (3) LEC. 3. Pr. P/C POLI 1090 or P/C POLI 1093 or P/C POLI 1097. Administration in the public sector with particular emphasis on public administration as it exists in modern American government. May count either POLI 3250 or POLI 3253.

POLI 3260 ORGANIZATION THEORY (3) LEC. 3. Pr. POLI 3250. Structure and function of governmental organizations with an emphasis on theories of administrative hierarchies and evaluation of bureaucracy.

POLI 3270 POLICY PROCESS (3) LEC. 3. Formulation and implementation of public policy; the roles of the major governmental institutions in policy-making.

POLI 3290 AMERICAN EXECUTIVE POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Examination of institutions and processes that impact the elections, decisions, and other outcomes of political actors within state and federal executive offices.

POLI 3300 LAW AND SOCIETY (3) LEC. 3. Introduction to how law and legal actors influence and mediate some of the basic conflicts in society.

POLI 3310 THE LEGISLATIVE PROCESS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Principles, procedures, and problems of lawmaking in the United States; special attention to Congress and state legislatures.

POLI 3320 JUDICIAL PROCESS (3) LEC. 3. Basic information about the structure and function of courts and the role of judges in all societies, with a special focus on American.

POLI 3330 MOCK TRIAL COMPETITION COURSE (2) LLB. Departmental approval. Preparation for and competition in national mock trial program, including practical study of rules of evidence and trial procedure used in the American judicial system. The course is restricted to students selected for the Auburn University Mock Trial Team. Students should consult with their academic advisors regarding how course credit is applied toward curriculum requirements in their major. Course may be repeated for a maximum of 12 credit hours.

POLI 3340 INTRODUCTION TO CONFLICT RESOLUTION (3) LEC. 3. Methods of conflict resolution at various levels, from the interpersonal to international.

POLI 3350 CONTROVERSIES IN CONSTITUTIONAL LAW (3) LEC. 3. Origins and influence of controversial Supreme Court decisions, in such areas as religion, free speech, privacy, abortion, and criminal justice.

POLI 3360 FEDERAL JURISDICTION (3) LEC. 3. Introduction to the federal court system and Federal Jurisdiction under Article III.

POLI 3370 FEDERAL INDIAN LAW (3) LEC. 3. Introduction to the federal laws governing and regulating the relationship between tribal nations, on the one hand, and the states and federal governments, on the other.

POLI 3380 EVIDENCE AND LEGAL REASONING (3) LEC. 3. Introduction to the rules governing the presentation of evidence at trial.

POLI 3390 RELIGION AND POLITICS (3) LEC. 3. Interaction of religion with governmental institutions, elections, and public policies.

POLI 3400 POLITICAL PARTIES AND INTEREST GROUPS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Nature, organization and operation of political parties in the United States; suffrage; nominating and electoral processes; importance and nature of interest groups.

POLI 3410 POLITICAL PARTICIPATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Political participation in the traditional and unconventional forms and the developing trends in citizen participation in recent years.

POLI 3430 JUSTICE AND SOCIETY (3) LEC. 3. Historical overview of issues affecting legal policy.

POLI 3450 INTERNATIONAL SECURITY (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. An overview of the most pressing international security problems today through a lens of how states and other international actors respond to and manage such problems.

POLI 3460 INTERNATIONAL CONFLICT RESOLUTION (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Theories and practice on the management and resolution of international and civil conflict.

POLI 3470 INTERNATIONAL ORGANIZATIONS (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Exploration of various theories of international cooperation and of a wide-range of specific international organizations at the global level (the United Nations system, the World Trade Organization) and at the regional level (like the European Union), with an eye toward insight into the benefits and limitations of international organizations in global politics.

POLI 3510 THE EUROPEAN UNION (3) LEC. 3. Analysis of the complex mixture of historical, economic, and cultural phenomena that comprise the European Union.

POLI 3520 COMPARATIVE POLITICS OF THE MIDDLE EAST (3) LEC. 3. Domestic politics in the states of the Middle East.

POLI 3540 EAST EUROPEAN POLITICS (3) LEC. 3. Survey and analysis of evolving political institutions and policies in eastern and central Europe under Communism and in the post-Communism period.

POLI 3550 GOVERNMENT AND POLITICS OF LATIN AMERICA (3) LEC. 3. Political environment, institutions and processes of Latin America, emphasizing factors that influence the degree of democracy and authoritarianism, stability and instability, and political development.

POLI 3560 THE ARAB SPRING (3) LEC. 3. Examination of the Arab Uprising that began in Tunisia in 2010 and spread to the rest of the region.

POLI 3570 WOMEN AND GLOBAL POLITICS (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Exploration of women and political representation, including why political representation matters, theories of substantive and descriptive representation, political institutions that facilitate or hinder the electoral success of women and other marginalized groups, and the unique strengths and obstacles to women participating in the political process as candidates, constituents, and office holders.

POLI 3580 POLITICS AND CULTURE (3) LEC. 3. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Analyzes the relationship between politics and culture, both historically and contemporarily. Specific attention is paid to how culture is defined, the politicization of culture, how political activity and behavior are shaped by culturally-specific symbols and meaning, and how culture shapes our understanding of concepts such as the economy, states, class, political participation and social movements.

POLI 3590 THE POLITICS OF NATO (3) AAB. This course is designed to familiarize students with the basic theoretical and practical approaches to understanding the national security and foreign policy components of the relationship between the United States and its allies along the Atlantic Ocean.

POLI 3610 ASIAN POLITICS (3) LEC. 3. Politics of the leading nations in East Asia with major attention being devoted to China, Japan, North and South Korea, and Taiwan.

POLI 3670 POLITICAL ECONOMY (3) LEC. 3. Pr. POLI 1090. Examination of normative issues in political-economic systems. Fulfills political theory requirement.

POLI 3680 ENVIRONMENTAL POLICY (3) SEM. 3. This course covers federal, state, and local environmental policy-making and governance. It discusses how planners, policy-makers, and government officials implement existing environmental policies, how environmental policies are created, theories of environmental policy, and new and emerging methods of environmental policy.

POLI 3710 ISSUES IN AMERICAN POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Topics in American politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3720 ISSUES IN COMPARATIVE POLITICS (3) LEC. 3. Topics in comparative politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3730 ISSUES IN INTERNATIONAL RELATIONS (3) LEC. 3. Topics in international relations. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3750 ISSUES IN PUBLIC ADMINISTRATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Topics in public administration. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3760 ISSUES IN PUBLIC POLICY (3) LEC. 3. Topics in public policy. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3770 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (3) LEC. 3. Topics in public law and conflict resolution. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours

POLI 3800 PROFESSIONAL LEGAL ETHICS (3) LEC. 3. This course focuses on legal ethics as prescribed within the American professional legal community.

POLI 3810 INTRODUCTION TO TORTS (3) LEC. 3. This course surveys legal doctrines governing responsibility and compensation for civil wrongs that people do to each other (car accidents, medical malpractice, etc.).

POLI 3980 UNDERGRADUATE RESEARCH (1-3) LAB. Pr. POLI 3000. Supplementary learning concurrent with experience political science research. May be repeated twice, with change of topic. Course may be repeated for a maximum of 6 credit hours.

POLI 4000 TRIAL ADVOCACY (3) LEC. 3. This course focuses on trial advocacy in the United States and the constitutional, statutory, and procedural rules that govern it. The course also helps students develop the oral, written, and organizational skills needed to conduct a trial.

POLI 4010 CONSTITUTIONAL LAW: GOVERNMENT POWERS (3) LEC. 3. Constitutional law cases dealing with separation of powers, federalism, and elections.

POLI 4020 CONSTITUTIONAL LAW: CIVIL LIBERTIES (3) LEC. 3. Constitutional law cases dealing with First Amendment freedoms of religion, speech, press, assembly, and association.

POLI 4030 CONSTITUTIONAL LAW: CIVIL RIGHTS (3) LEC. 3. Supreme Court opinions defining gender discrimination, race discrimination, age discrimination, affirmative action, and such right to privacy issues as abortion, marriage, and physician-assisted suicide.

POLI 4040 CONSTITUTIONAL LAW: CRIMINAL JUSTICE (3) LEC. 3. Supreme Court rulings of Fourth, Fifth, Sixth, and Eighth Amendments to the United States Constitution.

POLI 4050 AMERICAN LOCAL GOVERNMENT (3) LEC. 3. Pr. POLI 2100. Structure of local government, the roles and incentives of key elected and appointed officials, and the policy issues faced by those officials.

POLI 4060 ADVANCED LEGAL RESEARCH AND WRITING (3) LEC. 3. Pr. POLI 2310. An advanced approach to case law and statutes, legal research and bibliography, legal analysis, writing legal memoranda, and writing for readability.

POLI 4140 PUBLIC FINANCE (3) LEC. 3. Pr. POLI 3250. Theory and practice of public finance, with an emphasis on applications in state and local government.

POLI 4160 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Pr. POLI 3250. Responsibilities, challenges, and opportunities that confront modern public administration in the management of human resources.

POLI 4200 CAMPAIGNS AND ELECTIONS (3) LEC. 3. Pr. POLI 1090 or POLI 1093. Examination of the theory and methods of studying elections and general election campaigns, as well as corresponding structural rules, in the United States.

POLI 4340 CONTEMPORARY POLITICAL THEORY (3) LEC. 3. Pr. POLI 3020 or PHIL 1050 or PHIL 1053. Survey of late 20th- and early 21st- century political philosophies, including neo-classicist, post-modernist, communitarian, and critical theories.

POLI 4710 NATIONALISM AND ETHNIC CONFLICT (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. This course surveys the politics of ethnicity and nationalism and their effect on conflicts around the globe.

POLI 4720 STRATEGIC INTELLIGENCE (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Examination of the US Intelligence Community and its role in the collection and analysis of intelligence, how this intelligence is used by policymakers in pursuit of national security, and oversight of these powers to prevent abuses.

POLI 4730 ADVANCED POLITICAL SIMULATIONS (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1057 or POLI 1090 or POLI 1093 or POLI 1097. Exploration of core international relations concepts and processes through the team-based design and execution of a variety of advanced political simulations, games, and/or role-playing activities.

POLI 4740 COMPARATIVE CIVIL-MILITARY RELATIONS (3) LEC. Pr. POLI 1050 or POLI 1057. In-depth examination of the role of the military in different political systems and how governments control and manage relations with their militaries. Topics include the military in democracy, comparative military effectiveness, the military and regime transitions, and in-depth examinations of militaries and their roles in politics in historical great powers.

POLI 4890 LAWJ INTERNSHIP PREPARATION (1) LEC. 1. Pr. POLI 2300. This course prepares students for their Law and Justice internship. Students will learn how to bring the skills they have developed in the classroom into their internship. Pre-requisite for all LAWJ students taking POLI 4920.

POLI 4920 INTERNSHIP (1-6) AAB/INT. SU. Internship in selected areas of political science. Course may be repeated for a maximum of 6 credit hours.

POLI 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. POLI 1090 or POLI 1093 or POLI 1097. Directed study course in political science that allows students to explore concepts not covered in other courses. Course may be repeated with a change in topic. Course may be repeated with change in topics.

POLI 4940 LAW & JUSTICE INTERNSHIP (3-6) INT. SU. Pr. POLI 2300 and POLI 2310. Departmental approval. Law & Justice (LAWJ-BA) major only. Internship in a law-related setting. 3.0 major GPA required. Course may be repeated for a maximum of 6 credit hours.

POLI 4960 SPECIAL PROBLEMS (1-3) IND. Examination of a specific problem in political science, including topics such as American policies, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topic.

POLI 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 4997 HONORS THESIS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Course may be repeated for a maximum of 6 credit hours.

POLI 5150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 5160 RESILIENCY FOR PUBLIC AND NONPROFIT INSTITUTIONS: CONCEPTS AND METHODS (3) LEC. 3. This course is an introduction to theories, concepts, and methods of improving resiliency in nonprofit and public institutions. The course first covers the underlying vulnerabilities to which we apply resiliency and the broad theories and frameworks of resiliency from multiple perspectives. Next, the class covers methods of analyzing the resiliency of nonprofit and public institutions. Finally, the course covers how to apply the outcomes of resiliency analysis in public and nonprofit settings.

POLI 5170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not given for both POLI 5170 and POLI 6170.

POLI 5180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule-making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 5210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 5210 and POLI 6210.

POLI 5270 ELECTION ADMINISTRATION (3) LEC. 3. Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.

POLI 5280 ELECTION ADMINISTRATION REFORM POLICY (3) LEC. 3. Pr. POLI 1090 or POLI 1093. This course provides an advanced undergraduate-level introduction to current election administration reforms through policy and regulation at the national, state and local levels. Credit will not be given for both POLI 5280 and POLI 6280.

POLI 5340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Theoretical and comparative perspectives on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 5340 and POLI 6340.

POLI 5350 NONPROFIT LAW AND GOVERNANCE (3) LEC. 3. Introduction to the legal principles that apply to the governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 5360 NONPROFIT RESOURCE DEVELOPMENT (3) LEC. 3. Examination of important aspects of the fundraising process as carried out by nonprofit organizations.

POLI 5370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370, POLI 5373, and POLI 6370.

POLI 5380 INGOS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 3. Examines the size, scope, and role of global civil society, emphasizing organizations active in international development: grassroots NGOs, international nonprofits, and transnational aid agencies. Covers innovations in global philanthropy, and opportunities and challenges faced by global civil society.

POLI 5390 NGOS AND INTERNATIONAL DEVELOPMENT (3) LEC. 3. Examination of theories of development and practical strategies and approaches that NGO development practitioners take to improve the likelihood of development in the future.

POLI 5410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and government of the southern region of the United States. Credit will not be given for both POLI 5410 and POLI 6410.

POLI 5470 COMPARATIVE ELECTION ADMINISTRATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093. This course focuses on comparative election administration systems and electoral structures in western democracies and other countries that use elections in the selection of leaders and policy determinations. Credit will not be given for both POLI 5470 and POLI 6470.

POLI 5480 INFORMATION SECURITY AND RISK MANAGEMENT (3) LEC. 3. Pr. POLI 1090 or POLI 1093. Exploration of the concepts of information in public administration including the idea of public information, risk management and security. Credit will not be given for both POLI 5480 and POLI 6480.

POLI 5490 SURVEY RESEARCH METHODS (3) LEC. 3. Pr. POLI 3000. Examination of theoretical models of survey responses, as well as common approaches and best practices to survey design, recruitment, and analysis.

POLI 5510 ISSUES IN AMERICAN POLITICS (1-3) DSL/LEC. Pr. POLI 1090 or POLI 1093 or POLI 1097. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 5530 ISSUES IN INTERNATIONAL RELATIONS (1-3) AAB/LEC. Topics in international relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and POLI 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 5540 ISSUES IN POLITICAL THEORY (1-3) DSL/LEC. Topics in political theory. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and POLI 6540. Course may be repeated for a maximum of 6 credit hours.

POLI 5550 ISSUES IN PUBLIC ADMINISTRATION (1-3) DSL/LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 5560 ISSUES IN PUBLIC POLICY (1-3) DSL/LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 5570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) DSL/LEC. Topics in public law and conflict resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 5580 ISSUES IN POLITICAL METHODOLOGY (3) LEC. 3. Pr. POLI 3000. Topics in political methodology. Focus will vary according to the instructor. Credit will not be given for both POLI 5580 and POLI 6580. Course may be repeated for a maximum of 6 credit hours.

POLI 5610 WOMEN IN POLITICS (3) LEC. 3. Examination of the political role of women in American society. Credit will not be given for both POLI 5610 and POLI 6610.

POLI 5710 PERSIAN GULF POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Examination of the politics of the Persian Gulf. Credit will not be given for both POLI 5710 and POLI 6710.

POLI 6150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Graduate level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes, and emerging issues.

POLI 6160 RESILIENCY FOR PUBLIC AND NONPROFIT INSTITUTIONS: CONCEPTS AND METHODS (3) LEC. 3. This course is an introduction to theories, concepts, and methods of improving resiliency in nonprofit and public institutions.

POLI 6170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.

POLI 6180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 6210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 6210 and POLI 5210.

POLI 6270 SEMINAR IN ELECTION ADMINISTRATION (3) LEC. 3. This course provides a graduate-level introduction to election administration and the roles of, and relationships between American local, state, and federal governments.

POLI 6280 ELECTION ADMINISTRATION REFORM POLICY (3) LEC. 3. This course provides a graduate-level introduction to current election administration reforms through policy and regulation at the national, state and local levels.

POLI 6340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Theoretical and comparative perspective on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 6340 and POLI 5340.

POLI 6350 NONPROFIT LAW AND GOVERNANCE (3) LEC. 3. Introduction to the legal principles that apply to the formation, governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 6360 NONPROFIT RESOURCE DEVELOPMENT (3) LEC. 3. This course examines the important aspects of the fundraising process as carried out by nonprofit organizations—its value base, preparation of the case, implementation of relevant strategies and techniques, assessment of potential sources of support, utilization of human resources, and overall process management. The course will include theory to undergird practice, examination and analysis of current practice, proposal of practice standards, and discussion of ethical problems.

POLI 6370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370 and POLI 6370.

POLI 6380 INGOS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 3. Examines the size, scope, and role of global civil society outside of the US, with an emphasis on organizations active in international development, including international nonprofits, transnational aid agencies, and unilateral aid.

POLI 6390 NGOS AND INTERNATIONAL DEVELOPMENT (3) LEC. 3. This course combines theories of development, and academic and practitioner research on development, with practical strategies and approaches that NGO development practitioners have, can or should take to improve the likelihood of development in the future. It is intended to provide an overview of past and current approaches to development, which will help students develop knowledge and skills needed for a career in international development. The following questions form the basis of inquiry for this course: When we say “development” in the international context, what do we mean? How can we measure development? How have countries developed in the past, and what strategies can under-developed countries take to increase their level of political and economic development? How have our collective views on “how development happens” changed over time, and where do they stand currently? What role do donors, aid, and NGOs play in development? What do NGO development practitioners need to know in order to do their jobs well? Graduate students only, unless student is enrolled in the MPA's ABM program.

POLI 6410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and to a lesser extent government of the southern region of the United States. Credit will not be given for POLI 5410 and POLI 6410.

POLI 6470 COMPARATIVE ELECTION ADMINISTRATION (3) LEC. 3. This course focuses on comparative election administration systems and electoral structures in western democracies and other countries that use elections in the selection of leaders and policy determinations.

POLI 6480 INFORMATION SECURITY AND RISK MANAGEMENT (3) LEC. 3. Exploration of the concepts of information in public administration including the idea of public information, risk management and security. Credit will not be given for both POLI 5480 and POLI 6480.

POLI 6490 SURVEY RESEARCH METHODS (3) LEC. 3. Pr. POLI 7000. Examination of theoretical models of survey responses, as well as common approaches and best practices to survey design, recruitment, and analysis.

POLI 6510 ISSUES IN AMERICAN POLITICS (1-3) DSL/LEC. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 6520 ISSUES IN COMPARATIVE POLITICS (1-3) DSL/LEC. Topics in comparative politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and POLI 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 6550 ISSUES IN PUBLIC ADMINISTRATION (1-3) DSL/LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 6560 ISSUES IN PUBLIC POLICY (1-3) DSL/LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 6580 ISSUES IN POLITICAL METHODOLOGY (3) LEC. 3. Pr. POLI 7000. Topics in political methodology. Focus will vary according to the instructor. Credit will not be given for both POLI 5580 and POLI 6580. Course may be repeated for a maximum of 6 credit hours.

POLI 6610 WOMEN IN POLITICS (3) LEC. 3. A theoretical, historical, social, and political examination of the role of women in American society. Credit will not be given for both POLI 6610 and POLI 5610.

POLI 7000 RESEARCH METHODS FOR PUBLIC AND NONPROFIT ORGANIZATIONS (3) LEC. 3. Statistics and other quantitative techniques for the analysis of policy and for administrative decision making.

POLI 7050 STATE POLITICS (3) LEC. 3. Current and classical research on state government, politics, and policy. Students critique others' research and design their own for submission to a professional journal.

POLI 7140 FINANCIAL MANAGEMENT FOR PUBLIC AND NONPROFIT ORGANIZATIONS (3) LEC. 3. This course is designed to introduce both practical and theoretical principles utilized in public financial management.

POLI 7150 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Personnel policies, processes, and politics in American governments, including history, theory, and practice.

POLI 7160 FINANCIAL ADMINISTRATION (3) LEC. 3. Application of macroeconomic theory to public finance, with emphasis on capital budgeting, taxation, user charges, debt administration, cash management, and investment for small governments.

POLI 7260 ORGANIZATIONAL THEORY AND ADMINISTRATIVE BEHAVIOR (3) LEC. 3. Structure and functioning of government organizations, with an emphasis on applied management and on leadership techniques.

POLI 7330 SEMINAR IN ADMINISTRATIVE LEADERSHIP, RESPONSIBILITY, AND DEMOCRATIC GOVERNMENT (3) SEM. 3. Problems and ethics, democratic theory and leadership as they relate to public administration.

POLI 7350 FOUNDATIONS OF PUBLIC ADMINISTRATION AND PUBLIC SERVICE (3) SEM. 3. Introduction to public administration as practiced in the United States.

POLI 7360 FOUNDATIONS OF PUBLIC POLICY (3) DSL/SEM. 3. Formation, execution, and evaluation of public policy and an in-depth analysis of selected policy areas.

POLI 7520 PROGRAM EVALUATION (3) LEC. 3. This course provides a graduate-level focus on the theory and practice of program evaluation in the public sector with attention to program planning, process assessment, and impact assessment.

POLI 7630 DIVERSITY IN PUBLIC LIFE (3) LEC. 3. Developing and institutionalizing diversity in complex public organizations as a major part of organizational culture.

POLI 7700 ECONOMIC DEVELOPMENT AND COMPETITION (3) LEC. 3. Politics of economic development at the local, state, and national levels, especially the infrastructure offered by communities and the types of plans that might attract outside investment.

POLI 7920 MPA INTERNSHIP (3-6) DSL/INT. SU. Administrative experience in a governmental agency or nonprofit organization or participation in an approved public sector research or applied project. Course may be repeated for a maximum of 6 credit hours.

POLI 7930 MPA RESEARCH PROJECT (3-6) DSL/IND. SU. Completion and approval of a paper related to a policy or administrative issue or problem. Course may be repeated for a maximum of 6 credit hours.

POLI 7960 SPECIAL PROBLEMS (1-3) DSL/IND. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 7970 SPECIAL TOPICS (1-3) LEC. Selected topics in Political Science: 1) American Politics;2) Comparative Politics; 3) International Relations; 4)Political Theory; 5)Public Administration; 6) Public Policy; 7) Public Law; 8) Methodology. Credit will not be given for both POLI 7970 and POLI 4970. Course may be repeated with change in topics.

POLI 7AA0 MPA EPORTFOLIO (0) PR1. SU. The completion of an ePortfolio is required for all students in the Master of Public Administration (MPA) program. The ePortfolio is completed during the final semester of the MPA program. Course may be repeated for a maximum of 10 credit hours.

POLI 7AA1 INTENSIVE ECONOMIC DEVELOPMENT TRAINING COURSE (0) PR1. SU. The completion of week one of the Government and Economic Development Institute (GEDI) Intensive Economic Development Training Course is required for the completion of the Graduate Certificate in Economic Development. The intensive introduces students to all phases of economic development and provides an overview of economic development tools and principles. Course may be repeated with change in topics.

POLI 8000 DOCTORAL SEMINAR IN PUBLIC ADMINISTRATION (3) LEC. 3. Nature of public administration as a field of study and different theoretical perspectives as reflected in current research.

POLI 8010 RESEARCH DESIGN AND ANALYSIS (3) LEC. 3. Development and testing of causal models in political and social science. Students will develop a complex research design under the close supervision of the instructor.

POLI 8020 DOCTORAL SEMINAR IN PUBLIC POLICY (3) SEM. 3. Advanced study of the nature of public policy development and implementation.

POLI 8120 QUALITATIVE RESEARCH METHODS (3) SEM. 3. In-depth analysis of the use of qualitative methods in political science research.

POLI 8130 QUANTITATIVE METHODS (3) LEC. 3. Pr. POLI 8110. In-depth analysis of the use of quantitative methods in political science research.

POLI 8210 SEMINAR IN PROFESSIONAL DEVELOPMENT PART 1 (1) LEC. 1. Departmental approval. This course is the first of a two-part series of classes designed to introduce doctoral students to the academic profession and to provide them with experiences that reflect the types of tasks they will be required to carry out in a research position.

POLI 8220 SEMINAR IN PROFESSIONAL DEVELOPMENT PART 2 (2) LEC. 2. Pr. POLI 8210. Departmental approval. This course is the second in a two-part series of classes designed to introduce doctoral students to the academic profession and to provide them with experiences that reflect the types of tasks they will be required to carry out in a research position.

POLI 8450 COMPARATIVE POLITICS AND PUBLIC POLICY (3) LEC. 3. Theoretical approaches and important sub-field literatures. Applies insights and approaches to solving practical contemporary problems in public policy.

POLI 8650 POLITICAL THEORY AND PUBLIC POLICY (3) LEC. 3. Study of political theory in relation to issues of public policy.

POLI 8970 SPECIAL TOPICS (3) LEC. 3. Directed study of topics of interest. Course may be repeated for a maximum of 9 credit hours.

POLI 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Research related to writing the dissertation. Course may be repeated with change in topics.

Psychology Courses

PSYC 1010 NEUROSCIENCE SUCCESS STRATEGIES (2) LEC. 2. Introduction to the neuroscience major for new majors. Required of all majors and must be taken in the first year as a neuroscience major. Topics covered will be an overview of the neuroscience curriculum, course selection, faculty introduction, faculty expectations, student assessment, research opportunities, career planning and professional development, critical thinking, diversity, and ethics.

PSYC 2010 INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology. May count either PSYC 2010 or PSYC 2013.

PSYC 2017 HONORS INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Pr. Honors College. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology.

PSYC 2020 ORIENTATION TO PSYCHOLOGY MAJOR (1) LEC. 1. SU. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Orientation to the psychology major. Overview and design of psychology curriculum, faculty introduction, faculty expectations, student assessment, career development, study skills, diversity, and ethics.

PSYC 2130 ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. (MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH CORE). Introduces students to the cycle of collecting (using surveys and experiments), analyzing (using Excel) and reporting conclusions about psychological and other social and behavioral sciences data. The course provides a critical thinking approach for quantitative argumentation with data.

PSYC 2140 RESEARCH METHODS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2130 or PSYC 2133 or STAT 2510 or STAT 2513) and (PSYC 2017 or PSYC 2013 or PSYC 2010). Investigation of descriptive and experimental methods used in psychological research.

PSYC 2147 HONORS RESEARCH METHODS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2130 or PSYC 2133 or STAT 2510 or STAT 2513) and (PSYC 2017 or PSYC 2013 or PSYC 2010). Investigation of descriptive and experimental methods used in psychological research.

PSYC 2510 PSYCHOLOGY OF SEXUAL BEHAVIOR (3) LEC. 3. Biological, social, and psychological dimensions of human sexuality.

PSYC 3120 DEVELOPMENTAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 2010 or PSYC 2013 or PSYC 2017. Introduction to physical, cognitive, social and emotional development across the lifespan.

PSYC 3500 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Principles and procedures for management of human behavior. Fall, Spring.

PSYC 3510 BEHAVIORAL NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Exploration of the relationships between the brain and behavior.

PSYC 3520 PSYCHOLOGY OF LEARNING (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Phenomena involved in the acquisition of knowledge, skills, and patterns of action.

PSYC 3530 SENSATION AND PERCEPTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Study of perceptual phenomena and the structure and function of sensory systems.

PSYC 3540 COGNITIVE PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Phenomena involved with thinking and remembering.

PSYC 3550 PSYCHOLOGY AND CULTURE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Survey of the ways culture shapes, modifies and adds distinctiveness to human behaviors.

PSYC 3560 INTRODUCTION TO PSYCHOPATHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Exploration of our attempts to understand, explain, and classify abnormal behavior patterns.

PSYC 3570 THEORIES OF PERSONALITY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Survey of selected classical and contemporary theories of personality.

PSYC 3580 SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Scientific study of how people think about, influence, and relate to one another.

PSYC 3590 PSYCHOLOGY IN THE WORKPLACE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Application of basic psychological principles and theories in the workplace. May count either PSYC 3590 or PSYC 3593.

PSYC 3610 SPORTS PSYCHOLOGY (3) SEM. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Inquiry into how motivation, emotion, personality, and other mind-body variables influence physiology and athletic performance. Seminar class includes applied exercises in emotional expression, stress and pain management, hypnosis, and diet and exercise challenges.

PSYC 3620 COGNITIVE NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Exploration of how mental functions are linked to neural processes to enable the mind.

PSYC 3640 MOTIVATION AND EMOTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Overview of historical and contemporary perspectives on human motivation and emotion.

PSYC 3650 DRUGS AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Introduction to the behavioral effects of drugs, including drug abuse and its treatment.

PSYC 3660 PSYCHOLOGY OF GOOD AND EVIL (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). This class looks at the reasons why humans can act negatively against other people while maintaining a sense of their personal "normalcy".

PSYC 3670 PSYCHOLOGY OF SLEEP (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). This course will cover several topics pertaining to the psychology and physiology of sleep including circadian rhythms, the neuroscience of sleep, how sleep differs across the lifespan and across cultures, sleep quality, and sleep disorders. Students will also gain a deeper understanding of research methods in the field of sleep science and various theories that address why we sleep.

PSYC 3680 PSYCHOLOGY AND LAW (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). How psychological theories and research can inform civil and criminal legal practice, including psychological evaluations, jury selection, and predictions of violent behavior among other possible topics.

PSYC 3690 PSYCHOLOGICAL TRAUMA AND RESILIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). This course will provide an introduction to the field of trauma psychology, specifically focusing on definition, epidemiology, and consequences of psychological trauma, risk and protective factors for trauma exposure and outcomes, evidence-based trauma prevention and intervention strategies.

PSYC 3710 INTERGROUP PROCESSES: STEREOTYPING, PREJUDICE AND STIGMA (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). In this course, we will examine stereotyping, prejudice and stigma from a Social Psychological perspective. We will cover a wide variety of topics related to intergroup cognition and behavior (e.g., social cognitive approaches to stereotyping, stereotype threat, intergroup prejudice, and avenues to reduce intergroup biases).

PSYC 3910 SUPERVISED RESEARCH EXPERIENCE (3) LEC. 3. SU. Pr., Departmental approval. Supervised experience in research settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 3940 EXPERIENTIAL LEARNING (3) PRA. 3. SU. Pr., Departmental approval. Supplementary instruction concurrent with job or volunteer experience involving the application of psychological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

PSYC 3970 SPECIAL TOPICS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Theories, research and issues in contemporary psychology on selected topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 4010 CLINICAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Introduction to clinical psychology focusing on techniques of assessment and intervention.

PSYC 4080 HEALTH PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Psychological principles in health maintenance and health problems.

PSYC 4220 CHILD PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Child psychology from a life-span developmental perspective, emphasizing social-emotional development in infancy.

PSYC 4260 PSYCHOLOGY OF ADDICTIVE BEHAVIORS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Overview of various psychological features of addictive behaviors including alcohol and drug abuse, eating disorders, gambling and excessive sexual behavior.

PSYC 4910 HUMAN SERVICE PRACTICUM (3) PRA. 3. SU. Pr., Departmental approval. Supervised experience in service-delivery settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. In-depth study of a psychological topic under the direction of a faculty member. Only 6 credit hours may be applied to the psychology major. Course may be repeated for a maximum of 9 credit hours.

PSYC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. 2.30 GPA. STAT 2010. Course may be repeated for a maximum of 3 credit hours.

PSYC 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. STAT 2010. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 5020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Description, etiology, and treatment of psychological disturbances in children and adolescents.

PSYC 5610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Laboratory, occupational and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 5620 NEUROPHARMACOLOGY AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and PSYC 3510. Formerly Drugs, Brain, and Behavior. A review of drugs affecting nervous system function and behavioral or neural mechanisms that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Course meets APA criteria for Level 1. May count either PSYC 5620 or PSYC 6620.

PSYC 5690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. PSYC 2130. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count PSYC 5960 or PSYC 6960.

PSYC 5960 SEMINAR IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Seminar in research and theory on psychological topics. Course may be repeated with changes in topic. Course may be repeated for a maximum of 6 credit hours.

PSYC 6610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Laboratory, occupational, and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental exposures; and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 6620 NEUROPHARMACOLOGY AND BEHAVIOR (3) LEC. 3. Formerly Drugs, Brain, and Behavior. Review of drugs affecting nervous system function and behavioral or neural mechanisms that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Course meets APA criteria for Level 1 training in psychopharmacology.

PSYC 6690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count either PSYC 5690, PSYC 6690 or PSYC 6696.

PSYC 6960 SPECIAL PROBLEMS (3) LEC. 3. Pr., Departmental approval. Seminar in research and theory on psychological topics. Course may be repeated for a maximum of 18 credit hours.

PSYC 7100 HISTORY OF IDEAS IN PSYCHOLOGY (3) LEC. 3. Historical developments in psychology with emphasis on the major theories and systems.

PSYC 7110 ETHICS AND PROBLEMS OF SCIENTIFIC AND PROFESSIONAL PSYCHOLOGY (1) LEC. 1. Survey of ethical issues and current problems in psychology.

PSYC 7120 TEACHING OF PSYCHOLOGY (3) LEC. 3. Problems and practices of teaching psychology at the college level. In addition to seminar meetings, students work with faculty in appropriate courses.

PSYC 7140 LEARNING AND CONDITIONING (3) LEC. 3. Respondent conditioning and operant behavior, including acquisition of language and other forms of individual and environmental interactions.

PSYC 7150 BIOLOGICAL PSYCHOLOGY (3) LEC. 3. Behavior from a biological perspective, including theory and research from the neurosciences and biopsychology.

PSYC 7160 HUMAN DEVELOPMENT (3) LEC. 3. Introduction to conceptual and substantive issues of developmental psychology from a life-span developmental perspective.

PSYC 7170 THEORIES OF PERSONALITY (3) LEC. 3. Analysis of current issues in personality theory.

PSYC 7180 SOCIAL PSYCHOLOGY (3) LEC. 3. Topics and literature on the social foundations of behavior.

PSYC 7190 COGNITIVE PSYCHOLOGY (3) LEC. 3. Survey of the nature of human intellectual functioning, including pattern recognition, memory, problem solving, reasoning, and language comprehension and generation.

PSYC 7200 ANIMAL COGNITION (3) SEM. 3. Experimental analysis of the mechanisms that underlie animal cognition, including attention, concept formation, counting, language, memory, perception, timing, and problem solving.

PSYC 7220 BEHAVIORAL PRINCIPLES (3) LEC. 3. Concepts and principles of operant and respondent conditioning and their relevance to changing and interpreting human behavior.

PSYC 7230 PSYCHOMETRIC THEORY (3) LEC. 3. Pr. P/C PSYC 7270 and P/C PSYC 7280. Introduction to basic quantitative theory behind the construction and interpretation of test scores and scales.

PSYC 7240 METHODS FOR STUDYING INDIVIDUAL BEHAVIOR (3) LEC. 3. Examination of strategies for measuring individual and environment interaction, using environmental interventions and identifying behavior change and its causes.

PSYC 7250 CLINICAL RESEARCH METHODS AND ETHICS (3) LEC. 3. Introduction to research methods and ethics in clinical psychology, with an emphasis on critical analysis of the scientific literature.

PSYC 7260 ETHICAL AND PROFESSIONAL ISSUES IN BEHAVIOR ANALYSIS (3) LEC. 3. Ethical and professional issues relevant to the practice of applied behavior analysis.

PSYC 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Introduction to the analysis of data collected under various different experimental designs. Credit will not be given for both PSYC 7270 and STAT 7270.

PSYC 7280 EXPERIMENTAL DESIGN IN PSYCHOLOGY II (4) LEC. 3. LAB. 2. Pr. PSYC 7270. and Enrollment in Psychology PhD program. Correlational and regression models. Matrix based multiple and logistic regression, moderation and mediation, and introduction to path models.

PSYC 7310 AUTISM AND INTELLECTUAL DISABILITIES (3) LEC. 3. Survey of the definitions, terms, epidemiology, etiologies, and current issues in autism and intellectual disabilities.

PSYC 7320 CLINICAL PSYCHOPHARMACOLOGY (3) LEC. 3. The basic principles of psychopharmacology with special attention given to drugs used in applied or therapeutic settings, their effects, and their potential interactions with behavioral interventions.

PSYC 7400 COGNITIVE NEUROSCIENCE (3) LEC. 3. Exploring how mental functions are linked to neural processes to enable the mind.

PSYC 7700 FOUNDATIONS IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (3) DSL/SEM. 3. This course is designed to be an advanced survey of the Industrial and Organizational Psychology field.

PSYC 7710 TRAINING AND DEVELOPMENT IN ORGANIZATIONS (3) DSL/SEM. 3. A graduate seminar that focuses on critical conceptual and empirical issues facing training and development in the workplace.

PSYC 7720 PERSONNEL SELECTION (3) DSL/SEM. 3. Analysis of classical, contemporary, theoretical, and practical issues related to personnel selection. May count either PSYC 7720, PSYC 7726, PSYC 8720 or PSYC 8726.

PSYC 7730 RESEARCH METHODS IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) DSL/SEM. 3. An overview of basic research methodology applicable to the investigation of organizational phenomena.

PSYC 7740 ORGANIZATIONAL CULTURE (3) SEM. 3. Gain an understanding of organizational culture and provides the context in which organizational behavior may be understood.

PSYC 7750 ETHICS AND PROFESSIONAL ISSUES IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) DSL/SEM. 3. An introduction to issues faced in professional practice and importance of ethical behavior in the practice of Industrial/Organizational Psychology.

PSYC 7760 OCCUPATIONAL HEALTH PSYCHOLOGY (3) DSL/SEM. 3. Occupational health psychology (OHP) is an emerging interdisciplinary field concerned with psychological factors in employee health, safety, and well-being.

PSYC 7780 WORK MOTIVATION (3) SEM. 3. Analysis of historical and contemporary theories of work motivation and related research.

PSYC 7790 WORKFORCE MANAGEMENT (3) SEM. 3. A comprehensive course that explores the principles and practices of human resource management within organizational settings, emphasizing the application of psychological theories to enhance employee well-being and organizational effectiveness. Students will learn about talent acquisition, development, compensation, and strategic HR planning through a psychological lens.

PSYC 7800 LEADERSHIP (3) SEM. 3. Analysis of historical and contemporary theories of leadership and related research.

PSYC 7910 PRACTICUM IN APPLIED PSYCHOLOGY (1-10) DSL/PRA. Supervised practicum in applied psychology. A maximum of 12 hours will apply toward degree. Department approval. Course may be repeated for a maximum of 30 credit hours.

PSYC 7930 DIRECTED STUDIES (1-3) DSL/IND. Pr., Departmental approval. Work under the direction of a faculty member on a psychological topic of mutual interest. No more than 3 hours count toward major. Course may be repeated for a maximum of 9 credit hours.

PSYC 7970 RESEARCH IN SPECIAL TOPICS (3) IND. 3. Pr., Departmental approval. Supervised scholarly activity related to student's field of study. Course may be repeated with change in topics.

PSYC 7980 APPLIED BEHAVIOR ANALYSIS CAPSTONE PROJECT (1-10) DSL/PRA. Pr., Departmental approval. Supervised practicum in applied psychology behavior analysis project involving delivery of services to a consumer. Maximum of 6 credit hours will count toward degree. Course may be repeated for a maximum of 30 credit hours.

PSYC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Pr., Course may be repeated with change in topics.

PSYC 8180 ADVANCED SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 7180. Departmental approval. Theories, research and issues in contemporary social psychology.

PSYC 8240 STRUCTURAL EQUATION MODELING FOR APPLIED RESEARCHERS (3) LEC. 3. This course is to provide an overview and introduction to the use of structural equation modeling in applied research, utilizing Mplus software. This course will be taught from an applied and pragmatic perspective. There will be a particular focus on data analytic issues that are especially relevant to clinical researchers.

PSYC 8250 MULTIVARIATE METHODS (4) LEC. 3. LAB. 2. Pr. PSYC 7270 and PSYC 7280. Introduction to the theory behind multivariate analyses and the statistical programs that support them.

PSYC 8270 FACTOR ANALYSIS (3) SEM. 3. Theoretical and statistical applications of exploratory and confirmatory factor analysis.

PSYC 8280 META-ANALYSIS (3) DSL/SEM. 3. Meta-analysis is a quantitative analysis using techniques to analyze and integrate effect sizes that accrue from research studies.

PSYC 8300 DEVELOPMENTAL PSYCHOPATHOLOGY (3) LEC. 3. Introduction to contemporary concepts, constructs, and controversies in developmental psychopathology.

PSYC 8310 INTRODUCTION TO CLINICAL METHODS AND ETHICS (3) LEC. 3. Enrollment in Clinical Psychology Program. Interviewing introduction to interviewing skills, behavioral assessment, crisis intervention, professional and ethical issues in providing clinical services.

PSYC 8330 COGNITIVE BEHAVIOR THERAPY (3) LEC. 3. Conceptual and applied issues related to behavioral principles of assessment and treatment.

PSYC 8350 APPLIED PSYCHOMETRIC PRINCIPLES (3) LEC. 3. Analysis of classical and modern test theory, with an emphasis on applied psychometric principles.

PSYC 8360 ASSESSMENT OF COGNITIVE ABILITIES AND ACHIEVEMENT (3) LEC. 2. LAB. 2. Theories and techniques for the assessment of cognitive abilities and academic achievement.

PSYC 8370 FOUNDATIONS OF PSYCHOLOGICAL ASSESSMENT (3) LEC. 3. Enrollment in Clinical Psychology program. Measurement theory and introduction to widely used objective personality and behavioral checklists with attention to ethics and diversity.

PSYC 8460 ASSESSMENT AND TREATMENT OF ALCOHOL AND DRUG PROBLEMS (3) LEC. 3. Pr., Departmental approval. Conceptual and empirical bases of clinical assessment and intervention for alcohol and drug problems.

PSYC 8500 COGNITIVE AND BEHAVIORAL SCIENCES SEMINAR (1) SEM. 1. SU. Pr., Enrollment in Cognitive and Behavioral Sciences PhD program. Examination of professional preparation issues and recent scientific developments relevant to careers in the cognitive and behavioral sciences. Course may be repeated for a maximum of 3 credit hours.

PSYC 8510 CONTEXT AND CONSEQUENCES OF BEHAVIOR (3) LEC. 3. Pr. PSYC 7140. Advanced survey of the role that consequences play in acquisition, maintenance, and structure of behavior, and the methods by which this role is studied.

PSYC 8540 BEHAVIORISM (3) LEC. 3. Exploration of the philosophical and theoretical underpinnings of behavior analysis.

PSYC 8550 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. PSYC 7140. and Departmental approval. Scientific and conceptual foundations of applied behavior analysis and its strategies of intervention and evaluation.

PSYC 8570 APPLIED BEHAVIOR ANALYSIS 2 (3) LEC. 3. Applications of behavioral principles to the assessment and treatment of problem behavior.

PSYC 8700 ADVANCED INDUSTRIAL PSYCHOLOGY (3) LEC. 3. Analysis of methods and content of industrial psychology.

PSYC 8710 ADVANCED ORGANIZATIONAL PSYCHOLOGY (3) LEC. 3. Departmental approval. Analysis of major issues in organizational psychology.

PSYC 8730 PERFORMANCE APPRAISAL (3) LEC. 3. Analysis of classical, contemporary, theoretical, and practical issues related to the appraisal of employee work performance.

PSYC 8760 DECISION MAKING IN THE WORKPLACE AND ORGANIZATIONS (3) SEM. 3. The application of behavioral decision theory and research to problems in Industrial/Organizational Psychology.

PSYC 8770 ORGANIZATIONAL CHANGE (3) DSL/SEM. 3. A conceptual overview of organizational change and organizational transformation and related specific topics.

PSYC 8780 WORK AND FAMILY (3) SEM. 3. A survey of research and theory in work and family, a content area of organizational psychology.

PSYC 8790 SEMINAR IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (1) SEM. 1. SU. Examination of professional preparation issues and recent scientific developments relevant to careers in Industrial and Organizational Psychology. Enrollment in the Industrial and Organizational Psychology PhD program. Course may be repeated for a maximum of 3 credit hours.

PSYC 8910 CLINICAL PRACTICUM (1-4) DSL/PRA. Supervised practicum experience in clinical assessment and intervention techniques. Course may be repeated for a maximum of 30 credit hours, with 24 counting toward the degree.

PSYC 8920 INTERNSHIP (0) INT. Pr., PhD candidacy. Enrollment in full-time APA-approved 1-year pre-doctoral internship required for the PhD in Clinical Psychology. Student may not enroll in other course work.

PSYC 8930 DIRECTED STUDIES IN PSYCHOLOGY (3) IND. Pr., Approved PhD plan of study. Review of literature leading to the writing and defense of the Major Area Paper (written portion of the general PhD examination). Course may be repeated for a maximum of 9 credit hours.

PSYC 8970 SPECIAL TOPICS (1-3) DSL. Departmental approval. In-depth study of issues related to selected specializations in psychology. Course may be repeated for a maximum of 18 credit hours.

PSYC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Pr., Course may be repeated for a maximum of 98 credit hours.

Public Relations Commu Courses

PRCM 1000 PR AND MEDIA RELATIONS FUNDAMENTALS (3) DSL/LEC. Introduction to the public relations discipline, including its history, theory, ethics and its relationship to media relations, with an emphasis on developing fundamental public relations writing skills.

PRCM 2400 FOUNDATIONS OF PUBLIC RELATIONS (3) LEC. 3. This course is designed to be an overview of the functions, practices and growing application of public relations in both private industry and the public sector.

PRCM 2500 PUBLIC RELATIONS CASE STUDIES & ETHICS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. This is a course designed to provide Public Relations students with an understanding of both effective and ineffective methods of PR through studying actual cases from the field itself with special attention given to the ethical aspect of decision making.

PRCM 3000 MULTIMEDIA WRITING FOR PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2500 or PRCM 2503) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). PRCM or AGCO major only. This course will have an emphasis on communication tactics; plan, write and produce public relations tools; audience and media selection; print and electronic media.

PRCM 3080 INTERNATIONAL PUBLIC RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Exploration of public relations theory, research, and practice in an international context.

PRCM 3090 PUBLIC RELATIONS IN POLITICAL PROCESSES (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Surveys of the intersection of politics and public relations, emphasizing theoretical and practical principles in political processes.

PRCM 3260 STRATEGIC COMMUNICATION IN PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or PRCM 1000 or JRNL 1103 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). PRCM or AGCO majors only. Framework for the strategy and integration of messages within public relations.

PRCM 3270 PUBLIC RELATIONS IN THE NOT-FOR-PROFIT ARENA (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Nonprofit organizations and foundations and the role of public relations within those organizations.

PRCM 3280 SOCIAL MEDIA AND PUBLIC RELATIONS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). Declared major in AGCO or PRCM. Examination of how new social media impact public relations strategies.

PRCM 3450 DIGITAL MEDIA ANALYTICS (3) LEC. 3. Pr. (PRCM 2400 or PRCM 2403). This course prepares students with essential skills and knowledge to understand the power of digital media analytics in today's digital landscape.

PRCM 4020 DIGITAL STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503). PRCM or AGCO major only. Introduction to the use of style and design in public relations messages. Departmental approval or Declared major in AGCO or PRCM.

PRCM 4400 PUBLIC RELATIONS RESEARCH (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2500 or PRCM 2503) and (PRCM 2400 or PRCM 2403). PRCM or AGCO major only. Identifying, characterizing and evaluating stakeholder groups and alternative channels of communication; formal research procedures including sampling, instrument design, information gathering, data processing, analysis and reporting.

PRCM 4500 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2500 or PRCM 2503) and (PRCM 2400 or PRCM 2403) and PRCM 3000 and PRCM 4400. Application of theory, research data, and problem-solving techniques in the development of comprehensive public relations strategies.

PRCM 4920 INTERNSHIP (3) AAB/INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 3000 or PRCM 3003). Opportunity to apply classroom experience in career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

PRCM 4930 DIRECTED STUDIES IN PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 3040 or PRCM 3043 or PRCM 2400 or PRCM 2403). Independent Study on a specific topic of interest not already addressed in any regular PRCM course.

PRCM 4970 SPECIAL TOPICS IN PUBLIC RELATIONS (3) LEC. 3. Pr. (PRCM 2500 or PRCM 2503). Focus on narrowly defined PRCM topics not already covered in the current PRCM curriculum. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

Religion Courses

RELG 1020 INTRODUCTION TO THE HEBREW SCRIPTURES (3) LEC. 3. Historical-critical study of the Hebrew scriptures in their cultural setting; emphasis on development of ancient Hebrew thought.

RELG 1030 INTRODUCTION TO THE NEW TESTAMENT (3) LEC. 3. Historical-critical study of the New Testament in its cultural setting; major issues in New Testament study.

RELG 1040 INTRODUCTION TO WESTERN RELIGIONS (3) LEC. 3. Introduction to Islam, Judaism, and Christianity, with attention to Druze religion and Bah'al. May count either RELG 1040 or RELG 3340.

RELG 1050 INTRODUCTION TO EASTERN RELIGIONS (3) LEC. 3. Introduction to Hinduism, Buddhism, and Confucianism, with secondary attention to other Asian religions. May count either RELG 1050 or RELG 3330.

RELG 4960 SPECIAL PROBLEMS IN RELIGIOUS STUDIES (3) LEC. 3. Independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.

RELG 4970 SPECIAL TOPICS (3) LEC. 3. Course may be repeated with change in topics.

Social Work Courses

SOWO 2000 INTRODUCTION TO SOCIAL WORK (3) LEC. 3. Introduction to social work practice, examining career opportunities, history of the profession, practice settings, values, ethics, and types of clientele.

SOWO 2650 HISTORY OF SOCIAL WELFARE (3) LEC. 3. Development of social welfare policies and programs in the United States, analysis of political, economic, and social factors involved.

SOWO 3500 CHILD WELFARE (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007 or SOWO 2000 or SOWO 2003. Social work practice in settings dealing with child abuse and neglect, foster care, child care, and adoption.

SOWO 3600 AGING ISSUES AND SERVICES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Introduction to social services and social work with the elderly, considering socio-cultural issues and impact on the elderly.

SOWO 3700 ADDICTIONS (3) LEC. 3. Pr. PSYC 2010 or PSYC 2017 or PSYC 2013. Addictions, theories of causality, social impact, and treatment approaches in today's society. Experiential component included.

SOWO 3800 HUMAN BEHAVIOR IN SOCIAL ENVIRONMENT I (3) LEC. 3. Pr. SOWO 2000 or SOWO 2003. Lifespan developmental approach to biopsychosocial examination of human behavior and development, emphasizing the diversity of human experience related to gender, social class, race, ethnicity, sexual orientation, and disability. Experiential component included.

SOWO 3850 HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT II (3) LEC. 3. Pr. SOWO 3800. Social systems approach to examination of human behavior and development as influenced by groups, organizations, and communities, emphasizing the forms and mechanisms of oppression and discrimination as well as strategies to advance social and economic justice. Experiential component included.

SOWO 3910 FIELD PRACTICUM SEMINAR (3) PRA. Pr. SOWO 2000 or SOWO 2003. Introduction to fields and settings of social work practice via placement in a selected social service agency. Includes a concurrent integrative seminar to analyze the experience.

SOWO 4060 SOCIAL WORK PRACTICE METHODS I (3) LEC. 3. Pr. (SOWO 2000 or SOWO 2003) and SOWO 3800 and SOWO 3910 and (SOCY 1000 or SOCY 1003 or SOCY 1007). Introduction to generalist practice methods and skills in engagement, assessment, and goal setting with individual clients. Experiential component included.

SOWO 4070 SOCIAL WORK PRACTICE METHODS II (3) LEC. 3. Pr. SOWO 4060. Practice skills and perspectives required for work with families and groups. Experiential component included.

SOWO 4080 SOCIAL WORK PRACTICE METHODS III (3) LEC. 3. Pr. SOWO 4060. Generalist practice theory and skills as applied to communities, organizations, and oppressed populations, emphasizing issues of social justice and social action. Experiential component included.

SOWO 4090 SOCIAL WELFARE POLICY (3) LEC. 3. Pr. SOWO 2650 or SOWO 2653. Critical analysis of policy issues and proposals in selected social welfare programs and their impact upon current social problems and social work values and ethics.

SOWO 4920 INTERNSHIP IN SOCIAL WORK (9) FLD. 9. SU. Pr. SOWO 4080. 480-hour field experience under joint supervision of agency and university. Application of generalist practice skills and research project required.

SOWO 4950 SENIOR INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 4080. Coreq. SOWO 4920. and Enrollment in SOWO 4920. Integrating theory with practice through analysis of behavior and evaluation of practice skills.

SOWO 4970 SOCIAL WORK SPECIAL TOPICS (3) LEC. 3. Timely and/or controversial topics related to social work. Course content will depend upon the designated topic.

SOWO 7000 INTRODUCTION TO SOCIAL WORK AND SOCIAL WELFARE (3) LEC. 3. This course provides a review of the social work profession, history, and values and ethics. An overview of theory, practice, policy, and research are integrated in exploring the knowledge, values, and skills base of the social work profession.

SOWO 7010 ADVANCED CLINICAL PRACTICE (3) LEC. 3. Pr. SOWO 7020. This course provides intensive study on clinical interventions with individuals, families, and small groups across various fields of practice.

SOWO 7020 PSYCHOPATHOLOGY (3) LEC. 3. This advanced practice course teaches students to recognize selected major mental health disorders in adults, children, and youth and to become familiar with social work practice approaches used in the treatment of these disorders.

SOWO 7030 EVALUATION IN SOCIAL WORK PRACTICE (3) LEC. 3. This course examines quantitative and qualitative evaluation of agency programs and individual practice. Students will engage in hands-on individual and/or small-group research projects to experience all phases of the research process.

SOWO 7040 SOCIAL WORK PRACTICE IN THE HEALTH CARE FIELD (3) LEC. 3. This course will focus on the development of social work practice skills relevant to health care settings, including assessment of the impact of illness, disability, treatment, and hospitalization on patients and families.

SOWO 7050 MENTAL HEALTH (3) LEC. 3. Pr. SOWO 7020. This course focuses on mental health social work practice with children, adolescents and adults, covering assessment and several theoretically based interventions with an emphasis on gaining practice skills. Special attention is given to strengths-based, evidence-based, and recovery-oriented practice models.

SOWO 7060 SOCIAL WORK PRACTICE WITH INDIVIDUALS AND FAMILIES (3) LEC. 3. This foundation course prepares students to apply a generalist perspective and systems framework to social work practice with individuals and families. It emphasizes the basics of communication, interviewing, relationship building, and practice skills essential to effective assessment, intervention, and evaluation.

SOWO 7070 SOCIAL WORK WITH GROUPS AND COMMUNITIES (3) LEC. 3. Pr. SOWO 7060. This macro social work course provides an advanced examination of social work practice in groups and larger systems. Students will develop knowledge, values, and skills in areas of: group practice, community assessment, social planning, community organization, and political strategies.

SOWO 7080 POLICY PRACTICE AND SOCIAL JUSTICE (3) LEC. 3. This course will critically apply conceptual frameworks and empirical research in the examination of social issues, policies, and services, focusing on how policies affect marginalized, oppressed and disadvantaged populations.

SOWO 7090 ADVANCED SOCIAL WELFARE POLICY (3) LEC. 3. The course will review the historical development of social welfare and social policies in the United States and explore their context and underlying values. This course builds knowledge and skills to analyze and make changes in social welfare policy.

SOWO 7100 GERONTOLOGY (3) LEC. 3. The course provides a clinical foundation for clinical work practice with older adults and their families. Primary focus will be on understanding how diversity factors into the physiological, psychological, and social aspects of later life.

SOWO 7110 TRAUMA INFORMED PRACTICE (3) LEC. 3. This course examines social work practice theories and intervention approaches as they apply to practice with survivors of crisis and trauma. The course will focus on engagement, assessment, planning, intervention, evaluation and follow up on all social work practice levels.

SOWO 7120 PSYCHOSOCIAL CONTEXT OF DISABILITY (3) LEC. 3. Prepares the social worker to be an effective practitioner for persons with disabilities by exploring the psychosocial context of the lives and experiences of persons with disabilities and their families from various perspectives.

SOWO 7130 SOCIAL WORK PRACTICE WITH CHILDREN AND ADOLESCENTS (3) LEC. 3. This course develops advanced clinical social work practice knowledge and skills to engage and intervene with children and adolescents with health and mental health risk and provides knowledge for community social workers serving children who are exposed to stress.

SOWO 7140 DIVERSITY AND DIFFERENCE IN PRACTICE (3) LEC. 3. Students must be admitted to the Masters of SocialWork Program to enroll in this course.

SOWO 7600 VETERINARY SOCIAL WORK PRACTICE (3) DSL. This course reviews research, practice settings, and policy needs in the four areas of veterinary social work: the link between human and animal violence, animal assisted interventions, animal related grief and bereavement, and compassion fatigue. Students will be expected to become knowledgeable about research findings and apply them to social work practice skills and policy advocacy.

SOWO 7700 FOUNDATIONS OF SOCIAL WORK RESEARCH (3) LEC. 3. This course provides a study of quantitative and qualitative research methods in order to build knowledge for social work practice. Students will be prepared to develop, implement and communicate ethical, empirically-based scientific knowledge.

SOWO 7800 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT (3) LEC. 3. This graduate-level foundation course covers theories, themes, and issues that influence individual and group and development across the life span- in interaction with the environment- as it underlies social work practice and research.

SOWO 7920 GENERALIST FIELD (10) INT. 10. SU. This course prepares students for responsible, competent entry into the profession by providing opportunities to practice social work with a generalist perspective in agency settings under educational supervision. This course requires completion of 432 total hours in an agency setting.

SOWO 7930 ADVANCED FIELD (12) INT. 12. SU. Pr. SOWO 7920. Coreq. SOWO 7950. This course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students complete 512 hours in an approved agency during this field experience. Course may be repeated for a maximum of 18 credit hours.

SOWO 7940 ADVANCED FIELD PLACEMENT I (6) INT. SU. This is the first course in a sequence of two field placement courses that are taken successively. The course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students complete 256 hours in an approved agency in one semester during this field experience.

SOWO 7950 INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 7020 and P/C SOWO 7930. This seminar course assists students in integrating and applying classroom learning with the advanced field placement. Opportunities are provided for case presentation, discussion and peer consultation.

SOWO 7960 ADVANCED FIELD PLACEMENT II (6) INT. SU. This is the second course in a sequence of two field placement courses that are taken successively. The course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students must successfully complete SOWO 7940 Advanced Field I to enter this course. Students complete 256 hours in an approved agency in one semester during this field experience.

SOWO 7970 SPECIAL TOPICS IN SOCIAL WORK (3) LEC. 3. Study of a topic of special interest in professional social work practice beyond current departmental course offerings. Course may be repeated for a maximum of 6 credit hours.

Sociology Courses

SOCY 1000 SOCIOLOGY: GLOBAL PERSPECTIVE (3) LEC. 3. Social Science I Core. Introduction to the study of social and cultural patterns of society.

SOCY 1007 HONORS SOCIOLOGY (3) LEC. 3. Pr. Honors College. Social Science I Core. Introduction to the study of social and cultural patterns in society.

SOCY 1050 AUBURN IN THE WORLD: SOCIETY AND CULTURE (4) LEC. 4. Auburn Global students. Part of the Auburn Global International Accelerator Program. The course will introduce students to American society and culture through core sociological concepts. May count either SOCY 1050 or HIST 1000.

SOCY 1100 CURRENT ISSUES IN RACE AND ETHNICITY (3) LEC. 3. An exploration of how race and ethnicity shape our daily lives and the world around us.

SOCY 2000 SOCIAL ISSUES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Exploration of the claims and conflicts of public issues and moral apprehensions, including crime, the environment, gender and racial inequality, various syndromes.

SOCY 2050 CRIME AND JUSTICE IN AMERICA (3) LEC. 3. Distribution and measurement of crime, different variations in criminal behavior, and handling crime in the American criminal justice system.

SOCY 2100 POPULATION AND SOCIETY (3) LEC. 3. Survey of theories and research of demographic processes and their interaction with the economy, education, family, medicine, science, and technology.

SOCY 2200 SOCIAL PSYCHOLOGY: SOCIOLOGICAL PERSPECTIVES (3) LEC. 3. Examination of collective influences on the person and the role the person plays in sustaining collective conditions.

SOCY 3000 CRIMINOLOGY (3) LEC. 3. Examination of etiological issues related to crime; major theories of crime causation from a wide variety of perspectives.

SOCY 3100 POLICE AND SOCIETY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007 or Departmental approval. Sociological overview of policing and current issues that relate to the police.

SOCY 3200 SPORTS IN AMERICA (3) LEC. 3. Sociological perspectives on sports in the social system; organization and culture of sports in relationship to social class, race, and gender; and the interconnections between sports and society.

SOCY 3250 SENTENCING AND CORRECTIONS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007 or Departmental approval. In-depth analysis of sentencing policies and the correction system.

SOCY 3300 SOCIOLOGY OF THE FAMILY (3) LEC. 3. Family as a major social institution, with emphasis on the American family; cross-cultural comparisons for perspective.

SOCY 3500 SOCIAL INEQUALITIES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Exploration of the sources and uses of minority representations in the United States addressing inequalities such as race, ethnicity, gender, and sexual orientation.

SOCY 3550 DELINQUENCY AND JUVENILE JUSTICE (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Nature and distribution of delinquency in the United States, as well as the various components of the juvenile justice system.

SOCY 3600 UNDERSTANDING NATURE, SELF, AND SOCIETY (3) LEC. 3. The course examines the intersection between nature, self, and society, and draws on sociological scholarship and nature writing. Through readings, class conversations, imaginative writing reflections, and short field trips, students will be able to critically interrogate our social relationship with nature and study the social dynamics that shape the meanings we attach to nature. Credit will not be given to both SOCY 3600 and SUST 3600.

SOCY 3700 METHODS OF SOCIAL RESEARCH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Methodological approaches to data collection used by social scientists including logic of science, hypothesis formation, and research design.

SOCY 4000 SOCIALIZATION (3) LEC. 3. Examination of mind, self, society, and interaction as symbolic phenomena grounded in social process; covers major intellectual influences, concepts, and figures.

SOCY 4100 DEVIANCE (3) LEC. 3. Analysis of creation and reaction to deviance through theoretical approaches; examines several deviant groups.

SOCY 4200 HEALTH AND SOCIETY (3) LEC. 3. Nature and organization of medical practice and health delivery systems with special attention to the role of physicians, patients, and disease and to the relationship between culture, politics, and health.

SOCY 4300 FIELD INSTRUCTION (3) LEC. 3. Pr., Departmental approval. Supplementary instruction concurrent with experience in some field of work involving application of sociological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

SOCY 4400 CONTEMPORARY THEORY (3) LEC. 3. Survey of theorists from Comte to the present, emphasizing theory construction, theoretical analysis, and differences in theoretical approaches.

SOCY 4700 THEORIES OF CRIME AND CRIMINALITY (3) LEC. 3. Theories of crime causation with emphasis on theory construction, theory analysis, and differences in theoretical approaches.

SOCY 4920 APPLIED SOCIOLOGY: INTERNSHIP (3) INT/LEC. Pr. SOCY 3500 or SOCY 3700 or ANTH 2000. Departmental approval. Internship in an organization or agency with the goal of learning how to use sociological knowledge in an applied setting. Course may be repeated for a maximum of 6 credit hours.

SOCY 4960 SPECIAL PROBLEMS IN SOCIOLOGY (3) AAB/IND. 3. Pr., Departmental approval. Independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 6 credit hours.

SOCY 4970 SPECIAL TOPICS IN SOCIOLOGY (3) LEC. 3. Junior standing. Advanced topics in population and ecology, social structure, social institutions, socialization, religion, or other timely topics related to sociology. Course may be repeated for a maximum of 6 credit hours.

SOCY 5120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis.

SOCY 5200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective.

SOCY 5300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors.

SOCY 5310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Application of methods and techniques of information analysis and related report writing.

SOCY 5400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit with not be given for both SOCY 5400 and SOCY 6400.

SOCY 5500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit will not be given for both SOCY 5500 and SOCY 6500.

SOCY 5600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit will not be given for both SOCY 5600 and SOCY 6600.

SOCY 5650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit will not be given for both SOCY 5650 and SOCY 6650.

SOCY 5670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit will not be given for both SOCY 5670 and SOCY 6670.

SOCY 5680 SOCIAL MOVEMENTS (3) LEC. Pr. P/C SOCY 1000 or P/C SOCY 1007. Exploration of social movements as collective action leading to different forms of social change. Topics covered include the origins, dynamics and consequences of major social movements, including movements for civil rights, women's rights, disability access, sustainability, etc.

SOCY 5690 SOCIOLOGY OF EMOTIONS (3) LEC. 3. Pr. P/C SOCY 1000 or P/C SOCY 1007. Examination of the social dimensions of emotions. The emotional phenomena covered include love, empathy, anger, sadness, shame, fear, joy, happiness, and gratitude.

SOCY 5970 SPECIAL TOPICS IN SOCIOLOGY (3) LEC. 3. Pr., Departmental approval. Study of substantive areas sociology. Credit will not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 6120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis. Credit will not be given for both SOCY 5120 and SOCY 6120.

SOCY 6200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective. Credit will not be given for both SOCY 5200 and SOCY 6200.

SOCY 6300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors. Credit will not be given for both SOCY 5300 and SOCY 6300.

SOCY 6310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Application of methods and techniques of information analysis and related report writing. Credit will not be given for SOCY 5310 and SOCY 6310.

SOCY 6400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit will not be given credit for both SOCY 5400 and SOCY 6400.

SOCY 6500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit will not be given for both SOCY 5500 and SOCY 6500.

SOCY 6600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit will not be given for both SOCY 5600 and SOCY 6600.

SOCY 6650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit will not be given for both SOCY 5650 and SOCY 6650.

SOCY 6670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit will not be given for both SOCY 5670 and SOCY 6670.

SOCY 6680 SOCIAL MOVEMENTS (3) LEC. Exploration of social movements as collective action leading to different forms of social change. Topics covered include the origins, dynamics and consequences of major social movements, including movements for civil rights, women's rights, disability access, sustainability, etc.

SOCY 6690 SOCIOLOGY OF EMOTIONS (3) LEC. Examination of the social dimensions of emotions. The emotional phenomena covered include love, empathy, anger, sadness, shame, fear, joy, happiness, and gratitude.

SOCY 6970 SOCIOLOGY SPECIAL TOPICS (3) LEC. 3. Study of substantive areas of sociology. Credit will not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 7000 ADVANCED SOCIOLOGICAL THEORY (3) LEC. 3. Pr. SOCY 4400 or Departmental approval. Review of major types of sociological theory within the context of theoretical paradigms and significant theoretical issues that face the discipline.

SOCY 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE, AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017 or Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for both SOCY 7100 and STAT 7100.

SOCY 7200 SEMINAR IN SOCIAL BEHAVIOR (3) SEM. 3. Research and theory concerning social and group influences on behavior.

SOCY 7250 SOCIOLOGY OF VIOLENCE (3) LEC. 3. In-depth coverage of various forms of violence from the sociological perspective.

SOCY 7850 TECHNOLOGY AND TEACHING IN SOCIOLOGY (1) LEC. 1. SU. Pr., Departmental approval. Technology as a teaching tool sociology classes.

SOCY 7930 DIRECTED STUDIES (3) IND. 3. Pr., Departmental approval. Independent reading course under the supervision of a department faculty member. Course may be repeated for a maximum of 6 credit hours.

SOCY 7990 RESEARCH AND THESIS (1-10) MST. Preparation of a thesis. Course may be repeated with change in topics.

Speech, Language, Hearing Sc Courses

SLHS 1110 EAGLES SOCIAL SKILLS INSTRUCTION I (1) LEC. 1. Departmental approval. This course offers social skills instruction and introduces topics including basic conversational requirements, electronic communication, non-verbal communication, and miscellaneous social skills.

SLHS 1120 EAGLES SOCIAL SKILLS INSTRUCTION II (1) LEC. 1. Pr. SLHS 1110. Departmental approval. This course offers social skills instruction to EAGLES students and introduces topics including basic conversational requirements, electronic communication, non-verbal communication, and good sportsmanship.

SLHS 1130 EAGLES SOCIAL SKILLS INSTRUCTION III (1) LEC. 1. Pr. SLHS 1120. Departmental approval. This course offers social skills instruction to EAGLES students and introduces topics including get-togethers, handling arguments, and miscellaneous social skills.

SLHS 1140 EAGLES SOCIAL SKILLS INSTRUCTION IV (1) LEC. 1. Pr. SLHS 1130. Departmental approval. This course offers social skills instruction to EAGLES students and introduces topics including basic conversational requirements, handling bullying, minimizing rumors and gossip, and miscellaneous social skills.

SLHS 2500 COMMUNICATION DISORDERS IN SOCIETY (2) LEC. 2. Information on stuttering, speech, language, voice disorders and hearing impairment and how to interact with individuals with communication disorders.

SLHS 3000 INTRODUCTION TO SPEECH, LANGUAGE, AND HEARING SCIENCES (3) LEC. 3. Survey of the field of speech pathology-audiology. Includes history of the profession, the inter-relatedness of the various pathologies, general principles of evaluation and therapy and the profession itself.

SLHS 3100 LINGUISTICS IN SLHS (2) LEC. 2. Pr. SLHS 4520. This course will use a basic linguistic framework of typical development of language from which to study developmental and acquired disorders of language.

SLHS 3400 ANATOMY AND PHYSIOLOGY OF SPEECH (3) LEC. 3. The study of anatomy and physiology of speech production including respiratory, laryngeal and articulatory-resonance systems and the process swallowing. Speech acoustics will be introduced.

SLHS 3410 ARTICULATORY PHONETICS AND PHONOLOGICAL DEVELOPMENT (3) LEC. 3. Pr. SLHS 3400 and P/C SLHS 4520. Principles of phonetics and their application to speech.

SLHS 3550 SPEECH AND HEARING SCIENCE (3) LEC. 3. Pr. SLHS 3400 and SLHS 4600 and SLHS 3410. The acoustic properties of speech, their relationship to perceptual and physiological phonetics, and instrumentation used in speech science.

SLHS 3560 NEUROANATOMY FOR COMMUNICATION DISORDERS (3) LEC. 3. Pr. SLHS 3400 and SLHS 4600. Anatomy and physiology of the central nervous system as it relates to speech, language, hearing and swallowing function and disorders.

SLHS 4100 LANGUAGE DISORDERS ACROSS THE LIFESPAN (3) LEC. 3. Pr. SLHS 4520. Introduction to developmental language impairment from infancy through adolescence as well as acquired language impairment in adulthood with focus on the nature of language impairment, assessment of language disorders, and treatment of language disorders.

SLHS 4200 SPEECH DISORDERS ACROSS THE LIFESPAN (3) LEC. 3. Pr. SLHS 3400 and SLHS 4600 and SLHS 3410. This is one of two courses offered in the area of speech and language disorders. This course reviews the typical acquisition of the speech sound system and reviews basic articulation, phonological, fluency, voice, and motor speech disorders.

SLHS 4300 CRITICAL THINKING AND EVIDENCE-BASED PRACTICE: AN INTRODUCTION (2) LEC. 2. Pr. SLHS 3000 and P/C SLHS 4520. Explores the decision making process in assessment and treatment of individuals with communication disorders. Emphasis on a scientific framework integrating research evidence and critical thinking.

SLHS 4500 SPECIAL OBSERVATION (1) DSL. Pr. (SLHS 4520 or CMDS 4520) and (SLHS 4100) and (SLHS 3410 or CMDS 3410). This course will provide foundational knowledge in treatment methods and guided observation of 25 hours in speech, language, and cognitive-communication evaluation and treatment.

SLHS 4520 LANGUAGE ACQUISITION (3) LEC. 3. First language acquisition in childhood and its change throughout the life span.

SLHS 4580 INTRODUCTION TO CLINICAL PROCEDURES IN SPEECH-LANGUAGE PATHOLOGY (3) LEC. 3, CLN/LEC. 30. Pr. SLHS 4520. Orientation to clinical activities, management methods and preparation of professional reports.

SLHS 4600 AUDIOLOGY AND HEARING SCIENCE (3) LEC. 3. Principles of auditory reception and the problems involved in measuring, evaluating and conserving hearing.

SLHS 4620 HEARING REHABILITATION (3) LEC. 3. Pr. SLHS 4600. Rehabilitation problems of children and adults in the area of auditory training, speech reading and speech conservation; includes clinical practice.

SLHS 4650 INTRODUCTION TO CLINICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Pr. SLHS 4600. Audiological instrumentation and test procedures.

SLHS 4930 DIRECTED STUDY IN SPEECH, LANGUAGE & HEARING SCIENCES (1-3) IND. Pr. SLHS 3000 and SLHS 3400 and SLHS 4600. Departmental approval. Directed learning experience in speech, language, or hearing sciences involving literature review and writing related to a topic specific to the student. Course may be repeated for a maximum of 6 credit hours.

SLHS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Credit hours that apply towards fulfilling Honors requirement. Course may be repeated for a maximum of 3 credit hours.

SLHS 4980 UNDERGRADUATE RESEARCH (1-3) LAB. 2-9. Pr. P/C SLHS 3000. Departmental approval. This course is designed for active research engagement within a mentor's laboratory or the research implementation phase of an undergraduate research fellowship. Course may be repeated for a maximum of 3 credit hours.

SLHS 4997 HONORS THESIS (1-3) RES. Pr. Honors College. Departmental approval. Credit hours that apply towards Honor thesis requirements, the topic of which determined by the Honor's thesis faculty advisor and the student advisee. Course may be repeated for a maximum of 6 credit hours.

SLHS 5000 STUDY ABROAD IN SPEECH-LANGUAGE PATHOLOGY (3) AAB. Pr. CMDS 3000 or SLHS 3000. Survey of current international research and educational/clinical practices in the field of speech-language pathology. Course may be repeated for a maximum of 6 credit hours.

SLHS 5100 MOTOR LEARNING, GENERALIZATION, AND ADHERENCE FOR SPEECH LANGUAGE PATHOLOGY (2) LEC. 2. Pr. SLHS 3400 and SLHS 4200. Motor learning, generalization, and adherence knowledge and skills required for speech-language therapist assistants and speech-language pathologists use in therapy.

SLHS 5200 CULTURAL ASPECTS IN APPLIED HEALTH SCIENCES (2) LEC. 2. Pr. SLHS 3000. This course is designed to provide undergraduate students in speech, language, and hearing sciences, and other applied health disciplines the opportunity to broaden their knowledge of and implementation of culturally responsive practices when working with patients/clients and team members.

SLHS 5300 COGNITIVE AND LINGUISTIC ASPECTS OF AGING (2) LEC. 2. Pr. SLHS 3560. Explores the age-related changes in cognitive-linguistic decline including the mechanisms of this decline; external factors such as physical exercise, pharmacology, and cognitive rehabilitation; and suggestions for prevention of cognitive decline and dementia.

SLHS 5400 ISSUES IN SPEECH (2) LEC. 2. Pr. SLHS 3400 and SLHS 4200. Current issues related to aspects of development, habilitation, and/or rehabilitation of articulation, voice, or fluency disorders will be explored. Course may be repeated for a maximum of 4 credit hours.

SLHS 5500 ISSUES IN AUDIOLOGY (2) LEC. 2. Pr. SLHS 3400 and SLHS 4600. Current issues related to research methodologies and clinical care of auditory and vestibular development, psychoacoustics, and pathologies of the auditory system will be explored.

SLHS 5960 SPECIAL PROBLEMS IN LANGUAGE (2) LEC. 2. Pr. SLHS 4520. This Special Problems Seminar is a two hour per week meeting for study of topics in language. Topics will include aspects of language acquisition , including autism spectrum disorder and literacy, that are clinically relevant for speech language pathologists. Course may be repeated for a maximum of 8 credit hours.

SLHS 7500 CLINICAL PRACTICUM IN SLP (1-2) PRA. 1-2. Clinical practicum in evaluation and treatment of individuals with speech-language disorders. Course may be repeated for a maximum of 7 credit hours.

SLHS 7510 ADVANCED SPEECH SOUND DISORDERS (3) LEC. 3. Empirical and theoretical bases for speech sound disorders.

SLHS 7520 LANGUAGE DISORDERS: BIRTH TO FIVE (3) LEC. 3. Empirical and theoretical bases for evaluation and treatment of language disorders for the birth to five population.

SLHS 7530 STUTTERING (3) LEC. 3. Empirical and theoretical bases for stuttering, including assessment and intervention.

SLHS 7540 VOICE & UPPER AIRWAY DISORDERS (3) DSL/LEC. Empirical and theoretical bases for voice pathologies, diagnoses and therapies.

SLHS 7550 ADULT APHASIA (3) LEC. 3. Empirical and theoretical bases for adult language disorders associated with CNS pathologies, diagnoses and therapies.

SLHS 7560 CRANIOFACIAL ANOMALIES (3) LEC. 3. A review of syndromic and non-syndromic craniofacial disorders including cleft lip/palate. Assessment and treatment of speech and language problems associated with these anomalies is emphasized.

SLHS 7570 RESEARCH METHODS IN SPEECH-LANGUAGE PATHOLOGY (2) LEC. 2. Survey of experimental designs and statistical procedures used in the speech-language pathology literature for consumers of research.

SLHS 7580 COGNITION ACROSS THE LIFESPAN (3) LEC. 3. Advanced review of concepts and trends associated with cognitive functions. The assessment and intervention of cognitive communication disorders will be discussed.

SLHS 7590 LANGUAGE DISORDERS: SCHOOL-AGE (3) LEC. Empirical and theoretical bases for evaluation and treatment of language disorders for school-age children through adolescence.

SLHS 7600 CLINICAL PROBLEMS IN HEARING (2) LEC. 2. Pr. (CMDS 4650 or SLHS 4650) and (CMDS 4600 or SLHS 4600) and (CMDS 4620 or SLHS 4620). Topics chosen to address topics and problems in hearing. Course may be repeated for a maximum of 12 credit hours.

SLHS 7700 CLINICAL PROBLEM SOLVING I (2) LEC. 2. This course will help students develop problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

SLHS 7720 CLINICAL PROBLEM SOLVING II (2) LEC. 2. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

SLHS 7740 CLINICAL PROBLEM SOLVING III (2) LEC. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

SLHS 7800 PROFESSIONAL PRACTICE IN SLP (1) LEC. 1, PRA. 1-3. This course provides specific opportunities and experiences to build and demonstrate clinical knowledge and skills outside the traditional clinical practicum experience. Experiences cross settings and modalities and may include interprofessional team members. Course may be repeated for a maximum of 3 credit hours.

SLHS 7810 MOTOR SPEECH DISORDERS (3) LEC. 3. Empirical and theoretical bases for motor speech disorders, diagnoses and therapies.

SLHS 7820 DYSPHAGIA (3) LEC. 3. The role of speech-language pathology in diagnosing and treating swallowing disorders in children and adults. Emphasis will be placed upon clinical and instrumental assessment and treatment strategies.

SLHS 7840 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (3) LEC. Process and specific equipment involved in assessment, prescription and intervention with adults and children who are unable to use traditional communication modes.

SLHS 7880 SPECIAL POPULATIONS IN SLHS (2) LEC. 2. This course is intended to engage students in developing practical and clinically applicable knowledge about special populations that are not directly addressed in other courses in the SLHS SLP master’s program.

SLHS 7890 COUNSELING IN SPEECH-LANGUAGE PATHOLOGY (2) LEC. 2. This course is designed to provide students with an overview of counseling skills that they can apply to clinical practice with people with communication disorders.

SLHS 7920 INTERNSHIP IN SPEECH-LANGUAGE PATHOLOGY (5) LEC. 5. SU. Completion of all academic course work. Successful completion of comprehensive exams or enrollment in graduate thesis. Course may be repeated for a maximum of 10 credit hours.

SLHS 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research or reports in a specialized area of communication disorders. Course may be repeated for a maximum of 3 credit hours.

SLHS 7970 SPECIAL TOPICS SEMINAR (2) SEM. Advanced treatment of contemporary topics and trends, as well as current research aspects of audiology and speech-language pathology. Course may be repeated for a maximum of 4 credit hours.

SLHS 7990 RESEARCH AND THESIS (1-5) MST. Credit hours to fulfill thesis requirements. Course may be repeated with change in topics.

SLHS 8000 PROFESSIONAL DEVELOPMENT FOR RESEARCH CAREERS IN HEALTH SCIENCES (1-2) LEC. 1-2. SU. In-depth survey of professional aspects relevant to research careers in health sciences fields (e.g., ethical research practices, professional communication of scholarly work, employment readiness). Course may be repeated for a maximum of 5 credit hours.

SLHS 8100 HEARING SCIENCE (3) LEC. 3. Introduction to instrumentation and calibration of audiometric equipment. Auditory perception in normal-hearing and hearing impaired listeners.

SLHS 8110 AUDITORY PHYSIOLOGY (3) LEC. 3. Detailed study of the anatomy and physiology of the human auditory, and vestibular system over the lifespan.

SLHS 8120 AUDIOLOGY CLINICAL METHODS (3) LEC. 3. Use of audiometric equipment, administering audiological tests, recording test results, and interpreting test findings, including otoscopy, and cerumen management.

SLHS 8200 DIAGNOSTIC AUDIOLOGY (3) LEC. 3. Basic and advanced audiometric techniques to assess auditory system's site of lesion, including otoscopy, cerumen management, otoacoustic emissions and immittance.

SLHS 8210 MEDICAL ASPECTS OF HEARING DISORDERS (3) LEC. 3. Study of the disorders of hearing including their medical diagnosis, evaluation, and treatment.

SLHS 8220 AMPLIFICATION I (3) LEC. 3. Background and development of hearing aids and other amplification systems; performance standards and measurement techniques; selection, fitting and dispensing procedures

SLHS 8300 CENTRAL AUDITIORY PROCESSING (3) LEC. Selected clinical procedures in audiology, including electrophysiologic and behavioral tests of central auditory functioning.

SLHS 8310 AURAL REHABILITATION (3) LEC. Psychosocial aspects on hearing loss; clinical and therapeutic management of older persons with hearing disorders including counseling of the hearing-impaired and their families.

SLHS 8320 CLINICAL APPLICATIONS OF AMPLIFICATION (2) LEC. Didactic and practical training in use of instrumentation for testing, programming, fitting and verifying amplification.

SLHS 8400 PEDIATRIC AUDIOLOGY (3) LEC. 3. Normal development of speech, language and hearing losses' effect on communication, etiologic factors, screening, audiologic assessment, differential diagnosis and clinical management.

SLHS 8410 AURAL HABILITATION (3) LEC. 3. The parameters involved in the management of hearing-impaired school-aged children.

SLHS 8420 AMPLIFICATION II (3) LEC. 3. Pr. CMDS 8220 or SLHS 8220. Review of recent trends in hearing aid technology including digital and Programmable instruments.

SLHS 8430 CLINICAL APPLICATION OF DIAGNOSTIC AUDIOLOGY (2) LEC. Pr. CMDS 8320 or SLHS 8320. Didactic and practical training for selection, administration, and interpretation of behavioral and electrophysiologic tests, including auditory processing disorders.

SLHS 8500 ELECTROPHYSIOLOGICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Selected neurophysiological clinical procedures in audiology, including electronystagmography and auditory evoked potentials.

SLHS 8510 CLINICAL APPLICATION OF BALANCE ASSESSMENT (2) LEC. Pr. (CMDS 8230 and CMDS 8320 and CMDS 8430) or (SLHS 8230 and SLHS 8320 and SLHS 8430). Didactic and practical training for selecting, conducting, and interpreting tests to identify disorders of balance and other auditory related systems.

SLHS 8520 HEARING CONSERVATION (3) LEC. Pr. CMDS 8310 or SLHS 8310. Studies the effects of noise on auditory system and implementation of hearing conservation programs in industry, schools and the military.

SLHS 8570 EVALUATION OF RESEARCH IN AUDIOLOGY (3) LEC. Survey of experimental designs and statistical procedures used in audiology research.

SLHS 8600 BALANCE DISORDERS (3) LEC. 3. Detailed coverage of the assessment and treatment of patients with balance disorders using nystagmography and other techniques.

SLHS 8610 IMPLANT TECHNOLOGY (3) LEC. Detailed study of the assessment and treatment of patients with cochlear implants.

SLHS 8620 OUTCOME MEASURES IN AUDIOLOGY (3) LEC. Application of research methodology to demonstrate efficacy in clinical service delivery in all areas of audiologic practice.

SLHS 8630 COUNSELING IN AUDIOLOGY (3) LEC. 3. Advanced course in the counseling component of rehabilitative audiology.

SLHS 8650 ADVANCED AUDIOMETRY (2) LEC. 2. Pr. (CMDS 8120 and CMDS 8320 and CMDS 8430 and CMDS 8510) or (SLHS 8120 and SLHS 8320 and SLHS 8430 and SLHS 8510). Didactic and practical training for selection, administration, scoring, and interpretation of behavioral audiometric tests and electrophysiologic procedures.

SLHS 8700 PROFESSIONAL ISSUES (3) LEC. 3. Legal and ethical issues in clinical audiology.

SLHS 8800 THE NEUROLOGICAL BASES OF COMMUNICATION DISORDERS (3) LEC. 3. Anatomy and physiology of the central nervous system as it relates to speech, language and hearing function and disorders.

SLHS 8810 PRIVATE PRACTICE (3) LEC. 3. Concepts and strategies for private practice in the areas of clinical and industrial audiology.

SLHS 8850 GRANT PROPOSAL PREPARATION IN HEALTH SCIENCES (3) LEC. 3. Overview of the grant proposal preparation process, from identifying an appropriate funding mechanism to developing the materials for a grant proposal (e.g., specific aims, research plan, budget).

SLHS 8910 CLINICAL PRACTICE IN AUDIOLOGY (2) DSL/LEC. Clinical practicum involving evaluation and management of patients of all ages with disorders of auditory, vestibular, and other auditory related systems.

SLHS 8920 CLINICAL INTERNSHIP (5) INT. SU. Pr. CMDS 8910 or CMDS 8916 or SLHS 8910 or SLHS 8916. Intensive clinical experience at off-campus setting up to 20 hours per week of supervised practicum. Course may be repeated for a maximum of 15 credit hours.

SLHS 8940 CLINICAL RESIDENCY (6) INT. SU. Pr. CMDS 8920 or SLHS 8920. A full time, supervised, nine month residency at an off-campus facility that provides audiological services. Fall, Spring.

SLHS 8950 AUDIOLOGY GRAND ROUNDS (3) LEC. Discussion/Seminar in timely clinical issues in audiology, clinical problem solving and case studies in contemporary audiologic service delivery.

SLHS 8980 CAPSTONE PROJECT (1) IND. A project involving applied clinical research or development of an innovative clinical procedure.

Theatre Courses

THEA 1010 INTRODUCTION TO THEATRE FOR MAJORS I (3) LEC. 2, LLB. 2. Overview of all areas of theatrical collaboration intended specifically for the incoming theatre majors. Introduces theatre majors to academic skills they will need to pursue the theatre major at Auburn University. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 1110 INTRODUCTION TO THEATRE FOR MAJORS II (3) LEC. 2, LLB. 2. Pr. THEA 1010. Introduction to a variety of perspectives regarding theatrical practices, theories, and texts. Focus on productive working relationships and collaborative skills necessary for a successful life in the theatre. Course culminates in the creation of a new performance piece. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 1190 INTRODUCTION TO READING MUSIC FOR THEATRE ARTISTS (1) LEC. 1. Departmental approval. Instruction in how to read music for theatre artists. Course covers reading vocal music, instrumental music, orchestral music, and lead sheets in a variety of musical styles. One 50-minute class per week.

THEA 1340 PERFORMANCE I (1) STU. 1. Pr., Departmental approval. Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

THEA 1440 PERFORMANCE II (1) STU. 1. Pr. THEA 1340 or MUAP 1530. Departmental approval. Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

THEA 1530 DANCE LAB 1 - TAP (1) LAB. 3. Introduction to traditional tap dance Exploration of technical concepts, rhythm combinations, and improvisations designed to test and develop tap dance skills. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1570 DANCE LAB 1 - BALLET (1) LAB. 4.5. Beginning studio introduction to ballet technique Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1670 DANCE LAB 1 - JAZZ (1) LAB. 3. Studio introduction to and exploration of jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1910 PRODUCTION PRACTICUM I (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2010 INTRODUCTION TO THEATRE (3) LEC. 3. Fine Arts Core. Appreciation of theatre arts including stage, television, and film. Development of sensitive and critical sophistication as articulate, discriminating theatre-goers. Play and film viewing, play-reading, critiques, and term projects. May count either THEA 2010 or THEA 2013.

THEA 2017 HONORS INTRODUCTION TO THE THEATRE (3) LEC. 3. Pr. Honors College. Fine Arts Core. Appreciation of theatre arts. Development of sensitivity and critical skills as theatre-goers. Play attendance, reading, critiques, and term projects.

THEA 2020 AESTHETICS OF ACTING (3) LEC. 3. Fine Arts Core. An orientation to acting aesthetics as a means of understanding and engaging the arte of theatre.

THEA 2080 PERFORMANCE TECHNIQUES FOR THE CAMERA (3) LEC. 1, LST. 3. Theory and practice of specialized performance techniques for television and film. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2110 VOICE AND MOVEMENT FUNDAMENTALS (3) STU. 4. Exploration and study of fundamental issues in vocal production, articulation, and movement. Introduction to vocal anatomy, breathing/relaxation/alignment techniques, and integrated vocal and movement exercises applied in a variety of texts. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2120 ACTING I (3) LEC. 2, LST. 2. Introduction to basic acting techniques, literature, and performance through improvisation, contemporary scene study and attendance at theatre performances. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2210 MUSIC FUNDAMENTALS FOR MUSIC THEATRE (3) LEC. 3. Fundamental study of music structural procedures, form, and style designed for students in the music theatre major.

THEA 2220 MT PERFORMANCE LAB (1) LAB. Departmental approval. Demonstration and exploration of singing and acting techniques through performance of music theatre repertoire. Course may be repeated for a maximum of 6 credit hours.

THEA 2300 STAGE MANAGEMENT (3) LEC. 3. Examination of the theories and techniques of stage management in the producing organization, including management, organization, auditions, rehearsal, safety practices, and production procedures. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2310 THEATRE TECHNOLOGY I (3) LEC. 3. A comprehensive introduction to the study of technical theatre; theoretical and practical applications of equipment, materials, and techniques used in technical theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2330 SCENE PAINTING (3) LEC. 2. LAB. 2. Departmental approval. Studio-oriented course introducing the principles, techniques, and media of the scenic artist. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2340 PERFORMANCE III (1) STU. 1. Pr. THEA 1440 or MUAP 1630. Departmental approval. Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

THEA 2400 DESIGN AESTHETICS (3) LEC. 3. An exploration of the fundamental elements and principles of design, pictorial composition, and design theory, and their relationships and potential for application in scenic, costume, and lighting design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2440 PERFORMANCE IV (1) STU. 1. Pr. THEA 2340 or MUAP 2530. Departmental approval. Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

THEA 2450 DRAFTING FOR THE THEATRE I (3) LEC. 2, LST. 2. Pr. P/C THEA 2310. Departmental approval. A comprehensive study of the techniques and methods used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2570 DANCE LAB 2 - BALLET (1) LAB. 4.5. Pr. THEA 1570. Intermediate studio training in ballet technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2610 COSTUME CONSTRUCTION (3) LEC. 1, LST. 3. Fundamentals of machine sewing techniques, pattern drafting and draping, fabric dyes, and craftwork as they relate to theatrical costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2650 STAGE MAKEUP (3) LEC. 1, LST. 3. Theories and techniques of stage makeup, practical design and execution of basic makeup techniques, special effects, and character makeups. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2670 DANCE LAB 2 - JAZZ (1) LAB. 3. Pr. THEA 1670. Intermediate studio training in jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2700 TEXT ANALYSIS (3) LEC. 3. Script Analysis provides students with the tools to read and interpret scripts from a variety of perspectives with a focus upon implications for production. Students will analyze plays for character, plot, theme, action, given circumstances, and production requirements.

THEA 2840 BEGINNING DANCE TECHNIQUES (3) LEC. 1, LST. 3. Beginning level dance technique and theory, focusing on dance as an art form, including a survey of dance in different cultural and historical contexts. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 2910 PRODUCTION PRACTICUM II (1) STU. 4. Pr. THEA 1910. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 2940 APPLIED THEATRE I: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3110 VOICE FOR THE ACTOR II (3) LEC. 2, LST. 2. Pr. THEA 2110. Continuing study of vocal production and articulation techniques in tests of increasing complexity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3120 ACTING II (3) LEC. 2, LST. 2. Pr. THEA 2120. Exploration of internal and external acting theory and techniques in modern and classical scene study. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3140 MUSIC THEATRE ACTING (3) LEC. 3. LAB. 3. Pr. THEA 1190. Pr., Admission into the (THMU major) or Departmental approval. Students registering for this course should have experience with reading music. Exploration of acting techniques and performance through music theatre scene and song study, analysis, and history of music theatre repertoire culminating in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3150 BFA PERFORMANCE STUDIO I (4) LEC. 3, LST. 5. Pr., Admission into the THPR or THMU majors. Intensive study and practice integrating advanced contemporary scene study, audition technique, and the Fitzmaurice Voicework system. Students who do not earn a grade of "C" or better must re-audition for the BFA program and repeat the course.

THEA 3160 BFA PERFORMANCE STUDIO II (4) LEC. 3, LST. 5. Pr. THEA 3150. Intensive study and practice integrating Shakespeare and scene study of poetic texts with continuing work in Fitzmaurice Voicework system. Must earn a grade of "C" or higher or re-audition for the BFA program and repeat THEA 3150 and THEA 3160.

THEA 3190 SINGING PRACTICUM (1) STU. 1. Group instruction in musical theatre singing. Students will be introduced to the primary principles of posture, breathing, resonance, vocal health, direction, interpretation, and repertoire selection. Theatre majors who do not earn a grade of "C" or higher must repeat. Course may be repeated for a maximum of 2 credit hours.

THEA 3210 THE BUSINESS OF THEATRE (3) LEC. 3. Pr. THEA 1010 and THEA 1110 and THEA 1910 and THEA 2310 and THEA 2910. Discussion, research, and implementation of the practices necessary to be successful as a freelance artist in the current performing arts field.

THEA 3220 ARTS MANAGEMENT (3) LEC. 3. Departmental approval. Exploration of arts organizational structures, budgeting for non-profit and for-profit arts organizations, basic business and marketing practices, historical principles and practices of arts and cultural organizations.

THEA 3320 THEATRE TECHNOLOGY II (3) LEC. 2, LST. 2. Pr. THEA 2310. Theoretical and practical applications of equipment and techniques in technical theatre. Topics include light, sound mechanics, theatre rigging, equipment, special effects, and computer applications. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3340 PERFORMANCE V (1) STU. 1. Pr. THEA 2440 or MUAP 2630. Departmental approval. Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

THEA 3350 PRODUCTION MANAGEMENT (3) LEC. 3. Departmental approval required. Exploration of the role and responsibilities of the production manager in the coordination and execution of production elements for projects in theatre, dance, opera, music, etc. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3400 RENDERING FOR THE THEATRE (3) LEC. 2. LAB. 2. Pr. THEA 2400 or Departmental approval. Traditional drawing and rendering techniques and medias that help the designer to communicate scenic, costume, and lighting designs. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3410 SCENE DESIGN I (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Discussion, research, and execution of theory and practices of designing scenery for the stage. Emphasis on traditional style and methods of design and presentation for the proscenium theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3420 PROPERTY DESIGN AND TECHNOLOGY (3) LEC. 2, LST. 2. Pr. THEA 3320 or Departmental approval. History, design, organization, application of materials, and techniques used in the design and construction of properties for the theatre, film, and television. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3440 PERFORMANCE VI (1) STU. 1. Pr. THEA 3340 or MUAP 3530. Departmental approval. Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

THEA 3460 AUTOCAD FOR PERFORMANCE DESIGN (3) DSL/LEC. Pr. THEA 3450. This course provides students with a broad knowledge of creating 2D drawings and 3D modeling using Computer-Aided Design software (AutoCAD). Students will learn how to use AutoCAD to present their designs, visually and distribute basic, industry-standard drawings.

THEA 3510 LIGHTING DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2310 or Departmental approval. Studio course that explores the theory, research, and practice of stage lighting, practical illumination, and effects lighting. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3520 SOUND DESIGN (3) LEC. 2, LST. 2. Departmental approval. Equipment and techniques used in sound design, as both a design and a technical medium. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3570 DANCE LAB 3 - BALLET (1) LAB. 4.5. Pr. THEA 2570. Intermediate advanced studio in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3610 ADVANCED COSTUME CONSTRUCTION (3) LEC. 2, LST. 2. Pr. THEA 2610 or Departmental approval. Historical pattern making and draping, millinery skills, and craft techniques, and their practical applications in theatre costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3640 COSTUME DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Costume design and rendering as it relates to historical and original design for the theatre. Exploration of design for television, commercials, and rock stars. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3670 DANCE LAB 3 - JAZZ (1) LAB. 3. Pr. THEA 2670. Intermediate advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3710 THEATRE HISTORY, THEORY AND CRITICISM II - BODY (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on the human body as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include such topics as historical and theoretical perceptions of the social status of the actor, the actor's body as a medium of representation, and theatrical representations of gender and ethnicity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3720 THEATRE HISTORY, THEORY AND CRITICISM III - SPACE (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on theatrical space as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include ritual landscapes as they pertain to the origin of drama, the development of the western playhouse, the avant-garde reconceptualization of theatre space, and the development of such spatially oriented American institutions as Broadway and regional theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3730 MUSIC THEATRE HISTORY (3) LEC. 3. Exploration of music theatre literature, performances, historical, analytical and critical trends from the early 20th century to the present day. Areas of exploration include music theatre as a work of art with unique conversations about aesthetics and form, as an entertainment media shaped by its historical and cultural context, and as a viable performance form for the 21st century. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3740 COSTUME HISTORY (3) LEC. 3. History of Western costume and its uses in the theatre from ancient times to the present. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3800 THEATRE EVENTS MANAGEMENT (3) SEM. 3. Pr. THEA 2300. THEA 2300 with a grade of "C" or higher. This course is an introduction to the researching, planning, coordinating, marketing, facilitation/management and assessment of special events, specifically as they relate to the performing arts. Through practical application, each student will gain experience in the basic entrepreneurial skills necessary to plan a public arts event.

THEA 3840 INTERMEDIATE DANCE TECHNIQUES I (3) LEC. 1, LST. 3. Pr. THEA 2840. Intermediate level dance technique and theory, with an emphasis on performance qualities including work on alignment, strength, flexibility, rhythm, musicality, and dynamics, as well as the study of select contemporary choreographers. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3850 INTERMEDIATE DANCE TECHNIQUES II (3) LEC. 1, LST. 3. Pr. THEA 2840. Further exploration into intermediate level dance technique and theory, with emphasis on aesthetics and contemporary topics in dance. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3860 MOVEMENT FOR THE ACTOR (3) STU. 4. Introduction to the basic concepts of movement as it relates to the actor. Integrative ways of connecting the body to text and space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3910 PRODUCTION PRACTICUM III (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 3940 APPLIED THEATRE II: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3950 DIRECTING SEMINAR (3) LEC. 2, LST. 2. Pr. THEA 2120. Study of fundamental skills and collaborative processes needed to direct live theatre, including blocking, script analysis, research methods, approaches to casting, and rehearsal techniques. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3960 DRAMATURGY SEMINAR (3) LEC. 3. Study of fundamental skills and collaborative processes needed to dramaturg a piece of live theatre including both production and new play dramaturgy, critical analysis, research, presentations, and performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4150 BFA PERFORMANCE STUDIO III (4) LEC. 3, LST. 5. Pr. THEA 3160. Professional preparation with particular focus on individual rehearsal and performance techniques covering a broad spectrum of periods and styles geared toward graduate acting program placement and professional employment. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, and THEA 4150.

THEA 4160 BFA PERFORMANCE STUDIO IV (4) LEC. 3, LST. 5. Pr. THEA 4150. Special problems and topics in performance. Intensive work integrating and applying acting, voice, and movement techniques in an ensemble capstone recital of work in an adjudicated public performance. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, THEA 4150 and THEA 4160.

THEA 4340 PERFORMANCE VII (1) STU. 1. Pr. THEA 3440 or MUAP 3630. Departmental approval. Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

THEA 4420 SCENE DESIGN II (3) LEC. 2, LST. 2. Pr. THEA 3410 or Departmental approval. Advanced course in theory and practice of scenic and lighting design for theatre. Emphasis on experimental and non-traditional staging in a variety of space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4440 PERFORMANCE VIII (1) STU. 1. Pr. THEA 4340 or MUAP 4530. Departmental approval. Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

THEA 4450 DRAFTING FOR THE THEATRE II (3) LEC. 2, LST. 2. Pr. THEA 3450. Comprehensive study of computer and digital techniques used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4510 LIGHTING DESIGN II (3) LEC. 3. LAB. 1. Pr. THEA 2400 and THEA 3510. Lighting Design II provides students with in-depth study of advanced stage lighting techniques, including integration of computer graphics and projections with conventional lighting instruments.

THEA 4570 DANCE LAB 4 - BALLET (1) LAB. 4.5. Pr. THEA 3570. Advanced studio training in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4650 ADVANCED STAGE MAKEUP (3) LEC. 1, LST. 3. Pr. THEA 2650 or Departmental approval. Comprehensive study of specialized makeup, including film and television makeup, mask making, prosthesis, facial hair design, and wig making. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4670 DANCE LAB 4 - JAZZ (1) LAB. 3. Pr. THEA 3670. Advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4690 ARTISTS AND COMMUNITIES (3) SEM. 3. An in-depth analysis and exploration of the role and responsibility of the artist and art within communities. We will explore this idea from multiple perspectives: marketing, general management, artistic direction, performance, urban planning/creative placemaking, fundraising, and nonprofit management.

THEA 4750 PLAYWRITING (3) LEC. 3. Discussion of the principles of play construction, playwriting exercises, and completion of a one-act play. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4770 CAPSTONE SENIOR DANCE LAB (1) LAB. 1. Pr. THEA 1530 and THEA 2570 and THEA 2670. Students must be in good standing in BFA Performance Program. Culminating exploration of, and enrichment in musical theatre dance technique ranging from Ballet to Jazz to Hip-hop. Course culminates in a public capstone dance outcome performance.

THEA 4840 ADVANCED DANCE TECHNIQUES (3) LEC. 1, LST. 3. Pr. THEA 3850. Intensive study of advanced dance techniques in theory and practice. Course often serves as a training and preparation for public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 12 credit hours.

THEA 4910 PRODUCTION PRACTICUM IV (1-4) STU. Pr. THEA 3910. Or Admission into the THDT or THMN program and two semesters of THEA 3910 or departmental approval. Leadership experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 4920 PROFESSIONAL INTERNSHIP (1-8) INT. Pr., Departmental approval. Internship with professional or community theatre in the student's field of specialization. Each 10-hour work week equals one hour of credit. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 8 credit hours.

THEA 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. Directed readings, creative and tutorial projects of interest to the advanced student. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4940 THEATRE SPECIAL PROJECTS (3) AAB/STU. 4. Pr., Departmental approval. Selected projects related to realizing a theatrical production in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 9 credit hours.

THEA 4950 THEATRE LITERATURE AND THEORY SEMINAR (3) LEC. 3. Thorough examination of dramatic literature and theory from a narrow perspective (such as genre, style, or era.) Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Subject areas to be determined between student and theatre instructor. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4970 SPECIAL TOPICS (3) LEC. 3. Special Topics in Theatre or Dance. Course may be repeated for a maximum of 9 credit hours.

THEA 4980 SENIOR CAPSTONE PROJECT (3) LEC. 3. Capstone course to aid senior theatre majors in their transition to the professional world and/or graduate studies. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Final projects of varying natures in theatre Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

Women's Studies Courses

WMST 2100 INTRODUCTION TO WOMEN'S AND GENDER STUDIES (3) LEC. 3. Interdisciplinary examination of the definitions of gender and impact of culture on the construction of gender. Diversity of representation, reflecting upon the histories of woman from a local and global perspective will be the keynote of the course.

WMST 3500 GENDER, BEAUTY, AND CULTURE (3) LEC. 3. An overview of how cultural perspectives on gender and beauty inform one another and shape ideals of femininity and masculinity and impact individual's lives and identities.

WMST 3900 DIRECTED READINGS IN WOMEN'S AND GENDER STUDIES (1-3) LEC. Directed study in an area of special interest. Course may be repeated for a maximum of 3 credit hours.

WMST 3970 SPECIAL TOPICS IN WOMEN’S AND GENDER STUDIES (3) LEC. 3. Special topics approached through the lens of women and gender studies. Topics vary. Course may be repeated for a maximum of 6 credit hours.

WMST 5980 FEMINIST THEORY (3) LEC. 3. Pr. WMST 2100. Perspectives on feminist theory, with emphasis on intersections of race, class, sexual orientation, and gender as they affect women's position in culture.

WMST 6980 FEMINIST THEORY (3) LEC. 3. Perspectives on feminist theory, with emphasis on intersections of race, class, sexual orientation, and gender as they affect women's position in culture.

WMST 7910 TEACHING PRACTICUM (1) LEC. 1. Pr. (WMST 5980 or WMST 6980). Intended women's studies minor. Feminist pedagogical theory and practice. Course may be repeated for a maximum of 2 credit hours.

Exploratory Courses

EXPL 1010 EXPLORATORY MAJOR INVESTIGATIONS I (2) LEC. 2. For students in the Exploratory Major. This course introduces students to the majors offered at Auburn, and through a program of readings, research, professional outreach, analysis, and reflection helps them decide on a degree-granting major.

EXPL 1020 EXPLORATORY MAJOR INVESTIGATIONS II (1) LEC. 1. Pr. EXPL 1010. For students in their second and final semester as an Exploratory Major. This course continues and deepens the exploration through readings, research, professional outreach, analysis, and reflection to help students select a degree-granting major.

Department of Art and Art History

The Department of Art and Art History offers a relevant, rigorous, and purpose-driven education in studio art and art history and presents engaging programs and exhibitions that both stimulate an understanding of diverse forms of artistic expression and encourage cultural and intellectual awareness. The department provides a challenging and supportive atmosphere in which majors learn to conduct insightful and high-impact scholarship and creative research, and through outreach and professional

experience become competitive in diverse career paths. The Department of Art and Art History offers three majors: a Bachelor of Arts (formal option in art history), a Bachelor of Arts in Studio Art, and a Bachelor of Fine Arts in Studio Arts.

The **BA in Art (formal option in Art History)** offers students training in the global history of art, from the ancient period to the present, through a range of interpretive methods. Bolstered by internship opportunities and study abroad experiences, the curriculum requires a breadth of study across ancient and medieval, Renaissance and Baroque, modern and contemporary, and non-Western art. The degree prepares students for careers in museums, galleries, auction houses and other cultural institutions, as well as education, business, and law, and provides a foundation for graduate studies in the field.

The **BA in Studio Art** is ideal for students who are passionate about art making and who wish to take a breadth of courses across media, including animation, ceramics, drawing and painting, photography, printmaking, and sculpture. The flexibility of the BA degree curriculum enables students to take advantage of additional academic courses of study across the University and to combine the study of studio art with a major or minor in another field of study.

The **BFA in Studio Art** is a professionally oriented program that prepares students for graduate school and careers in the arts. BFA students concentrate in one of six areas: animation (pending NASAD [National Association of Schools of Art and Design] approval), ceramics, painting/drawing, photography, printmaking, or sculpture. Students may complement their focus with additional studio courses in digital arts or study abroad. BFA students must complete an advisory review during their sophomore year. The following are required for the review:

- Completion of 21 credit hours of studio art and art history courses (check with the department for a list of courses).
- Submission of a written statement of academic and career goals.
- Submission and presentation of a portfolio of artwork.
- Completion of an in-person review with a committee of designated Department of Art & Art History faculty.

The **Animation Minor** will give students a foundation in 2D and 3D animation in traditional and digital applications. Animation skills can complement a range of majors, such as advertising, business, computer science, graphic design, marketing, media studies, music production, and prepare students for careers in film, television, music video production, visual effects, and video games. Animation is also extensively used in a variety of other contexts, such as advertising, education, and medical and scientific fields.

The **Art History Minor** is ideal for students who wish to supplement their majors with the visually and intellectually stimulating study of art and visual culture. Minors develop numerous transferable skills including writing, research, critical thinking, visual analysis, and oral presentation. These skills are invaluable in professions as diverse as law, medicine, business, communication, and education, as well as design, cultural preservation, and museum and gallery work.

The **Photography Minor** will give students a foundation in creative photography, both analog and digital, in the context of fine art. Students majoring in advertising, business, communications, education, graphic design, journalism, marketing, media studies, public relations, and many medical and scientific fields will find that photography skills, and the related visual acuity cultivated in the photography minor, can be a major asset in their careers.

The **Studio Art Minor** is designed for students who want to enrich their major field of study with a competency in art making. A minor in studio art is valuable for any student seeking to develop innovative thinking and creative expression through a range of drawing, design, animation, ceramics, painting, photography, printmaking, and sculpture courses. Students pursuing fields as varied as engineering, communications, and marketing can benefit from instruction in creative thinking practices, and in critical and observational skills. Art coursework can better prepare students for advanced study in allied fields such as architecture, graphic design, environmental design, interior design, and industrial design. The range of art experiences offered in the studio minor fosters a lifelong appreciation and enjoyment of art.

A **Studio Art Lab/Materials Fee** will be assessed in all studio art courses (ARTS courses designated STU in the AU Bulletin) starting fall semester 2021. This fee, $100 for each STU-designated ARTS course, will partially defray the cost of materials supplied to students enrolled in studio courses, such as canvas, clay, glazes, photo chemicals, metals, and wood; and the maintenance and replacement of studio equipment, like cameras, enlargers, kilns, presses, and printers.

Majors

- Art (p. 961)
- (p. 962)Art History Option (p. 962)
- B.F.A. in Studio Art (p. 963)

Minors

- Animation (p. 961)
- Art History (p. 962)
- Photography (p. 965)
- Studio Art (p. 965)

Courses

ARTS 1040 BASIC PAINTING FOR NON MAJORS (3) STU. 6. Instruction in painting concepts, materials, and techniques. Oil and water-based paints and other media are used to explore a variety of approaches and subject matter. Not open to ARTF, ARTH, and ATLA majors.

ARTS 1110 DRAWING I (3) AAB/STU. 6. Basic drawing with emphasis on accurate observation, pictorial organization, and the depiction of space; development of drawing skills using various black and white media.

ARTS 1210 STUDIO FOUNDATIONS I: MATERIALS AND CONCEPTS (3) STU. 6. An introductory course on the application of two-dimensional and three-dimensional art materials and conceptual development.

ARTS 1220 STUDIO FOUNDATIONS II: PROCESS AND CONCEPT (3) STU. 6. Pr. P/C ARTS 1210. An introductory art course focusing on in-depth creative research in conjunction with artmaking.

ARTS 1230 INTRODUCTION TO DIGITAL ART (3) STU. 6. An introduction to the skills and concepts of digital art such as imaging, time, and 3D modeling using computer-based tools and techniques.

ARTS 1250 ORIENTATION TO STUDIO ART FOR THE MAJOR (0) LEC. 0. SU. Introduction to the BA and BFA studio arts major, photo documentation, and portfolio development.

ARTS 1510 LOOKING AT ART: APPROACHES TO INTERPRETATION (3) LEC. 3. Introduces the fundamental structures of the art world and multiple approaches to looking at and responding to art.

ARTS 1610 INTRODUCTION TO ART HISTORY (3) LEC. 3. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 1617 HONORS INTRODUCTION TO ART HISTORY (3) LEC. 3. Pr. Honors College. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 2100 FOUNDATIONS OF ART HISTORY I (3) LEC. 3. A history of art from ancient cultures to approximately 1300 CE, with an introduction to basic art historical research and writing skills.

ARTS 2150 FOUNDATIONS OF ART HISTORY II (3) LEC. 3. A history of art from approximately 1300 CE to the contemporary period, with an introduction to basic art historical research and writing skills.

ARTS 2970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (3) LEC. 3. Topics in studio art and art history. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

ARTS 3020 2-D ANIMATION (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 and ARTS 1230. Introduction to the fundamental principles of animation and storytelling in 2-D traditional and digital formats.

ARTS 3030 B.F.A. PORTFOLIO REVIEW (0) IND. SU. Pr. ARTS 1110 and ARTS 1210 and ARTS 1220 and ARTS 1230 and ARTS 1250 and ARTS 2100 and ARTS 2150. Preparation, presentation, and faculty advisory review of a portfolio of artworks, a statement of academic and career goals, and a declaration of a BFA concentration area. Completed by ARTF students after 24 credit hours of ARTS courses.

ARTS 3110 FIGURE DRAWING I (3) STU. 6. Pr. ARTS 1110 and ARTS 1210 and (ARTS 2100 or ARTS 2150). The human figure as form and as compositional element. Measuring and sighting for proportion. Drawing from casts, skeletons, and nude models.

ARTS 3120 3-D ANIMATION (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 3020 and ARTS 3110. Introduction to the fundamental principles of 3D modeling and animation.

ARTS 3130 THEMES IN CONTEMPORARY ANIMATION (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 3120. Creative exploration of varying topics in contemporary animation. Studio work supplemented with lectures, critiques, and reading. Course may be repeated for a maximum of 6 credit hours.

ARTS 3140 ADVANCED DRAWING I (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3110. Concepts, materials and techniques with emphasis on the development of a personal vision and individual approach. Nude models may be used.

ARTS 3150 ADVANCED DRAWING II (3) STU. 6. Pr. ARTS 3140 and (ARTS 2100 and ARTS 2150). Medium and subject determined by student with approval of instructor. Emphasis on strengthening the student's aesthetic awareness and technical skills.

ARTS 3160 FIGURE DRAWING II (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3110. Continued study of life-drawing from nude models and casts. Materials and techniques emphasize building observational drawing skills and strengthening aesthetic awareness. Repeatable up to 6 hours. Course may be repeated for a maximum of 6 credit hours.

ARTS 3210 INTRODUCTION TO PHOTOGRAPHY (3) STU. 3. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Departmental approval. Fine art photographic concepts and techniques including camera operation, tonal control of black and white prints, presentations of historical and contemporary photography.

ARTS 3220 DIGITAL AND COLOR PHOTOGRAPHY (3) AAB/STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3210. Departmental approval. Concepts and practices of contemporary art photography including digital production techniques and color photographic theory.

ARTS 3230 INTERMEDIATE PHOTOGRAPHY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3210. Departmental approval. Intermediate study of photographic processes with emphasis on technique, classroom craftsmanship, medium and large camera formats, approaches to content and researching concepts to inform studio production.

ARTS 3310 PAINTING I (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Instruction in painting concepts, materials, and methods.

ARTS 3320 PAINTING II (3) AAB/STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3310. Departmental approval. Instruction in painting concepts, materials, and techniques with emphasis on the development of technical skills and a personal vision and individual approach.

ARTS 3330 PAINTING III (3) AAB/STU. 6. Pr. ARTS 3140 and ARTS 3320 or Departmental approval. Medium and subject determined by student and instructor. Emphasis on strengthening aesthetic awareness and technical skills.

ARTS 3410 PRINTMAKING: RELIEF (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Introduction to relief printmaking. Studio work supplemented with lectures, critiques, and readings.

ARTS 3420 PRINTMAKING: INTAGLIO (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and (ARTS 3410 or ARTS 3430) or Departmental approval. Introduction to intaglio printmaking. Studio work with lectures, critiques, and readings.

ARTS 3430 PRINTMAKING: SCREEN-PRINTING (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 and ARTS 1230. Departmental approval. Introduction to water based screen-printing. Studio work supplemented with lectures, critiques, and reading.

ARTS 3510 INTRODUCTION TO SCULPTURE (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Introduction to wood working, metal fabrication, casting, and additional materials, processes, and issues involved in mixed media sculpture production. Department approval.

ARTS 3520 INSTALLATION ART (3) STU. 6. Pr. ARTS 2100 and ARTS 2150 and ARTS 1220 and ARTS 1230 and ARTS 3510. Investigation of the methods, theory, and technologies involved in contemporary indoor and outdoor installations and site-specific intervention. Readings and discussions on relevant sculptural practices. Department approval.

ARTS 3530 CASTING AND FOUNDRY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3510. Instruction in mold making, casting, papermaking, and figure modeling as it applies to metal, plaster, and additional materials. Department approval.

ARTS 3620 COLONIAL LATIN AMERICAN ART (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. Study of the major art and architectural traditions of Latin America from the early 16th to the early 19th centuries.

ARTS 3630 ART OF THE ANCIENT NEAR EAST (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. This course examines the visual arts and architecture of the Near East within their social and historical contexts. Departmental Approval needed.

ARTS 3640 ANCIENT GREEK ART (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. This course examines the visual arts and architecture of ancient Greece (Early Bronze Age to Hellenistic Period) in their social and historical contexts. Departmental Approval needed.

ARTS 3650 HISTORY OF PHOTOGRAPHY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to the history and theory of photography from its 19th-century origins to contemporary global practices.

ARTS 3660 EIGHTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture in 18th-century Europe.

ARTS 3670 CONSTRUCTING RACE IN THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the role of visual imagery in inscribing and. challenging racial hierarchies in the history of art.

ARTS 3680 20TH-CENTURY ART II: 1945-2000 (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). An introduction to the artists, movements, institutions, concepts, and themes of late 20th-century art.

ARTS 3690 ARTS OF AFRICA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Introduction to the art, artists, themes and issues in African art from the pre-colonial period to the contemporary era.

ARTS 3700 ART OF THE UNITED STATES (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of architecture, painting, and sculpture from colonial to recent times. Selected movements and works are considered in relationship both to European and to indigenous conditions and attitudes.

ARTS 3710 ANCIENT ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Examination of major art traditions of the ancient world, including for example: Egypt, Near East, Aegean, Greece, and Rome.

ARTS 3720 MEDIEVAL ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of major art traditions of the West from the fall of Rome to CE 1400, with a selective focus on the major art traditions, including Migration period, Carolingian, Ottonian, Romanesque, Gothic, and Italo-Byzantine.

ARTS 3730 RENAISSANCE ART IN ITALY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of the architecture, painting, and sculpture of the 15th and 16th centuries in Italy.

ARTS 3740 SEVENTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture of 17th-century Europe.

ARTS 3750 19TH CENTURY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Introduction to major art movements from Neo-Classicism to Post-Impressionism and Art Nouveau.

ARTS 3760 20TH CENTURY ART I 1900–1945 (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. Study of major developments in painting, sculpture, and architecture in Europe and the United States from 1900 to 1945. Departmental Approval.

ARTS 3770 MESOAMERICAN ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of the major art and architectural traditions of Mesoamerica from 1800 BCE until 1519 CE.

ARTS 3790 ARTS OF ASIA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Introduction to major art traditions of Asia from the beginnings to the present.

ARTS 3800 ISSUES AND CRITICISM IN CONTEMPORARY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). and one 3000-level art history class or Departmental approval. Readings and discussions about contemporary art.

ARTS 3810 GENDER AND THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to gender issues in the visual arts in historical and contemporary contexts. Examines the cultural notions of both masculine and feminine gender roles at play in works of art and explores key issues that have affected women's production of works of art in the past and present.

ARTS 3820 INTRODUCTION TO WHEEL-THROWN CERAMICS (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Departmental approval. Introduction to wheel-thrown pottery. Presentation of historical and contemporary contexts for fine arts ceramics. Work with glazes and firing.

ARTS 3840 INTRODUCTION TO HAND-BUILT CERAMICS (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Departmental approval. Introduction to handforming methods for sculpture and vessel forms in clay. Work with glazes and firing.

ARTS 3850 INTERMEDIATE CERAMICS (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and (ARTS 3820 or ARTS 3840). Departmental approval. Individual approaches to ceramic sculpture and vessel forms, techniques building on previous experience with hand-building and/or wheel-throwing, with emphasis on stylistic and conceptual concerns.

ARTS 3920 INTERNSHIP IN STUDIO ART/ART HISTORY (3) AAB/PRA. 15. SU. Junior standing and 3.0 GPA in major and completion of at least two 3000-level courses in ARTF, ARTH, or ATLA major. Internships appropriate to the major with a departmental-approved sponsor providing hands-on, practical learning experiences in a professional setting.

ARTS 3930 STUDIO ART ABROAD (3) AAB/LEC. 6. Studio art taught on site in foreign destination.

ARTS 3940 ART HISTORY ABROAD (3) LEC. 3. Art History taught on site in foreign destination.

ARTS 4100 SEMINAR IN PRE-MODERN ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in art history from the ancient era until 1750 CE. Course may be repeated for a maximum of 6 credit hours.

ARTS 4140 ADVANCED ANIMATION (3) STU. 6. Pr. ARTS 3130. An advanced investigation of theory, history, contemporary practice, and techniques through research and studio practice. Emphasis on mature creative expression and production as an animator. Course may be repeated for a maximum of 6 credit hours.

ARTS 4150 SEMINAR IN MODERN AND CONTEMPORARY ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in modern and contemporary art history, 1750 CE-present. Course may be repeated for a maximum of 6 credit hours.

ARTS 4240 ADVANCED PHOTOGRAPHY (3) STU. 6. Pr. ARTS 3220 and ARTS 3230. Advanced investigations of theory, history, and methods to inform photographic practice. Emphasis on production of mature work and individual artistic identity. Frequent individual and group critiques. Course may be repeated for a maximum of 9 credit hours.

ARTS 4340 PAINTING IV (3) STU. 6. Pr. ARTS 3330. Advanced painting with medium and subject idea determined by student with approval of the instructor. Emphasis on strengthening the student's awareness and technical skills as a maturing painter. Nude models may be used. Course may be repeated for a maximum of 9 credit hours.

ARTS 4440 ADVANCED PRINTMAKING (3) STU. 6. Pr. ARTS 3410 and ARTS 3420 and ARTS 3430. Individual research in printmaking. Students focus on conceptual and technical development through continued research in relief, intaglio, or screen-printing. Course may be repeated for a maximum of 9 credit hours.

ARTS 4540 ADVANCED SCULPTURE (3) STU. 6. Pr. ARTS 3520 and ARTS 3530. Advanced study of sculpture techniques and concepts. Students create an independently designed, instructor-approved body of work. Individual instruction and supervision of material exploration, research and reading. Course may be repeated for a maximum of 9 credit hours.

ARTS 4700 SENIOR CAPSTONE: ART HISTORY (3) SEM. 3. Declared ARTH major or minor and completion of 18 hours of 3000-level art history courses. Capstone course for ARTH majors.

ARTS 4840 ADVANCED CERAMICS (3) STU. 6. Pr. ARTS 3820 and ARTS 3840 and ARTS 3850. Advanced study of ceramic techniques and concepts. Student will create an independently-designed, instructor-approved body of work. Individual instruction and supervision of material exploration, research and reading. Frequent individual and group critiques. Course may be repeated for a maximum of 6 credit hours.

ARTS 4850 PROFESSIONAL STUDIO PRACTICES (3) LEC. 3. Pr. ARTS 3030. Instruction in portfolio preparation, professional practices, and information on studio art careers and graduate study. Must have completed ARTS 3030 and nine credit hours in one concentration; taken concurrently with 4000-level studio in same concentration and prior to ARTS 4980 Senior Project in Studio Arts.

ARTS 4860 BFA CRITIQUE SEMINAR (1) LEC. 1. SU. Pr. ARTS 3030. Rigorous group critiques of artwork produced in media concentration courses, discussions and writing about art, art documentation, and exhibition practices. Course may be repeated for a maximum of 3 credit hours.

ARTS 4930 DIRECTED STUDIES (2-3) IND. Pr., Open only to ARTS students who have shown ability, initiative, and industry. Departmental approval and 3.0 minimum GPA in 3000-level ARTS courses in area of directed study. Directed studies are offered in painting, printmaking, sculpture, art history, photography, animation, and ceramics. Course may be repeated for a maximum of 6 credit hours.

ARTS 4950 BA STUDIO ART CAPSTONE (1) LEC. 1. SU. Students must have Senior Standing and have completed a minimum of 39 hours in the Major. Professional skills development and career strategies for BA Studio Art Majors.

ARTS 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

ARTS 4970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (3) ST1/STU. 3. Topics in studio art and art history. Focus will vary according to the instructor. Departmental approval needed. Course may be repeated for a maximum of 6 credit hours.

ARTS 4980 SENIOR PROJECT FOR STUDIO ARTS (3) STU. 6. Pr. ARTS 3030 and ARTS 4860 and (ARTS 3820 and ARTS 3840 and ARTS 3850 and ARTS 4840) or (ARTS 3310 and ARTS 3320 and ARTS 3330 and ARTS 4840) or (ARTS 3410 and ARTS 3420 and ARTS 3430 and ARTS 4440) or (ARTS 3510 and ARTS 3520 and ARTS 3530 and ARTS 4540) or (ARTS 3210 and ARTS 3220 and ARTS 3230 and ARTS 4240) or (ARTS 3020 and ARTS 3120 and ARTS 3130 and ARTS 4140). And three additional courses in a single studio art concentration. Must be taken in the student's final semester concurrent with third enrollment in ARTS 4860. Directed terminal studio project with faculty-approved choice of content and medium. Project will be exhibited.

ARTS 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours.

Animation Minor

The 15-Hour Minor in Animation is designed to give students a foundation in both 2D and 3D animation. Traditional and digital applications are covered. The minor is open to all undergraduate students except for those majoring in programs housed within the Department of Art & Art History.

Code	Title	Hours
Required Courses		
ARTS 1110	Drawing I	3
ARTS 1230	Introduction to Digital Art	3
ARTS 3020	2-D Animation	3
ARTS 3120	3-D Animation	3
ARTS 3130	Themes in Contemporary Animation	3
Total Hours		**15**

Students must earn at least a C and maintain a minimum 2.5 grade-point average in all courses that count toward the minor.

Art (ATLA)

Freshman				
Fall	**Hours**		**Spring**	**Hours**
ARTS 1250 Orientation To Studio Art For The Major	**0**		**ARTS 1220 Studio Foundations II: Process and Concept**	**3**
ARTS 1110 Drawing I	**3**		**ARTS 1230 Introduction to Digital Art**	**3**
ENGL 1100 English Composition I	3		**ARTS 2150 Foundations of Art History II**	**3**
ARTS 2100 Foundations of Art History I	**3**		ENGL 1120 English Composition II	3
Core Fine Arts	3		Core History[1]	3
ARTS 1210 Studio Foundations I: Materials and Concepts	**3**			
	15			**15**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Foreign Language II (College Core)	4
Foreign Language I (College Core)	4	LBAR 2010 Liberal Arts Careers Preparation	2
PHIL 1070 Art, Value, and Society	3	Electives	3
3000-level Studio Art course[3]	**3**	**ARTS 3110 Figure Drawing I**	**3**
Core Social Science or Core History to complete the sequence[1]	3	**3000-level Studio Art course[3]**	**3**
	16		**15**

Junior

Fall	Hours	Spring	Hours
Core Science I	4	Core Social Science	3
3000-level Art History course[2]	**3**	Core Science II	4
3000-level Studio Art course[3]	**3**	**3000-level Studio Art course[3]**	**3**
Elective	3	**3000/4000 ARTS course[2]**	**3**
Core Social Science	3	Elective	2
	16		**15**

Senior

Fall	Hours	Spring	Hours
Electives	4	**3000/4000-level Studio Art course[3]**	**3**
3000/4000 ARTS course[2]	**3**	Electives	5
3000-level Art History [2]	**3**	UNIV 4AA0 Achieve the Creed	0
Core Humanities or Core Literature to complete the sequence[1]	3	COMM 1000 Public Speaking	3
Core Mathematics	3	**ARTS 4950 BA Studio Art Capstone**	**1**
	16		**12**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

2 Students must meet with their advisors for a list of approved courses.

3 Studio Arts electives must come from two (2) or more Studio disciplines.

Art History Minor

Code	Title	Hours
ARTS 2100	Foundations of Art History I	3
ARTS 2150	Foundations of Art History II	3
Elective Courses - See advisor for approved course listing.		9
Total Hours		**15**

1 Minimum 9 hours at 3000-level or above

Art — Formal Option in Art History (ARTH)

Freshman

Fall	Hours	Spring	Hours
ARTS 1110 Drawing I	**3**	**ARTS 1210 Studio Foundations I: Materials and Concepts**	**3**
ARTS 2100 Foundations of Art History I	**3**	**ARTS 2150 Foundations of Art History II**	**3**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History[1]	3	Core Social Science or Core History to complete sequence[1]	3
Core Fine Arts	3	Core Mathematics	3
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
ARTS 3000/4000-level ARTS course	**3**	**Group I Art History course[2]**	**3**
Core Foreign Language I (College Core)	4	Core Literature[1]	3
Core Science I	4	Foreign Language II (College Core)	4
Elective	3	Core Science II	4
		LBAR 2010 Liberal Arts Careers Preparation	2
	14		**16**

Junior

Fall	Hours	Spring	Hours
Group II Art History course[2]	**3**	**ARTS 1220 Studio Foundations II: Process and Concept**	**3**
Group III Art History course[2]	**3**	**Group IV Art History course[2]**	**3**
Core Humanities or Core Literature to complete sequence[1]	3	**3000-level Art History courses[2]**	**3**
Core Social Science	3	Core Social Science	3
Elective	3	Elective	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
Core Humanities	3	**3000-level Art History course[2]**	**3**
3000-level Art History courses[2]	**6**	**ARTS 4700 Senior Capstone: Art History**	**3**
3000/4000 level ARTS Course	**3**	Electives	9
Electives	3	UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

1 Students are required to complete a two-course history sequence or literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

2 Students must meet with their advisers to identify approved 3000- or 4000-level Art History and ARTS courses.

BFA Art — Studio/Fine Arts (ARTF)

Freshman

Fall	Hours	Spring	Hours
ARTS 1110 Drawing I	**3**	**ARTS 1250 Orientation To Studio Art For The Major**	**0**
ARTS 1210 Studio Foundations I: Materials and Concepts	**3**	**ARTS 1230 Introduction to Digital Art**	**3**
ARTS 2100 Foundations of Art History I	**3**	**ARTS 1220 Studio Foundations II: Process and Concept**	**3**
ENGL 1100 English Composition I	3	**ARTS 2150 Foundations of Art History II**	**3**
Core Fine Arts	3	ENGL 1120 English Composition II	3
		Core Social Science	3
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
ARTS 3110 Figure Drawing I	**3**	**ARTS 3140 Advanced Drawing I**	**3**
3000-level Studio Art course[2]	**3**	**3000-level Studio Art course**[2]	**3**
3000-level Studio Art course[2]	**3**	**3000-level Studio Art course**[2]	**3**
3000/4000-level Art History course	**3**	**ARTS 3030 B.F.A. Portfolio Review**	**0**
Core Literature[1]	3	PHIL 1070 Art, Value, and Society	3
		Core History[1]	3
	15		**15**

Junior

Fall	Hours	Spring	Hours
3000-level Studio Art course[2]	**3**	**ARTS 4860 BFA Critique Seminar**[4]	**1**
3000-level course in Concentration[3]	**3**	**3000-level course in Concentration**[3]	**3**
3000/4000-level Studio Art course	**3**	**3000/4000-level ARTS course**	**3**
Core Humanities or Core Literature to complete sequence[1]	3	**3000/4000-level Art History course**	**3**
Core Science I	4	Core Science II	4
	16		**14**

Senior

Fall	Hours	Spring	Hours
ARTS 4850 Professional Studio Practices	**3**	**ARTS 3800 Issues and Criticism in Contemporary Art**	**3**
3000/4000-level Studio or Art History course	**3**	**ARTS 4860 BFA Critique Seminar**[4]	**1**
4000-level course in Concentration[3]	**3**	**ARTS 4980 Senior Project for Studio Arts**	**3**
ARTS 4860 BFA Critique Seminar[4]	**1**	Core Social Science	3
Core Math	3	Elective	4
Core Social Science or Core History to complete sequence[1]	3	UNIV 4AA0 Achieve the Creed	0
	16		**14**

Total Hours: 120

[1] Students are required to take at least one Core History and one Core Literature course. They are also required to take a second course from either Core History or Core Literature to complete the two-course sequence.
[2] Select from the following: ARTS 3020, ARTS 3210, ARTS 3310, ARTS 3410, ARTS 3510 , (ARTS 3840 or ARTS 3820).
[3] Students must meet with their advisors for a list of approved courses. Concentration options are Animation, Ceramics, Painting, Photography, Printmaking, and Sculpture.
[4] Course should be taken in 3 sequential semesters culminating in the semester of graduation.

Photography Minor

The 15-Hour Minor in Photography is designed to give students a foundation in creative photography in the context of fine art. Analog and digital processes are covered. The minor is open to all undergraduate students except for those majoring in programs housed within the Department of Art & Art History.

Required Courses

Pick one of the Following:

Code	Title	Hours
ARTS 1110	Drawing I [**]	3
ARTS 1210	Studio Foundations I: Materials and Concepts [**]	3
ARTS 1230	Introduction to Digital Art [**]	3

All of:

Code	Title	Hours
ARTS 3210	Introduction to Photography	3
ARTS 3220	Digital and Color Photography	3
ARTS 3230	Intermediate Photography	3
ARTS 4240	Advanced Photography	3

Total Hours: 15

**Can be taken concurrently with ARTS 3210 Introduction to Photography

Students must earn at least a C and maintain a minimum 2.5 grade-point average in all courses that count toward the minor.

Studio Art Minor

Code	Title	Hours
ARTS 1110	Drawing I	3
ARTS 1210	Studio Foundations I: Materials and Concepts	3
or ARTS 1230	Introduction to Digital Art	
3000-level Studio Art course [1]		3
3000-level Studio Art course [1]		3
3/4000-level Studio Art course [1]		3
Total Hours [2]		15

[1] Elective Courses — See advisor for approved course listings.
[2] Students must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.

School of Aviation

The School of Aviation offers two undergraduate degrees accredited by the Aviation Accreditation Board International: Aviation Management and Professional Flight.

- The Aviation Management Degree focuses on the business knowledge needed for success in the airline and aviation industries, emphasizing general management and a comprehensive understanding of all aspects of aviation operations.
- The Professional Flight Degree offers a quality aviation education that provides a solid foundation of aeronautical knowledge and piloting skills expected by professional aviation organizations and necessary for success in the aviation industry.

The School of Aviation offers one minor:

- Aviation Management (p. 982)

The School of Aviation offers an undergraduate certificate with the College of Human Sciences:

- Aviation Hospitality Management Certificate (p. 980)

Curriculum in Aviation Management

The Aviation Management degree contains an embedded general business minor and 12 hours of free electives to tailor the degree to individual career aspirations.

Freshman

Fall	Hours	Spring	Hours
AVMG 1010 Introduction to Aviation	**3**	**AVMG 2400 Theory of Flight**	**3**
MATH 1130 Pre-Calculus Trigonometry	3	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	ECON 2020 Principles of Microeconomics	3
Core Science I	4	COMM 1000 Public Speaking	3
Free Elective	3	Core Science II	4
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
AVMG 2050 Introduction to Unmanned Aircraft Systems (UAS)	**3**	**AVMG 2600 Human Factors in Aviation**	**3**
PHIL 1040 Business Ethics[1]	3	**AVMG 2810 Leadership for the Aviation Professional**	**3**
ECON 2030 Principles of Macroeconomics[2]	3	ACCT 2810 Fundamentals Of Accounting	3
Core History	3	Core History to complete the series	3
Free Elective	3	Core Literature	3
	15		**15**

Junior

Fall	Hours	Spring	Hours
AVMG 3050 Aviation Weather	**3**	**AVMG 3600 Aircraft Maintenance Management**	**3**
AVMG 3140 Air Transport Industry Development	**3**	**AVMG 3200 Applied Analysis in Air Transportation**	**3**
FINC 3810 Foundations of Business Finance	3	MKTG 3810 Foundations of Business Marketing	3
MNGT 3810 Management Foundations	3	Core Social Science	3
Free Elective	3	Free Elective	3
	15		**15**

Senior				
Fall	**Hours**		**Spring**	**Hours**
AVMG 4060 Commercial Aviation Safety		**3**	**AVMG 4200 Air Cargo Operations**	**3**
AVMG 5090 Aviation Law and Policy		**3**	**AVMG 4080 Air Transport Planning**	**3**
AVMG 4130 Airport Management		**3**	**AVMG 5180 Global Air Transportation Management**	**3**
AVMG 4190 Airspace Management		**3**	**AVMN Directed Elective[2]**	**3**
AVMN Directed Elective[2]		**3**	Core Fine Arts	3
			UNIV 4AA0 Achieve the Creed	0
		15		**15**

Total Hours: 122

§ General Business Minor is embedded in the Aviation Management Degree. Students must declare this minor no later than their sophomore year.

* Students enrolled in the University Honors College may enroll in the Honors equivalents of any of the core options.

1 PHIL 1020 may substitute for PHIL 1040.

2 BUSI 3250 may substitute for ECON 2030

3 Approved AVMN Directed Electives (one of the two AVMN Directed Electives must be at 3000-level or above):

- AVMF 2150 Principles of Private Flight (3 hrs)
- AVMF 4400 Applied Aerodynamics and Propulsion Systems (3 hrs)
- AVMG 3500 Airport Operations (3 hrs)
- AVMG 3710 Stress Management in Aviation (3 hrs)
- AVMG 4040 Business Aviation Management (3 hrs)
- AVMG 4140 Airport Planning and Design (3 hrs)
- AVMG 4920 Internship in Aviation Management (3 hrs)
- AVMG 5170 Airline Management (3 hrs)
- ENGL 3080 Business Writing (3 hrs)
- HIST 3070 History of US Air Power (3 hrs)
- HIST 3500 History of Aviation (3 hrs)
- HIST 5580 The History of Flight (3 hrs)
- HRMN 3420 Human Resource Management (3 hrs)
- HRMN 4430 Labor Relations (3 hrs)
- HRMN 5480 Labor Relations Law (3 hrs)
- INSY 3020 Occupational Safety and Ergonomics (3 hrs)
- ISMN 5370 Project Management (3 hrs)
- MNGT 3460 Organizational Behavior (3 hrs)

Admissions, Standards, and Requirements

Eligibility for admission to the Aviation Management program is determined by the Auburn University Admissions Office on the basis of the candidate's test scores and previous academic record.

Transfer Students

Transfer students (external and internal) may enter the Aviation Management program during any semester.

Curriculum in Professional Flight

Auburn University is a FAA-approved Part 141 pilot school. Flight operations are conducted at the Auburn University Regional Airport (KAUO), located less than three miles from campus.

The Professional Flight degree qualifies the graduate for the eventual attainment of the FAA Restricted Airline Transport Pilot (R-ATP) certification with as little as 1,000 hours of flying experience. Degree certifications and ratings include Private Pilot Certification, Instrument-Airplane Rating, Commercial Pilot Certification, and Multi-Engine Rating. Certificated Flight Instructor with Airplane Single-Engine rating (CFI), CFI with Instrument-Airplane rating (CFII), and CFI with Multi-Engine rating (MEI) courses are also available. Initial Commercial Pilot certification (AVMF 2261, AVMF 2271, and AVMF 4271) MUST be completed at Auburn. Ground and flight training for Private Pilot and Instrument Rating-Airplane completed at another FAA-approved Institution of Higher Learning (IHL) may be applied towards FAA R-ATP reduced hours eligibility. Students enrolled in flight training coursework at Auburn must register for and complete all current and subsequent AVMF courses at Auburn.

Freshman

Fall	Hours	Spring	Hours
AVMG 1010 Introduction to Aviation	**3**	**AVMF 2181 Private Pilot Flight Training II**	**2**
AVMF 2150 Principles of Private Flight	**3**	ENGL 1120 English Composition II	3
AVMF 2171 Private Pilot Flight Training I	**2**	SCMH 1010 Concepts of Science	4
MATH 1610 Calculus I	4	COMM 1000 Public Speaking	3
ENGL 1100 English Composition I	3	ECON 2020 Principles of Microeconomics	3
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
AVMG 2050 Introduction to Unmanned Aircraft Systems (UAS)	**3**	**AVMG 2600 Human Factors in Aviation**	**3**
AVMF 2230 Principles of Instrument Flight	**3**	**AVMF 2251 Instrument Flight Training II**	**2**
AVMF 2241 Instrument Flight Training I	**2**	**AVMG 2810 Leadership for the Aviation Professional**	**3**
PHYS 1400 Physics for Aviators	4	PHIL 1040 Business Ethics[1]	3
Core History	3	Core History to complete the series	3
	15		**14**

Junior

Fall	Hours	Spring	Hours
AVMG 3050 Aviation Weather	**3**	**AVMG 3600 Aircraft Maintenance Management**	**3**
AVMG 3140 Air Transport Industry Development	**3**	**AVMG 3200 Applied Analysis in Air Transportation**	**3**
AVMF 2260 Principles of Commercial Flight	**3**	**AVMG 4190 Airspace Management**	**3**
AVMF 2261 Commercial Pilot Flight Training I	**2**	**AVMF 2271 Commercial Pilot Flight Training II**	**2**
Core Social Science	3	**AVMF 4400 Applied Aerodynamics and Propulsion Systems**	**3**
Core Literature	3		
	17		**14**

Senior				
Fall	**Hours**		**Spring**	**Hours**
AVMG 4060 Commercial Aviation Safety		**3**	**AVMG 4080 Air Transport Planning**	**3**
AVMG 5090 Aviation Law and Policy		**3**	**AVMG 5180 Global Air Transportation Management**	**3**
AVMG 4130 Airport Management		**3**	**AVMF 4320 Airline Transport Category Systems and Procedures**	**4**
AVMF 4271 Multi-Engine Flight Training		**2**	Free Elective	3
AVMG 4200 Air Cargo Operations		**3**	Free Elective	3
Core Fine Arts		3	UNIV 4AA0 Achieve the Creed	0
		17		**16**

Total Hours: 123

* Students enrolled in the University Honors College may enroll in the Honors equivalents of any of the core options.

1 PHIL 1020 may substitute for PHIL 1040.

Additional Program Specifications for Professional Flight Curriculum

1. Advanced Placement credit may be granted only for Private Pilot and Instrument Rating Airplane certifications upon evidence of the FAA pilot certificate/rating held at the time of enrollment and upon satisfactory completion of applicable aeronautical knowledge and flight proficiency evaluations.
2. Initial Commercial Pilot certification (AVMF 2261, AVMF 2271, and AVMF 4271) MUST be completed at Auburn.
3. Ground and flight training for Private Pilot and Instrument Rating-Airplane completed at another FAA-approved Institution of Higher Learning (IHL) may be applied towards FAA R-ATP reduced hours eligibility.
4. Students enrolled in flight training coursework at Auburn must register for and complete all current and subsequent AVMF courses at Auburn.

Admissions

Admission to the Professional Flight program is dependent on a student's type of application.

Admission Procedures for Freshmen

Admission to the Professional Flight degree program is a two-step process. Students must: 1) apply and be admitted to Auburn University as a Pre-Professional Flight student before the Professional Flight secondary application deadline, and 2) submit the secondary application and be admitted to the Professional Flight degree program. The Auburn University Admissions Office (https://www.auburn.edu/admissions/) determines eligibility for admission to the university. The secondary application will be evaluated on various academic, personal, and professional characteristics linked to success within the aviation industry.

Admission Procedures for External Transfer Students

Admission to the Professional Flight degree program is a two-step process. Students must: 1) apply and be admitted to Auburn University as a Pre-Professional Flight student before the Professional Flight secondary application deadline, and 2) submit the secondary application and be admitted to the Professional Flight degree program. The Auburn University Admissions Office (https://www.auburn.edu/admissions/) determines eligibility for admission to the university. The secondary application will be evaluated on various academic, personal, and professional characteristics linked to success within the aviation industry.

Additionally, external transfer students must hold a Private Pilot Certificate at the time of application to be considered for enrollment and have a 2.7 transfer GPA.

Admission Procedures for Internal Transfer Students (Major Changes)

Current Auburn University students must apply and be admitted to the Professional Flight degree program through a secondary application. A link to the application will be made available by the College of Liberal Arts. The secondary application will be evaluated on various academic, personal, and professional characteristics linked to success within the aviation industry.

Additionally, internal transfer students must hold a Private Pilot Certificate at the time of application and have a 2.7 Auburn GPA to be considered for enrollment.

Additional Requirement for Admitted Professional Flight Students

FAA 1st Class Medical Certificate: The Professional Flight curriculum is designed for students seeking a career as an Airline Transport Pilot, and to earn and maintain this rating an aviator must have this medical status. If a student is unable to achieve this certificate, they should not incur the time and expense of all preliminary ratings. A copy of the 1st class medical certificate will be collected by the School of Aviation before a student can begin flight training at Auburn.

Program Requirements

About Fight Fees

Flight lab courses have an associated flight fee established by the School of Aviation prior to the start of the academic year. Flight fees are allocated to cover aircraft, flight simulation, flight instructor, and FAA knowledge test fees. VA students are responsible for FAA certification test fees. Fuel prices are subject to change from term to term and any unexpected large changes in fuel prices may necessitate the addition of a fuel surcharge for all training airplane usage.

Flight course fee estimates are based on suggested lesson time allocations included in FAA-approved training course outlines for pilot/flight instructor certifications or ratings. The training hours and fees outlined in the Auburn University Bulletin are the minimum to complete a flight lab course. Because achieving FAA certification requires a demonstration of aeronautical knowledge and piloting proficiency, a student's actual course cost may vary and depend greatly on the student's ability, knowledge, motivation, and the preparation and dedication expended toward acquiring certification goals. Students requiring additional instruction will incur additional flight lab fees. Making flight training a priority contributes to minimizing the need for additional training and incurring additional flight fees.

Because of the importance of continuity in flight training and in maintaining piloting proficiency, the AU School of Aviation recommends Professional Flight students train consecutively from the start of their first semester through each succeeding semester, including summer semesters. If interruption in semester attendance is unavoidable, it is vitally important students continue to maintain their aeronautical knowledge and pilot proficiency to FAA standards for the certification held during that period not in attendance.

Private Pilot Certification (ASEL)
Allocated FAA Certification Cost: $18,394.50

AU COURSE		FLIGHT TRAINING		COST
AVMF 2171	**Hourly Rate**	**Dual**	**Solo**	
Training Airplane (ASEL)	$265.00	26.5	-	$7,022.00
Flight Simulation	$120.00	4.0	-	$480.00
Oral Discussion	$65.00	22	-	$1,430.00
Pre/Post-Flight Briefing	$65.00	7.9	-	$513.50
Professional Fee	-	-	-	$125.00
			Total	**$9,571.00**
AVMF 2181				
Training Airplane (ASEL)	$265.00	22.5	-	$5,962.50
Training Airplane (ASEL)	$200.00		5	$1,000.00
Flight Simulation	$120.00	2	-	$240.00
Oral Discussion	$65.00	12	-	$780.00
Pre/Post-Flight Briefing	$65.00	6.4	-	$416.00
Professional Fee	-	-	-	$125.00
FAA Certification Fee	-	-	-	$300.00
			Total	**$8,823.50**

Instrument Rating - Airplane
Allocated FAA Certification Cost: $16,382.50

AU COURSE		FLIGHT TRAINING		COST
AVMF 2241	**Hourly Rate**	**Dual**	**Solo**	
Training Airplane (ASEL)	$265.00	10.5	-	$2,782.50
Flight Simulation	$120.00	14	-	$1,680.00
Oral Discussion	$65.00	18	-	$1,170.00
Pre/Post Flight Briefing	$65.00	9.1	-	$591.50
Professional Fee	-		-	$125.00
			Total	**$6,349.00**
AVMF 2251				
Training Airplane (ASEL)	$265.00	28.5	-	$7,552.50
Flight Simulation	$120.00	5	-	$600.00
Oral Discussion	$65.00	16	-	$1,040.00
Pre/Post Flight Briefing	$65.00	6.4	-	$416.00
Professional Fee	-	-	-	$125.00
FAA Certification Fee	-	-	-	$300.00
			Total	**$10,033.50**

Commercial Pilot Certification, Airplane Multi-Engine Land (AMEL)
Allocated FAA Certification Cost: $41,337.50

AU COURSE		FLIGHT TRAINING		COST
AVMF 2261	**Hourly Rate**	**Dual**	**Solo**	
Training Airplane (ASEL)	$265.00	40	-	$10,600.00
Flight Simulation	$120.00	5	-	$600.00
Oral Discussion	$65.00	20	-	$1,300.00
Pre/Post Flight Briefing	$65.00	10.2	-	$663.00
Professional Fee	-	-	-	$125.00
			Total	**$13,288.00**
AVMF 2271				
Training Airplane (ASEL)	$265.00	36	-	$9,540.00
Flight Simulation	$120.00	4.0	-	$480.00
Oral Discussion	$65.00	20	-	$1,300.00
Pre/Post Flight Briefing	$65.00	9.4	-	$611.00
Professional Fee	-	-	-	$125.00
			Total	**$12,056.00**
AVMF 4271				
Training Airplane (AMEL)	$445.00	30	-	$13,350.00
Flight Simulation	$120.00	5	-	$600.00
Oral Discussion	$65.00	16	-	$1040.00
Pre/Post Flight Briefing	$65.00	8.9	-	$578.50
Professional Fee	-	-	-	$125.00
FAA Certification Fee	-	-	-	$300.00
			Total	**$15,993.50**

Additional Airplane Class Rating, Airplane Multi-Engine Land (AMEL)
Allocated FAA Certification Cost: $16,968.50

Note: This course is only for students who hold a commercial pilot certificate, single engine rating.

AU COURSE		FLIGHT TRAINING		COST
AVMF 4271	**Hourly Rate**	**Dual**	**Solo**	
Training Airplane (AMEL)	$445.00	30.0	-	$13,350.00
Flight Simulation	$120.00	5	-	$600.00
Oral Discussion	$65.00	16	-	$1,040.00
Pre/Post Flight Briefing	$65.00	8.9	-	$578.50
Ground Training	$65.00	15	-	$975.00
Professional Fee	-	-	-	$125.00
FAA Certification Fee	-	-	-	$300.00
			Total	**$16,968.50**

Flight Instructor Certification, Airplane Single-Engine (ASE)
Allocated FAA Certification Cost: $10,628.50

AU COURSE		FLIGHT TRAINING		COST
AVMF 4281	**Hourly Rate**	**Dual**	**Solo**	
Training Airplane (ASEL)	$265.00	29	-	$7,685.00
Flight Simulation	$120.00	1	-	$120.00
Oral Discussion	$65.00	30	-	$1,950.00
Pre/Post Flight Briefing	$65.00	6.9	-	$448.50
Professional Fee	-	-	-	$125.00
FAA Certification Fee	-	-	-	$300.00
			Total	**$10,628.50**

Flight Instructor Certification, Instrument-Airplane (IA)
Allocated FAA Certification Cost: $7,528.50

AU COURSE		FLIGHT TRAINING		COST
AVMF 4351	**Hourly Rate**	**Dual**	**Solo**	
Training Airplane (ASEL)	$265.00	15	-	$3,975.00
Flight Simulation	$120.00	5	-	$600.00
Oral Discussion	$65.00	18	-	$1,170.00
Pre/Post Flight Briefing	$65.00	5.9	-	$383.50
Ground Training	$65.00	15	-	$975.00
Professional Fee	-	-	-	$125.00
FAA Certification Fee	-	-	-	$300.00
			Total	**$7,528.50**

Flight Instructor Certification, Airplane Multi-Engine (AME)
Allocated FAA Certification Cost: $14,104.50

AU COURSE		FLIGHT TRAINING		COST
AVMF 4371	**Hourly Rate**	**Dual**	**Solo**	
Flight Training (AMEL)	$445.00	25	-	$11,125.00
Oral Discussion	$65.00	14	-	$910.00
Pre/Post Flight Briefing	$65.00	5.3	-	$344.50
Ground Training	$65.00	20	-	$1,300.00
Professional Fee	-	-	-	$125.00
FAA Certification Fee	-	-	-	$300.00
			Total	**$14,104.50**

Flight Instruction Lab Structure

Students are required to submit their semester schedule to the Professional Flight Academic Advisor after the student has registered for all their academic courses. Flight instruction labs are assigned to students by the Professional Flight department who will then review student schedules and select which flight instruction lab time best suits the student's academic schedule and current point in flight training.

AU Flight instruction labs are typically offered in 2-hour increments on either (1) Monday, Wednesday, Friday or (2) Tuesday, Thursday, Saturday. These scheduled flight labs are structured to provide course completion by the end of the registered term.

Flight Instruction Lab Enrollment

Students may not enroll themselves in a flight instruction lab and may only be enrolled in a flight instruction lab by the Professional Flight Academic Advisor. Additionally, students may not enroll in the next sequential flight instruction lab until successful completion of the previous lab.

Flight students may only register and start a new flight instruction lab during what is referred to as an "on-ramp." On-ramps begin on the first day of a semester and continue on a weekly basis with the last one beginning no less than 30 days from the last day of the semester. Students will be notified of the last on-ramp date at the required Student Safety Meeting each semester.

If a student completes a flight instruction lab from a previously enrolled semester or during the current semester, the student may not begin the next flight lab during that semester, unless approved by the (1) Professional Flight Academic Advisor, (2) the Chief Flight Instructor, (3) and the Director, School of Aviation, and the next sequential flight instruction lab is added after the 15th class day (in the full semester), but prior to the Last Day to Withdraw date as published in the Auburn University Academic Calendar. (VA students may not be enrolled in flight courses prior to the last day to withdraw from the semester.)

If the enrollment is not approved or the student completes a flight instruction lab after the close of the last on-ramp for the semester, the student must wait until the next semester to begin and participate in their next flight lab.

Priority Enrollment

Per VA Regulations, Veterans receive Priority Registration. Additionally, both the flight instruction lab and student classification (Senior, Junior, Sophomore, Freshman) are taken into consideration when determining "priority" enrollment. Students who are registered in Certificated Flight Instructor (CFI) courses are next, following in sequential order down to students enrolled in Private Pilot courses.

Flight Instruction Lab Attendance

Attendance for flight instruction labs is mandatory. Unexcused absences, attending lessons unprepared, or repeated late-shows may result in monetary penalties, grade penalties, and can jeopardize a student's enrollment status in the AU Professional Flight program.

A Safety Meeting, held during the first 5 days of the start of each semester term, must be attended by all AU Professional Flight students. Since attendance is mandatory for students participating in flight instruction labs, a student will be considered to have "started" their respective flight instruction lab on the date the meeting is held; provided (1) the student attended the Safety Meeting and (2) is registered for a flight instruction lab that begins on the first day of the semester term.

Students who begin a flight instruction lab during one of the allowed sections built within the term are also required to begin the flight instruction lab within 5 days of the first day the section is offered. Since the Safety Meeting is held before the section's first day, attendance of the Safety Meeting does not count as starting the flight instruction lab. Student progression through Flight Instruction Labs is tracked through the Professional Flight department's flight training software. This software system not only indicates when a student is scheduled to begin a flight instruction lab but also shows a date/time stamp of each flight instruction lesson or lab.

Flight Instruction Lab Make-Up Policy

Flight Instruction labs may be canceled for reasons both in and out of a student's control. Reasons outside of a student's control include weather, aircraft maintenance, and flight instructor availability. If a student misses a scheduled flight lab for one of these reasons, the student is expected to contact their Flight Instructor by email prior to their next scheduled flight lab to determine how the canceled flight lab may be made up.

In some cases, students may know in advance they will be absent from an assigned flight instruction lab. In these situations, the student must submit a completed Absence Notification Form to the AU Professional Flight department in accordance with departmental policies. The Absence Notification Form will be reviewed and determined as excused or unexcused.

If a student does not notify the AU Professional Flight department that they will miss an assigned flight instruction lab, the student will be charged a no-show fee. If a student misses a scheduled flight instruction lab more than 3 times for non-approved reasons, the

student may be withdrawn from their current course. The student may also be reviewed for dismissal from the AU Professional Flight program.

Flight Instruction Lab Course Incompletes

Flight Instruction Labs are designed to be completed within a designated term. Student progression, however, is subject to both uncontrollable factors (weather, aircraft maintenance, and flight instructor availability) and controllable factors (student performance). To record a student's Standards of Progress, a grade is assigned at the completion of the term, regardless of if the student has successfully finished the course. A grade of "NR" (Not Recorded) is assigned to the course if the student has not completed the course by the end of the assigned term.

If the student has not completed the Flight Instruction Lab by the end of the registered term, they may continue flying for course completion. Allocated training hours and fees for each Flight Instruction Lab are based on the FAA-approved Training Course Outline (TCO). Students requiring additional instruction beyond those hours listed in the TCO will incur additional flight instruction lab fees that exceed the minimum required to complete the course. Once the student has completed the course, the AU Professional Flight department will follow Auburn University's Grade Change Policy, changing the "NR" grade to the applicable letter grade. Failure to complete the course in the following semester enrolled will result in additional action as described in the Student Progression Section.

Student Progression

Professional Flight students are expected to progress in the degree program within a reasonable amount of time. Progress is measured in terms of flight instruction lab completion, overall academic performance, and display of the moral character traits required in the FAA Airline Transport Pilot (ATP) certificate. The School of Aviation Professional Flight Review Board (PFRB) will convene as required to review the performance of students not progressing as expected and determine appropriate corrective action and continued participation in the program.

Progression Markers

Flight Lab Course Incompletion

Students that do not complete a flight lab within the semester the course is started will receive a grade of NR (Not Recorded) on the recommendation of their Assistant Chief Flight Instructor (AFCI) and the Chief Flight Instructor. Failure to complete the course in the following semester of enrollment will warrant evaluation by a student's AFCI, who will recommend a change of grade to IN (Incomplete) and continuation (reasonable progress being made) or IN with a documented training plan that addresses specific student performance issues. Failure to complete a training plan within a designated timeframe will be reviewed by the PFRB and may result in at grade of W (withdrawal) or F (failure) and possible dismissal from the program.

Institutional GPA

Students must earn a grade of at least C in all courses in the major and maintain a minimum 2.70 institutional GPA. The Professional Flight curriculum is designed for progressive development of flight knowledge and skills, and students who earn less than a C will not be allowed to progress to the next course. A course in which a student earns a grade less than a C may be repeated one-time only. Successful completion of the repeated course will result in the student being allowed to continue to progress through the Professional Flight degree curriculum. Students who earn a grade less than a C in two or more Professional Flight major courses or maintain an institutional GPA below 2.70, will be reviewed by the PFRB and may be dismissed from the program.

Good Moral Character

By U.S. federal regulation, high moral character is expected of a professional certified airline pilot. As such, these same attributes are expected of students within the Professional Flight program. Students that fail to demonstrate honesty, trustworthiness, reliability, and respect for the law may be considered for dismissal from the program. The PFRB will review and make a recommendation on all cases of a student's failure to uphold these traits, including Auburn University Academic Honesty Code or Student Code of Conduct sanctions.

Appeals Process

All PFRB results will be communicated to the student in writing. Students may submit an appeal of the board's decision to the Auburn University College of Liberal Arts. A separate committee will review all the information concerning a student's performance and issue a final decision after receiving the appeal. This committee's decision is final and will be communicated to the student in writing.

Federal VA Students in the Professional Flight Program

The Alabama State Approving Agency (SAA) and the Department of Veterans Affairs (VA) have approved Federal VA funding for Auburn University's Professional Flight and Aviation Management degree-programs. Under Chapter 33: Post 9/11 GI Bill®, the VA will cover the costs affiliated with Flight Instruction and required Ground School fees up to maximum reimbursement limits. Flight Instruction

fees include aircraft and flight simulation fees, flight instructor fees, and FAA aeronautical knowledge tests. VA students are responsible for any FAA aeronautical knowledge test fees.

Students utilizing Federal VA Education benefits must (1) ensure they are registered for a Flight Instruction Lab prior to flying and (2) they are cleared by the School of Aviation to begin flying. Courses started after the 5th day of the posted term will be prorated per VA Policy with the remaining amount being the financial responsibility of the student. Only degree-applicable courses will be certified to the VA by Auburn University's School Certifying Officials (SCO).

Per VA regulations, VA students may not be enrolled in multiple Flight Instruction Labs during the same registered term. If a student is enrolled in two or more flight instruction labs during the same registered term, the VA considers this as "Front Loading." Front loading violates VA regulations as the VA will only cover affiliated costs of one flight instruction lab per term.

If a student utilizing Federal VA education benefits fails to adhere to Auburn University and VA Policies and Regulations, the student may be financially responsible for **all** flight related charges. *NOTE: The VA will ONLY cover the published amount listed in the Auburn University Bulletin and will NOT pay for any overage amounts/fees such as additional training like Proficiency or Review flights. If a student accrues any additional fees past the amount approved by the SAA, the financial responsibility is on the student.*

Additional information regarding VA education benefits is available in the Auburn University Veterans Resource Center (VRC). Please contact them at (334) 844-8167, veterans@auburn.edu or online at veterans.auburn.edu (https://veterans.auburn.edu/).

Lastly, refer to the AU Flight Operations Manual (FOM) for additional information about the AU Professional Flight program.

Majors

- Aviation Management (p. 978)
- Professional Flight (p. 980)

Minors

- Aviation Management (p. 982)

Undergraduate Certificates

- Aviation Hospitality Management (p. 980)

Aviation Management Courses

AVMG 1010 INTRODUCTION TO AVIATION (3) LEC. 3. Orientation to aviation management career opportunities. The history of significant events and accomplishments in the attempt to move through the air and space.

AVMG 2050 INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS (UAS) (3) LEC. 3. Orientation to unmanned aircraft systems with emphasis on pilot and operating rules, National Airspace System (NAS) integration, safety, and commercial uses of Small UAS (sUAS).

AVMG 2400 THEORY OF FLIGHT (3) LEC. 2.5. Introduction to the many systems that make up the aviation ecosystem, including aircraft, the humans and organizations that interact with them, and the principles and aerodynamics of flight.

AVMG 2600 HUMAN FACTORS IN AVIATION (3) LEC. 3. Principles of human cognitive and physical performance, and man/machine interface and design, in aviation. Study of information processing, workload management, situational awareness, and decision-making.

AVMG 2810 LEADERSHIP FOR THE AVIATION PROFESSIONAL (3) LEC. 3. Pr. AVMG 1010. AVMN and AVPF majors only. The course is designed to socialize the student into the roles, activities, and responsibilities essential for the emerging aviation leader, and is foundational to preparation for a career in the aviation industry or aviation-related environments.

AVMG 3050 AVIATION WEATHER (3) LEC. 3. Pr. AVMG 1010. Meteorology as it applies to the operation of aircraft with emphasis on observation of weather elements and interpretation of flight planning weather information.

AVMG 3140 AIR TRANSPORT INDUSTRY DEVELOPMENT (3) LEC. 3. Pr. AVMG 1010. Principles and analysis of air transport industry development, its regulatory environment, and associated certification processes.

AVMG 3200 APPLIED ANALYSIS IN AIR TRANSPORTATION (3) LEC. 3. Pr. (AVMG 1010 or AVMG 1013) and (ECON 2020 or ECON 2023 or ECON 2027). Economic theory and applications in the evolving air transport industry. Analysis of market forces and government regulation that drive resource allocation and industry performance.

AVMG 3500 AIRPORT OPERATIONS (3) LEC. 3. Pr. (AVMG 1010 and AVMG 2400) or AVMF 2150. Practices in managing airport operational systems at air carrier airports.

AVMG 3600 AIRCRAFT MAINTENANCE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Aircraft maintenance program fundamentals, procedures, and practices, with an emphasis on regulatory requirements.

AVMG 3710 STRESS MANAGEMENT IN AVIATION (3) LEC. 3. Pr. AVMG 2600. Examine stress and stress management techniques related to pilot decision-making, situational awareness, crew coordination, communication, human error, fatigue, fitness, attitudes, workload management and Crew Resource Management (CRM). Senior, Junior, or departmental approval required.

AVMG 3810 PROFESSIONAL DEVELOPMENT IN AVIATION (1) LEC. 1. AVMN and AVPF majors only. Career planning and preparation for aviation internships and professional experience opportunities.

AVMG 4040 BUSINESS AVIATION MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Current principles and practices in commercial and business/corporate flight operations including organizational sources of revenue, functions, domestic and international operations, maintenance requirements, and the importance of a sound safety culture.

AVMG 4060 COMMERCIAL AVIATION SAFETY (3) LEC. 3. Pr. AVMG 1010. Analysis of safety principles and regulatory practices of the FAA, NTSB, and ICAO, emphasizing FAA and ICAO Safety Management Systems.

AVMG 4080 AIR TRANSPORT PLANNING (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 and AVMG 3600. Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers.

AVMG 4130 AIRPORT MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Practices in management of a civil public airport, including organization, functions, operations, sources of revenue, funding, maintenance and administration.

AVMG 4140 AIRPORT PLANNING AND DESIGN (3) LEC. 3. Pr. AVMG 4130. Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region.

AVMG 4190 AIRSPACE MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation.

AVMG 4200 AIR CARGO OPERATIONS (3) LEC. 3. Pr. AVMG 1010. Domestic and international air cargo operations with emphasis on cargo economics, equipment, domestic and international regulatory activities, agents, operational techniques, systems and problems.

AVMG 4920 INTERNSHIP IN AVIATION MANAGEMENT (1-6) INT. Practical on-the-job training under supervision with aviation agencies. Written reports are required by designated faculty supervisors. Course may be repeated for a maximum of 6 credit hours.

AVMG 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. 1-3. Pr. Honors College. Honors College. Special topics presented to Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Honors College. Thesis for Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 5090 AVIATION LAW AND POLICY (3) LEC. 3. Pr. AVMG 1010. The legal structure of aviation including federal, local and state statutes, contracts, insurance and liability, regulatory statutes, and case law.

AVMG 5170 AIRLINE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010 and AVMG 3050. Airline manufacturing, economic, and operational/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 5180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200. Junior Standing or departmental approval. The economic development of international air transportation from its beginnings to present day. Explores a wide range of international aviation issues such as bilateral and open skies agreements, airline mega alliances, and joint ventures.

AVMG 5970 SPECIAL TOPICS IN AVIATION MANAGEMENT (3) LEC. 3. Investigation of current issues in the aviation industry.

AVMG 6090 AVIATION LAW AND POLICY (3) LEC. 3. The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes and case law.

AVMG 6170 AIRLINE MANAGEMENT (3) LEC. 3. Departmental approval. Airline manufacturing, economic, and operation/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 6180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 or departmental approval. International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares/ Junior standing

AVMG 6970 SPECIAL TOPICS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Investigation of current issues in the aviation industry. Credit will not be given for both AVMG 5970 and AVMG 6970. Course may be repeated for a maximum of 9 credit hours.

AVMG 7930 SPECIAL PROBLEMS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Special problems and current status of the aviation and aerospace industries are analyzed though a problem solving exercise. Course may be repeated for a maximum of 6 credit hours.

Flight Education Courses

AVMF 2141 FLIGHT ORIENTATION (1) LAB. 1. Basic flight experience for non-pilots to familiarize aviation majors, engineers, teachers, and other students desiring a limited exposure to flight. Includes ground discussion and aircraft time. Special fee.

AVMF 2150 PRINCIPLES OF PRIVATE FLIGHT (3) LEC. 3. General introduction and preparation for the FAA Private Pilot Knowledge Test. Theory of flight, aircraft and engine performance, regulations, meteorology, navigation, airspace utilization, and aviation physiology. Special Fee.

AVMF 2171 PRIVATE PILOT FLIGHT TRAINING I (2) LAB. 2. Pr. AVMF 2150. Dual and solo flight instruction and discussion to prepare for FAA Private Pilot Certificate. Special fees. Requires a valid FAA 1st Class Medical Certificate. Departmental approval required.

AVMF 2181 PRIVATE PILOT FLIGHT TRAINING II (2) LAB. 2. Pr. AVMF 2171. Departmental approval. Continuation of AVMF 2171 to prepare for FAA Private Pilot Certification. Special fees. Requires a valid FAA 1st Class Medical certificate and Student Pilot certificate.

AVMF 2230 PRINCIPLES OF INSTRUMENT FLIGHT (3) LEC. 3. Pr. AVMF 2181. Flight instruments, FAA regulations, air traffic procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Airplane Aeronautical Knowledge Test (IRA). Special Fee.

AVMF 2241 INSTRUMENT FLIGHT TRAINING I (2) LAB. 2. Pr. AVMF 2230. Instruments, FAA regulations, air traffic control procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Practical Test. Special fees. Requires a valid FAA 1st Class Medical Certificate. Departmental approval required.

AVMF 2251 INSTRUMENT FLIGHT TRAINING II (2) LAB. 2. Pr. AVMF 2241. Departmental approval. Continuation of AVMF 2241 in preparation for the FAA Instrument Rating - Airplane Practical Test. Special fees. Requires a valid FAA 1st Class Medical certificate.

AVMF 2260 PRINCIPLES OF COMMERCIAL FLIGHT (3) LEC. 3. Pr. AVMF 2251. FAA regulations, high altitude operations, aerodynamics, commercial flight maneuvers, environmental, ice control, retractable landing gear, and aircraft performance as applied to commercial flying. Preparation for the FAA Commercial Pilot Aeronautical Knowledge Test (CAX). Special Fee.

AVMF 2261 COMMERCIAL PILOT FLIGHT TRAINING I (2) LAB. 2. Pr. AVMF 2251. Flight training toward FAA Commercial Pilot Certification. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 2271 COMMERCIAL PILOT FLIGHT TRAINING II (2) LAB. 2. Pr. AVMF 2261. Continuation of AVMF 2261 towards FAA Commercial Pilot Certification. Emphasis on advanced commercial maneuvers, and cross country flying. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4271 MULTI-ENGINE FLIGHT TRAINING (2) LAB. 2. Pr. AVMF 2271. Specialized instruction in methods and techniques of multi-engine airplane operations. Sufficient ground and flight instruction is given towards an FAA Multi-Engine Airplane Rating. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4280 PRINCIPLES OF FLIGHT INSTRUCTION (3) LEC. 3. Pr. AVMF 4271. Principles of teaching as applied to instructing, analyzing, and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instructing (FOI) and the Flight Instructor-Airplane (FIA) Aeronautical Knowledge Tests. Special Fee.

AVMF 4281 FLIGHT INSTRUCTION TRAINING (3) LAB. 3. Discussion, instruction and arranged practice in flight instruction in preparation for the FAA Flight Instructor Certification with an Airplane Single-Engine rating. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4310 TRANSPORT CATEGORY AIRCRAFT SYSTEMS (3) LEC. 3. Pr. P/C AVMF 2260. Study of design and operation of the major systems in transport category aircraft, using the Boeing 737 as a model. Systems include turbine engine, fuel, lubrication, electrical, hydraulic, pneumatic, pressurization, environmental control, and flight management. Also examines the use of normal checklists, the Quick Reference Handbook (QRH), Minimum Equipment List (MEL), and Configuration Deviation List (CDL). School of Aviation, Junior or Senior, or Departmental approval required.

AVMF 4320 AIRLINE TRANSPORT CATEGORY SYSTEMS AND PROCEDURES (4) LEC. 3. LAB. 1. Pr. AVMF 2250 or AVMF 2260. Airbus A320 systems and operational procedures (normal, abnormal, and emergency). Part 121 carrier flight and crew management. Special fee.

AVMF 4331 TRANSPORT AIRCRAFT FLIGHT TRAINING (2) LAB. 2. Departmental approval. Includes instrument and night instruction, emergency procedures and actual air transportation operations. Preparation for the Airline Transport Pilot Certification, if otherwise qualified. Special fees. Requires a valid FAA 1st Class Medical Certificate.

AVMF 4351 INSTRUMENT FLIGHT INSTRUCTOR TRAINING (2) LAB. 2. Discussion, instruction, and arranged practice in instrument flight instruction in preparation for FAA Instrument-Airplane Flight Instructor Certification. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4371 MULTI-ENGINE FLIGHT INSTRUCTOR TRAINING (2) LAB. 2. Departmental approval. Discussion, instruction and arranged practice in multi-engine flight instruction in preparation for FAA Multi-Engine Airplane Flight Instructor Certification. Special fees. Requires a valid FAA 1st Class Medical certificate and Flight Instructor Certificate (ASE).

AVMF 4400 APPLIED AERODYNAMICS AND PROPULSION SYSTEMS (3) LEC. 3. Pr. PHYS 1400 or PHYS 1000. Private Pilot Certificate or departmental approval. The principles of aerodynamics and propulsion and how aerodynamic factors affect lift, thrust, drag, in-air performance, stability, and flight control.

Aviation Management (AVMN)

Freshman

Fall	Hours	Spring	Hours
AVMG 1010 Introduction to Aviation	**3**	**AVMG 2400 Theory of Flight**	**3**
MATH 1130 Pre-Calculus Trigonometry	3	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	ECON 2020 Principles of Microeconomics	3
Core Science I	4	COMM 1000 Public Speaking	3
Free Elective	3	Core Science II	4
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
AVMG 2050 Introduction to Unmanned Aircraft Systems (UAS)	**3**	**AVMG 2600 Human Factors in Aviation**	**3**
PHIL 1040 Business Ethics[1]	3	**AVMG 2810 Leadership for the Aviation Professional**	**3**
ECON 2030 Principles of Macroeconomics[2]	3	ACCT 2810 Fundamentals Of Accounting	3
Core History	3	Core History to complete the series	3
Free Elective	3	Core Literature	3
	15		**15**

Junior

Fall	Hours	Spring	Hours
AVMG 3050 Aviation Weather	**3**	**AVMG 3600 Aircraft Maintenance Management**	**3**
AVMG 3140 Air Transport Industry Development	**3**	**AVMG 3200 Applied Analysis in Air Transportation**	**3**
FINC 3810 Foundations of Business Finance	3	MKTG 3810 Foundations of Business Marketing	3
MNGT 3810 Management Foundations	3	Core Social Science	3
Free Elective	3	Free Elective	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
AVMG 4060 Commercial Aviation Safety	**3**	**AVMG 4200 Air Cargo Operations**	**3**
AVMG 5090 Aviation Law and Policy	**3**	**AVMG 4080 Air Transport Planning**	**3**
AVMG 4130 Airport Management	**3**	**AVMG 5180 Global Air Transportation Management**	**3**
AVMG 4190 Airspace Management	**3**	**AVMN Directed Elective**[2]	**3**
AVMN Directed Elective[2]	**3**	Core Fine Arts	3
		UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 122

§ General Business Minor is embedded in the Aviation Management Degree. Students must declare this minor no later than their sophomore year.

* Students enrolled in the University Honors College may enroll in the Honors equivalents of any of the core options.

1 PHIL 1020 may substitute for PHIL 1040.

2 BUSI 3250 may substitute for ECON 2030

3 Approved AVMN Directed Electives (one of the two AVMN Directed Electives must be at 3000-level or above):

- AVMF 2150 Principles of Private Flight (3 hrs)
- AVMF 4400 Applied Aerodynamics and Propulsion Systems (3 hrs)
- AVMG 3500 Airport Operations (3 hrs)
- AVMG 3710 Stress Management in Aviation (3 hrs)
- AVMG 4040 Business Aviation Management (3 hrs)
- AVMG 4140 Airport Planning and Design (3 hrs)
- AVMG 4920 Internship in Aviation Management (3 hrs)
- AVMG 5170 Airline Management (3 hrs)
- ENGL 3080 Business Writing (3 hrs)
- HIST 3070 History of US Air Power (3 hrs)
- HIST 3500 History of Aviation (3 hrs)
- HIST 5580 The History of Flight (3 hrs)
- HRMN 3420 Human Resource Management (3 hrs)
- HRMN 4430 Labor Relations (3 hrs)
- HRMN 5480 Labor Relations Law (3 hrs)
- INSY 3020 Occupational Safety and Ergonomics (3 hrs)
- ISMN 5370 Project Management (3 hrs)
- MNGT 3460 Organizational Behavior (3 hrs)

Certificate in Aviation Hospitality Management

The holder of a Certificate in Aviation Hospitality Management will have a depth of knowledge and a more strategic view of the aviation industry. This enhanced professional competency will enable them to become effective company representatives and a preferred source to fill managerial positions directly interfacing with customers in the aviation industry.

The Certificate in Aviation Hospitality Management is administered through the School of Aviation in the College of Liberal Arts in collaboration with the Horst Schulze School of Hospitality Management in the College of Human Sciences. The program is intended for Aviation Management, Professional Flight, and Hospitality Management degree students, but is open to all students regularly enrolled in Auburn University.

The certificate requires 15 semester hours from the Aviation Management and Hospitality Management programs. Aviation and Hospitality program students use 6 semester hours from their core major curriculum and 9 hours from the collaborating program curriculum. Other students will take two required courses from each program and may choose between the two programs for the fifth course. Completion of this certificate will appear on the official Auburn University transcript. Students earn the certificate by completing the following:

Required courses for School of Aviation program students:

Code	Title	Hours
AVMG 1010	Introduction to Aviation [1]	3
AVMG 4060	Commercial Aviation Safety [1]	3
HOSP 1010	Introduction to Hospitality Management [3]	3
HOSP 4570	Global Hospitality	3
HOSP 5530	Science of Quality Service in Hospitality [3]	3

Required courses for School of Hospitality Management program students:

Code	Title	Hours
AVMG 1010	Introduction to Aviation [1, 2]	3
AVMG 3140	Air Transport Industry Development [1]	3
AVMG 4060	Commercial Aviation Safety [1]	3
HOSP 1010	Introduction to Hospitality Management [3]	3
HOSP 5530	Science of Quality Service in Hospitality [3]	3

Required courses for other students:

Code	Title	Hours
AVMG 1010	Introduction to Aviation [1, 2]	3
AVMG 3140	Air Transport Industry Development [1]	3
or HOSP 4570	Global Hospitality	
AVMG 4060	Commercial Aviation Safety [1]	3
HOSP 1010	Introduction to Hospitality Management [3]	3
HOSP 5530	Science of Quality Service in Hospitality [3]	3

1 Core Aviation Management and Professional Flight program course.
2 Pre-requisite for AVMG 3140.
3 Core Hospitality Management program course.

General questions about how to obtain the certificate should be directed to David Tidwell, School of Aviation Undergraduate Program Officer (dlt0028@auburn.edu).

Professional Flight (AVPF)

Freshman

Fall	Hours	Spring	Hours
AVMG 1010 Introduction to Aviation	**3**	**AVMF 2181 Private Pilot Flight Training II**	**2**
AVMF 2150 Principles of Private Flight	**3**	ENGL 1120 English Composition II	3
AVMF 2171 Private Pilot Flight Training I	**2**	SCMH 1010 Concepts of Science	4
MATH 1610 Calculus I	4	COMM 1000 Public Speaking	3
ENGL 1100 English Composition I	3	ECON 2020 Principles of Microeconomics	3
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
AVMG 2050 Introduction to Unmanned Aircraft Systems (UAS)	**3**	**AVMG 2600 Human Factors in Aviation**	**3**
AVMF 2230 Principles of Instrument Flight	**3**	**AVMF 2251 Instrument Flight Training II**	**2**
AVMF 2241 Instrument Flight Training I	**2**	**AVMG 2810 Leadership for the Aviation Professional**	**3**
PHYS 1400 Physics for Aviators	4	PHIL 1040 Business Ethics[1]	3
Core History	3	Core History to complete the series	3
	15		**14**

Junior

Fall	Hours	Spring	Hours
AVMG 3050 Aviation Weather	**3**	**AVMG 3600 Aircraft Maintenance Management**	**3**
AVMG 3140 Air Transport Industry Development	**3**	**AVMG 3200 Applied Analysis in Air Transportation**	**3**
AVMF 2260 Principles of Commercial Flight	**3**	**AVMG 4190 Airspace Management**	**3**
AVMF 2261 Commercial Pilot Flight Training I	**2**	**AVMF 2271 Commercial Pilot Flight Training II**	**2**
Core Social Science	3	**AVMF 4400 Applied Aerodynamics and Propulsion Systems**	**3**
Core Literature	3		
	17		**14**

Senior

Fall	Hours	Spring	Hours
AVMG 4060 Commercial Aviation Safety	**3**	**AVMG 4080 Air Transport Planning**	**3**
AVMG 5090 Aviation Law and Policy	**3**	**AVMG 5180 Global Air Transportation Management**	**3**
AVMG 4130 Airport Management	**3**	**AVMF 4320 Airline Transport Category Systems and Procedures**	**4**
AVMF 4271 Multi-Engine Flight Training	**2**	Free Elective	3
AVMG 4200 Air Cargo Operations	**3**	Free Elective	3
Core Fine Arts	3	UNIV 4AA0 Achieve the Creed	0
	17		**16**

Total Hours: 123

* Students enrolled in the University Honors College may enroll in the Honors equivalents of any of the core options.

[1] PHIL 1020 may substitute for PHIL 1040.

Additional Program Specifications for Professional Flight Curriculum

1. Advanced Placement credit may be granted only for Private Pilot and Instrument Rating Airplane certifications upon evidence of the FAA pilot certificate/rating held at the time of enrollment and upon satisfactory completion of applicable aeronautical knowledge and flight proficiency evaluations.
2. Initial Commercial Pilot certification (AVMF 2261, AVMF 2271, and AVMF 4271) MUST be completed at Auburn.
3. Ground and flight training for Private Pilot and Instrument Rating-Airplane completed at another FAA-approved Institution of Higher Learning (IHL) may be applied towards FAA R-ATP reduced hours eligibility.
4. Students enrolled in flight training coursework at Auburn must register for and complete all current and subsequent AVMF courses at Auburn.

Aviation Management Minor

15 semester hours in minor (12 hours at 3000-level or above)

Code	Title	Hours
AVMG 1010	Introduction to Aviation	3
AVMG 5090	Aviation Law and Policy	3
Elective Courses - See advisor for approved course listing.		9
Total Hours		**15**

School of Communication & Journalism

Majors from the School of Communication and Journalism are employed as HR managers, event coordinators, account executives, research associates, project managers, public affairs directors, news and sports reporters, anchors, film editors, cinematographers, producers, public relations specialists, not-for-profit managers, magazine writers, and legislative aides. The School offers undergraduate degree programs and options in Communication (COMM), Film (FILM), Journalism (JRNL), Journalism-Sports Production (JRSP), Film and Media Studies (FMDA), and Public Relations (PRCM). These programs offer students opportunities to create and understand the transmission and reception of messages within specific contexts.

Students must comply with these requirements to be admitted to any of the four majors in the School of Communication and Journalism:

Communication (COMM)

Students must apply for admission to the major. Before applying, students must: 1) Complete CMJN 2100 with a C or better; 2) Complete COMM 1000 with a C or better; 3) Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and proficiency credits) and be a student in good standing at the time of the application; and, 4) In a well written, 300-word essay, discuss: a) What interests you about human communication; b) What you would like to learn more about; and c) What specific Communication courses would help you achieve your educational and career goals? Please be specific in your response and provide examples (i.e., list specific skills, name specific classes). Students who transfer to Auburn University may apply to the COMM major but must complete at least one semester at Auburn University before admission.

Journalism (JRNL or JRSP)

Students must apply for admission to the major. Before applying, students must: 1) Complete CMJN 2100 with a C or better; 2) Complete the fundamentals class. If the student applies Fall 2023 or later, the student must complete JRNL 1000 with a “C” or better. If the student applies prior to Fall 2023, the student must complete JRNL 1AA0 or JRNL 1100 with a “C” or better; 3) Complete JRNL 2210 with a “C” or better; 4) Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and proficiency credits) and be a student in good standing at the time of the application; and 5) In a well written a 300-word essay, free of spelling and grammar errors, explaining how the Journalism program fits with your academic and professional goals. Students who transfer to Auburn University may apply to the JRNL/JRSP major but must complete one semester at Auburn University before applying for admission.

Film and Media Studies (FMDA or FILM)

Students must apply for admission to the major. Before applying, students must: 1) Complete CMJN 2100 with a C or better; 2) Complete MDIA 2350 with a C or better; 3) Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and AP and proficiency credits) and be a student in good standing at the time of the application; and 4) In a well written 300-word essay, choose any example of a popular film, TV show, popular song, etc., that you find interesting and explain why you find it significant. Next, in 3-5 sentences, tell us what you hope to learn in the FMDA/FILM program and how the program fits with your academic and professional goals. Please be specific in your response and provide examples when answering each question. Students who transfer to Auburn University may apply to the FMDA/FILM major but must and complete at least one semester at Auburn University before applying for admission.

Public Relations (PRCM)

Students must apply for admission to the major. Before applying, students must: 1) Complete CMJN 2100 with a C or better; 2) Students must complete their foundations class. Students who began Auburn Fall 2023 or later must complete PRCM 1000 with a “C” or better. Students enrolled at Auburn prior to Fall 2023 must complete JRNL 1AA0 or JRNL 1100 with a “C” or better, or PRCM 1000 with a “C” or better; 3) Complete PRCM 2400 with a “C” or better; 4) Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and proficiency credits) and be a student in good standing at the time of the application; and 5) In a well written 300-word essay, explain how you expect to contribute to the field of Public Relations and your specific career goals. Students who transfer to Auburn University may apply to the PRCM major but must complete at least one semester at Auburn University before admission.

Majors

- Communication (p. 1005)
- Film and Media Studies (p. 1006)
- Film and Media Studies — Film Option (p. 1008)
- Journalism (p. 1009)
- Journalism — Sports Production Option (p. 1011)
- Public Relations (p. 1013)

Minors

- Communication (p. 1006)
- Intercultural Communication (p. 1009)
- Journalism (p. 1011)
- Media Studies (p. 1012)
- Public Relations (p. 1014)
- Sport Communication (p. 1015)

Communication Courses

COMM 1000 PUBLIC SPEAKING (3) LEC. 3. Oral communication theory and practice in a public speaking setting, with emphasis on content, organization, delivery, and adaptation to the audience.

COMM 1007 HONORS PUBLIC SPEAKING (3) LEC. 3. Pr. Honors College. This course will focus on numerous elements of oral communication - public speaking, group communication and interpersonal communication. This is different from a typical speech class that focuses solely on public speaking. An emphasis will also be placed on debate (forensics).

COMM 2010 COMMUNICATION IN SOCIETY (3) LEC. 3. Learn the foundations of critical thinking and audience analysis for message construction and consumption. Provides groundwork for intermediate and advanced courses. May count either COMM 2010 or COMM 2013.

COMM 2400 INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Learn the introductory principles of workplace communication, such as cultural awareness, collaboration, and professional interaction. May count either COMM 2400 or COMM 2403.

COMM 2407 HONORS INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Learn the introductory principles of workplace communication, such as cultural awareness, collaboration, and professional interaction. May count either COMM 2400 or COMM 2403.

COMM 2410 SMALL GROUP COMMUNICATION (3) LEC. 3. Learn the key principles of small group communication, including leadership, active listening, and conflict management. May count either COMM 2410 or COMM 2413.

COMM 3100 PROFESSIONAL PRESENTATIONS (3) LEC. 3. Pr. COMM 1000 or COMM 1003. Learn advanced public speaking skills for effective presentations, such as analyzing audiences, stylistic adaptation, and delivery techniques.

COMM 3110 PERSUASION (3) LEC. 3. Learn to make messages more persuasive in a variety of communication contexts. Considers theories and practical applications of persuasive messages as students learn and practice effective communication. May count either COMM 3110 or COMM 3113.

COMM 3300 COMMUNICATION AND CONFLICT (3) LEC. 3. Learn and increase mindfulness of important components of conflict in interpersonal relationships. Develop skills in managing conflict in personal and professional relationships. May count either COMM 3300 or COMM 3303.

COMM 3400 ORGANIZATIONAL COMMUNICATION (3) LEC. 3. Learn how communication practices shape organizations by studying topics related to leadership, conflict management, in a variety of contexts including work, non-profits, and religious organizations. May count either COMM 3400 or COMM 3403.

COMM 3450 INTERCULTURAL COMMUNICATION (3) LEC. 3. Learn skills that will prepare you to communicate across a variety of intercultural settings, both personal and professional. Develop an awareness of potential challenges and opportunities when communicating interculturally. May count either COMM 3450 or COMM 3453.

COMM 3500 FOUNDATIONS OF HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn foundational communication theories and how they are applied in various contexts including friendships, romantic relationships, workplaces, and more. May count either COMM 3500 or COMM 3503.

COMM 3510 RESEARCH IN HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn the ins and outs of research to better understand communication processes. Develop an understanding of qualitative methods such as in-depth interviews and quantitative methods such as surveys. May count either COMM 3510 or COMM 3513.

COMM 3600 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn rhetorical theory and analysis to understand the creation and consumption of persuasive discourse in our society. Theories covered equip students to be more conscientious of public messages. May count either COMM 3600 or COMM 3603.

COMM 3610 RESEARCH IN RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103). Learn how to apply rhetorical theories of persuasion to better understand how to create and analyze messages in public forums. May count either COMM 3610 or COMM 3613.

COMM 3700 ARGUMENTATION (3) LEC. 3. Learn the foundations of how argument works with a focus on how to create and evaluate persuasive arguments in a variety of contexts and for varied audiences. May count either COMM 3700 or COMM 3703.

COMM 3800 FAMILY COMMUNICATION (3) LEC. 3. Learn the role communication plays in family relationships, including how to evaluate and manage healthy interactions among members. May count either COMM 3800 or COMM 3803.

COMM 3970 SPECIAL TOPICS IN COMMUNICATION (3-6) LEC. Topics that range beyond what is covered in other courses within the COMM curriculum. Specific subject matter is left up to the individual instructor. Course may be repeated for a maximum of 6 credit hours.

COMM 4100 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the persuasive strategies used in a variety of social movements to attract members, solidify support, and advocate for social change.

COMM 4410 THEORIES OF LEADERSHIP (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Learn and apply communication theories and research to improve leadership skills and processes in organizations.

COMM 4420 COMMUNICATION AND CREATIVITY (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn to apply creativity research and communication principles to collaborative environments to generate unique solutions to problems facing organizations. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count either COMM 4420 or COMM 4423.

COMM 4430 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Learn to apply advanced communication theories to identify and address problems in a variety of organizations to improve workplace environments.

COMM 4480 HEALTH COMMUNICATION CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, PAOH, or Departmental approval. Learn the theories and skills needed to create compelling health communication campaigns.

COMM 4490 HEALTH MEDIA & COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Must have a declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Learn the communication principles common to health media, including how media influence how we think, talk, and behave in relation to our health.

COMM 4500 COMMUNICATION AND COGNITION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Explores theory and research related to cognitive and affective influences on communication in interpersonal and social interactions. May count either COMM 4500 or COMM 4503.

COMM 4700 LEGAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn how to identify and apply critical principles of communication to the legal system. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count either COMM 4700 or COMM 4703.

COMM 4800 INTERPERSONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn to apply communication practices, goals, and perceptions in the creation and development of friendships, romantic partnerships, and work relationships. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count as either COMM 4800 or COMM 4803.

COMM 4810 NONVERBAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3613) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the forms and functions of non-linguistic communication practices in personal and professional contexts.

COMM 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in COMM. Requires admission to internship program.

COMM 4930 DIRECTED STUDIES IN COMMUNICATION (3) IND. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Independent study on a specific topic of interest not already addressed in any regular COMM course.

COMM 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Honors level independent study on a specific topic of interest not already addressed in any regular COMM course. Course may be repeated for a maximum of 3 credit hours.

COMM 4997 HONORS THESIS (1-3) IND. Pr. Honors College. COMM 3500 or COMM 3503 and COMM 3600 or COMM 3603. and CMJN 2100 or CMJN 2103. and COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. 2.3 GPA. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

COMM 5430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the history, theory, and concepts central to the study of gender, work, and communication. Builds on organizational communication theories.

COMM 5440 CURRENT PROBLEMS IN ORGANIZATIONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3610 or COMM 3613 or COMM 3510 or COMM 3513). Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. This course examines current issues in organizations through the lens of cutting edge organizational communication theories.

COMM 5450 COMMUNICATION & IMMIGRATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study of immigration from a communication perspective. May count either COMM 5450 or COMM 5453.

COMM 5470 HEALTH COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the basics of the health communication field. Students learn and discuss how communication affects health in diverse settings.

COMM 5600 POLITICAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 5700 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Pr. (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the forms and functions of language in social interaction as they reflect and influence our identity.

COMM 5970 SPECIAL TOPICS IN COMMUNICATION (3) LEC. 3. Pr. COMM 3500 and COMM 3600 and (COMM 3510 or COMM 3610). Topics in Communication. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 6300 SEX, GENDER, AND SPORT (3) LEC. 3. Focuses on sport, as a gendered institution. The course examines intersections of gender with age, sexual orientation, social class, gender identity, race and ethnicity and politics.

COMM 6430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study of gender, work, and communication.

COMM 6470 HEALTH COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study and practice of health communication.

COMM 6500 GLOBAL MEDIA (3) LEC. 3. Global media is focused on the complex global dimensions of media production, distribution and reception.

COMM 6600 POLITICAL COMMUNICATION (3) LEC. 3. This course will examine the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 6700 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Advanced approaches to examining the challenges, problems, and ideal situations of social interaction in interpersonal, group, and institutional contexts. Graduate students only.

COMM 6800 EVERYDAY TALK AND IDENTITY (3) LEC. 3. Examines the building blocks of interpersonal and small group conversation as they combine to reflect and shape identities of self and others.

COMM 6970 SPECIAL TOPICS IN COMMUNICATION (3) AAB/LEC. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities not currently offered in the program. Course may be repeated for credit with change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 7000 COMMUNICATION THEORY (3) LEC. 3. Critical examination of contemporary theories in communication.

COMM 7010 QUALITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Qualitative research in communication; emphasis on understanding and engaging in a variety of qualitative methods.

COMM 7020 QUANTITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Quantitative research in communication; emphasis on understanding and doing empirical research.

COMM 7100 INSTRUCTIONAL COMMUNICATION THEORY & PRACTICE (3) SEM. 3. History, theory, and concepts central to the study and practice of instructional communication.

COMM 7230 RHETORICAL CRITICISM (3) LEC. 3. Advanced methods in rhetorical criticism, including tools for the analysis of persuasive messages.

COMM 7300 APPROACHES TO STUDYING LANGUAGE AND SOCIAL INTERACTION (3) LEC. 3. Major approaches to studying language and social interaction that collectively make up discourse analysis.

COMM 7410 DEVELOPMENT OF RHETORICAL THEORY (3) LEC. 3. Historical survey of rhetorical theory from ancient to contemporary era; special attention to the role of rhetoric in shaping attitudes towards persuasion.

COMM 7420 SEMINAR IN PERSUASION AND ATTITUDE CHANGE (3) LEC. 3. Critical examination of current theory and research in the persuasive act and its effects.

COMM 7430 SEMINAR IN AMERICAN PUBLIC ADDRESS (3) LEC. 3. Investigation of key issues and debates that have emerged in post-World War II America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3) SEM. 3. Analysis of the fundamental theories of argumentation.

COMM 7450 SEMINAR IN INTRAPERSONAL PROCESSES IN COMMUNICATION (3) SEM. 3. Theories of cognitive and affective processing of information during speaking and listening.

COMM 7460 SEMINAR IN INTERPERSONAL COMMUNICATION (3) SEM. 3. Theories of the structure and function of interpersonal (dyadic) communication focusing on conversational behavior, traits, relationships, and persuasion.

COMM 7470 SEMINAR IN SMALL GROUP COMMUNICATION (3) SEM. 3. Advanced study of the principles of communication as they apply to the small group setting.

COMM 7480 SEMINAR IN ORGANIZATIONAL COMMUNICATION (3) SEM. 3. In-depth approach to the study of communication processes within the setting of modern organizations.

COMM 7490 HEALTH COMMUNICATION (3) LEC. 3. Examination and application of social science research approaches to the study of health communication.

COMM 7500 GENDER COMMUNICATION (3) LEC. 3. Exploration of current theories and research on the relationship between communication and gender.

COMM 7600 MASS COMMUNICATION THEORY (3) LEC. 3. Exploration of major areas of concern to the theoretical study of mass communication and the social impact of mediated messages.

COMM 7610 STUDIES IN POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3. Critical approaches to identifying, interpreting and experiencing popular culture texts within historical, cultural and communication contexts.

COMM 7620 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Exploration of critical, theoretical, and organizational issues relevant to programming and the production of culture within mass media environments.

COMM 7630 MEDIA MANAGEMENT (3) LEC. 3. In-depth analysis of current management issues specific to media managers in a multi-cultural world.

COMM 7640 SEMINAR IN FILM THEORY AND CRITICISM (3) SEM. 3. Exploration of classical and contemporary film theories and criticism.

COMM 7660 CULTURAL STUDIES IN MASS MEDIA (3) LEC. 3. Examination of communication research approaches to the study of culture and media.

COMM 7670 CONTEMPORARY ISSUES IN FIRST AMENDMENT LAW (3) LEC. 3. Exploration of controversial issues and cases in First Amendment Law that have been recently decided, are currently before courts, and have shaped the constitutional landscape in the United States.

COMM 7680 SPORTS, MEDIA, AND CULTURE (3) LEC. 3. Cultural implications of the relationship between sports and media.

COMM 7810 PUBLIC RELATIONS THEORY (3) LEC. 3. Current areas of concern in the theoretical study of public relations.

COMM 7820 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Application of public relations and communication concepts to campaign challenges.

COMM 7830 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Examination of research on public relations case studies to provide a theoretical basis for analyzing similar situations in on the job.

COMM 7840 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Theory, concepts, and skills needed to be an effective communication trainer or consultant.

COMM 7850 PUBLIC RELATIONS ETHICS (3) LEC. 3. This course provides a framework for understanding ethics in public relations. We will discuss ethical behavior and thinking within the context of practicing public relations. Topics discussed will include relationships, accountability, responsibility, advocacy, truth, and transparency.

COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research, and reports in general communication, mass communication, or public relations. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS IN COMMUNICATION (3) SEM. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities. Course may be repeated for credit with change in topic.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATION (3-6) LEC. SU. Pr. COMM 7000 and COMM 7010 and COMM 7020. and Minimum 27 graduate hours. Professional experience in communication area of interest. Must include managerial experience. Only 3 hours will apply to the degree. Course may be repeated for a maximum of 6 credit hours.

COMM 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

Communication and Journalism Courses

CMJN 2100 CONCEPTS IN COMMUNICATIONS AND JOURNALISM (3) LEC. 2. LAB. 1. Introduction to the basic principles of various communication forms, the dominant communication theories, and communication industries. May count either CMJN 2100 or CMJN 2103.

CMJN 2910 COMMUNICATION AND JOURNALISM PRACTICUM (1-3) PRA. SU. Departmental Approval. Practical experiences in potential career fields gained while working in professional settings. One to three hours variable credit. Course may be repeated for a maximum of 3 credit hours.

CMJN 3350 VISUAL COMMUNICATION (3) LEC. 3. Visual literacy, cognition, aesthetics, critical evaluation, and technology in human communication, with emphasis on impact of visual media in informative, interpretive, and persuasive message.

CMJN 3550 SPORTS INTERVIEWING (3) LEC. 3. Pr. CMJN 2100. This course examines interviewing techniques in various sport media and technological contexts.

CMJN 3650 RHETORIC OF SPORTS (3) LEC. 3. Learn the role that persuasive messages and social expectations play in sports environments through communication and critical thinking research. May count either CMJN 3650 or COMM 3650.

CMJN 4000 MASS MEDIA LAW AND REGULATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. and junior or senior standing. Laws and regulations that govern journalists, media content and industries.

CMJN 4340 MASS COMMUNICATION AND FAMILY (3) LEC. 3. Examination of the relationship between the American family and the mass communication industry.

CMJN 4370 MASS COMMUNICATION AND RELIGION (3) LEC. 3. Examines the relationship between mass communication and religion. Portrayals and influences will be analyzed.

CMJN 4400 GENDER COMMUNICATION (3) LEC. 3. Learn the critical role gender plays in communication processes as well as skills for navigating difficult issues in organizations and other settings.

CMJN 4430 SPORTS, MEDIA AND SOCIETY (3) LEC. 3. Cultural and professional implications of the relationship between sports and media. May count either CMJN 4430 or JRNL 4430.

CMJN 4970 SPECIAL TOPICS IN COMMUNICATION AND JOURNALISM (3) LEC. 3. Specialized topics related to the study and practice of Communication, Journalism, Media Studies and/or Public Relations. Course may be repeated for a maximum of 6 credit hours.

CMJN 5100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

CMJN 6100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

Journalism Courses

JRNL 1000 FOUNDATIONS OF JOURNALISM (3) LEC. 3. An introduction to the field of journalism; including its role in democracy and society, history, and ethics, with an emphasis on media literacy and professional writing skills. This course replaces JRNL 1100. Credit will not be given for both (JRNL 1AA0/1100/1103) and JRNL 1000.

JRNL 1100 JOURNALISM FUNDAMENTALS (3) LEC. 3. Emphasis on Associated Press Stylebook, word usage, and punctuation for students interested in print, broadcast, public relations, and web-based writing.

JRNL 1AA0 JOURNALISM FUNDAMENTALS ENTRANCE EXAM (0) LAB. 1.5. SU. JRNL 1AA0 is an exam option for students who are required to take JRNL 1100. The course will test students on punctuation, grammar, Associated Press Style and word usage to mirror content covered in the in-person course.

JRNL 2210 NEWSWRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 or JRNL 1000 or PRCM 1000. Introduction to newswriting techniques, with emphasis on learning news values, recognizing parts of a story, and writing stories that meet standards of accuracy, grammar, style, spelling, law, and ethics.

JRNL 2310 REPORTING (3) LEC. 3. Pr. JRNL 2210 or JRNL 2213. Preparation for careers in gathering and telling the news. Course emphasizes the writing of accurate, clear, and meaningful news stories for print and digital formats.

JRNL 3010 BROADCAST & DIGITAL NEWS PRODUCTION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or JRNL 1000 or PRCM 1000). Introduction to the basics of digital video production. Emphasis on techniques used in producing newscasts for broadcast, web and mobile devices.

JRNL 3020 BROADCAST & DIGITAL NEWS REPORTING (3) LEC. 3. Pr. JRNL 2210 and JRNL 3010. Writing and reporting digital news stories on deadline for broadcast, online, social media, and mobile outlets.

JRNL 3100 GLOBAL JOURNALISM AND MEDIA SYSTEMS (3) LEC. 3. The Internet and social media have created a world more connected than ever. Examines the economic, political, technological, and cultural changes that impact media and journalism globally.

JRNL 3110 INTRODUCTION TO APPLIED JOURNALISM (3) LEC. 3. Pr. (JRNL 2310 or JRNL 2313) and (CMJN 2100 or CMJN 2103). Introduction to how a media organization operates; provides an opportunity for students to gain practical, hands-on journalism experience.

JRNL 3220 MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Introduction to writing colorful, human-interest non-fiction pieces that illustrate drama and impact. Students will learn how to pitch their ideas to editors in print and digital markets.

JRNL 3410 PHOTOJOURNALISM (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Uses, techniques, and processes of digital photography for the newspaper, magazine, and web-based industries. Operations of digital SLRs and Photoshop and techniques for variety of assignments are addressed.

JRNL 3470 EDITING AND DESIGN (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Introduction to the basics of design, layout, headline writing, typography, use of color, and selection of images for visual impact. Students will learn how to design news, sports, and magazine layouts, using Adobe InDesign and Photoshop.

JRNL 3510 MULTIMEDIA JOURNALISM (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Introduction to multimedia journalistic storytelling. Reporting and production course where students use various technologies to produce journalism stories for digital platforms.

JRNL 3530 SPORTS REPORTING (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Sports reporting for print, broadcast, and online media, with emphasis on interviewing athletes, covering sporting events, and learning about issues surrounding sports.

JRNL 4230 ADVANCED REPORTING (3) LEC. 3. Pr. (JRNL 2313 or JRNL 2310) and (JRNL 3220 or JRNL 3510 or JRNL 3530 or JRNL 3020). Developing and writing news stories under deadline pressure; investigative and interpretative reporting.

JRNL 4320 ENTREPRENEURIAL JOURNALISM (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or PRCM 1000 or JRNL 1000) and (CMJN 2100 or CMJN 2103). Emphasis on content, advertising, audience, and marketing in news organizations and applying entrepreneurial principles to journalism start-ups.

JRNL 4410 JOURNALISM HISTORY (3) LEC. 3. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues.

JRNL 4470 ADVANCED MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (JRNL 2310 or JRNL 2313) and (JRNL 3220 or JRNL 3223) and (JRNL 3020 or JRNL 3023 or JRNL 3530 or JRNL 3533 or JRNL 3510 or JRNL 3513). Emphasis on creating long-form, non-fiction articles for print and digital publications through graceful and innovative writing techniques and skillful reporting.

JRNL 4490 LITERARY JOURNALISM (3) LEC. 3. Survey course on the best non-fiction produced by journalists.

JRNL 4530 ADVANCED SPORTS REPORTING (3) LEC. 3. Pr. (JRNL 3530 or JRNL 3533). JRNL 4530 provides the capstone course experience for students in the sports journalism emphasis. Students will build skills in areas such as writing long form articles, personality features, enterprise reporting, oral history projects, and comprehensive game coverage, and working with tight deadlines.

JRNL 4850 REPORTING ISSUES OF SOCIAL CHANGE (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or PRCM 1000 or JRNL 1000). Engagement with solutions-based journalism wherein story narratives about people, communities, and societal issues give voice and weight to problems and solutions.

JRNL 4870 COMMUNITY JOURNALISM (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Civic role of community journalists.

JRNL 4920 JOURNALISM INTERNSHIP (3) INT. Pr. JRNL 2310 and (JRNL 3020 or JRNL 3220 or JRNL 3510 or JRNL 3530) and (JRNL 3010 or JRNL 3110 or JRNL 3410 or JRNL 3470). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in JRNL. Requires admission to internship program.

JRNL 4930 DIRECTED STUDIES (1-4) IND. Research and analysis of specific areas of journalism. Course may be repeated for a maximum of 6 credit hours.

JRNL 4970 SPECIAL TOPICS IN JOURNALISM (3) AAB. 3. Pr. JRNL 2210. Study of narrowly defined journalism topics not already covered in the current JRNL curriculum. Course may be repeated for a maximum of 6 credit hours.

Journalism-Sports Production Courses

JRSP 3110 SPORTS MEDIA RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Focuses on the major concepts and theories of the management of sports media relations. Will include discussion of issues, philosophies and cases. May count CMJN 3110 or CMJN 3113 or JRSP 3110.

JRSP 3210 NEWS AND SPORTS ANNOUNCING (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. This class focuses on the theory and practical technique of studio and field announcing. Primary emphasis will be placed on announcing for news and sports. Additional attention will be given to voice over announcing. May count either CMJN 3210 or JRSP 3210.

JRSP 3410 INTRODUCTION TO SPORTS VIDEO PRODUCTION (3) LEC. 2, DSL/LST. 1. Introduction to multi-camera live sports production, video and audio editing techniques, how to operate equipment, create basic animated graphics, learn work crew positions and understand a script. Students will complete work for the SEC Network and War Eagle Productions. May count CMJN 3410 or JRSP 3410.

JRSP 3510 CONTROL ROOM OPERATIONS (3) LEC. 3. Pr. JRSP 3410 or CMJN 3410 or CMJN 3413. Introduction to various control room positions and equipment associated with a live broadcast. Students will learn the skills needed to set up, adjust and operate production equipment before and during broadcasts. May count CMJN 3510 or JRSP 3510.

JRSP 4320 SPORTS MEDIA MANAGEMENT (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Addresses principles and practices of managing sports media properties across multiple platforms. May count JRSP 4320 or CMJN 4320.

JRSP 4410 ADVANCED SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Pr. (CMJN 2100 or CMJN 2103) and (CMJN 3410 or CMJN 3413 or JRSP 3410). This course is designed to give students in-depth training that covers advanced video editing techniques and effects. In addition, students will gain experience with advanced camera operation and techniques, focusing on high-quality production throughout the process. May count CMJN 4410 or JRSP 4410.

JRSP 4510 SPORTS STORYTELLING & VIDEO PROFILES (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (CMJN 3410 or JRSP 3410 or CMJN 3413) and (JRNL 2210 or JRNL 2213). Technology has changed the landscape of how sports stories are seen and ingested today. Students will explore the art of sports storytelling and learn the foundational skills needed to effectively use cameras, lighting, editing equipment and other industry-standard tools to tell a visual story. May count CMJN 4510 or JRSP 4510.

JRSP 4610 LIVE SPORTS PRODUCING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213) and (CMJN 3510 or JRSP 3510). Students will learn how to produce live events for broadcast and in-venue video boards. Students will gain the necessary knowledge and skills for producing a high-quality live event. This includes preparation, decision making skills and industry-standard terminology. May count CMJN 4610 or JRSP 4610.

JRSP 4920 JOURNALISM SPORTS PRODUCTION INTERNSHIP (3) INT. Pr. JRSP 3410 and JRSP 3510. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in JRSP. Requires admission to internship program.

JRSP 4970 SPECIAL TOPICS IN JOURNALISM: SPORTS PRODUCTION (3) LEC. 3. Specialized topics related to the study and practice of sports media production. Course may be repeated for a maximum of 6 credit hours.

Media Studies Courses

MDIA 2350 INTRODUCTION TO FILM STUDIES (3) LEC. 2. LAB. 2. Introduction to film analysis, modes of film practice and critical approaches to the study of cinema. May count either MDIA 2350/MDIA 2353.

MDIA 3210 SOUNDTRACKS, MUSIC AND MEDIA (3) LEC. 3. Historical, artistic, sociocultural and economic contexts of music and media.

MDIA 3300 FOUNDATION OF MEDIA STUDIES (3) LEC. 2. LAB. 2. Pr. MDIA 2350 or MDIA 2353. This is a foundational course that provides students with a survey of the key theoretical approaches to studying the cultural, social, political and economic dimensions of entertainment media.

MDIA 3310 HISTORY OF NEW AND EMERGING MEDIA (3) LEC. 3. This course examines the origins and development of the Internet and related platforms including USENET, the World Wide Web, and social media. In the process, the course addresses many of the social, political, economic, and industrial implications that have accompanied the use of the Internet as a communication technology.

MDIA 3320 GENDER AND SEXUALITY IN MEDIA (3) LEC. 2. LAB. 2. Examines the relationship between gender, sexuality, identity and the media, from the perspective of key theories, representation, audience engagement and industry.

MDIA 3360 AUDIO STORYTELLING AND PODCASTING (3) STU. 3. Students will gain hands-on experience in producing audio stories and in designing and producing podcasts.

MDIA 3370 GLOBAL MEDIA (3) LEC. 2. LAB. 2. Global media is focused on the complex global dimensions of media production, distribution and reception, with a primary focus on entertainment media.

MDIA 3580 REPRODUCING POPULAR CULTURE (3) LEC. 3. Postmodern study on the widespread recycling of media artifacts. May count either MDIA 3580 or MDIA 3583 or RTVF 3580.

MDIA 3600 FILM GENRES (3) LEC. 2. LAB. 2. A critical examination of popular film genres and how they have been used historically within the film industry, film studies, media criticism and popular culture.

MDIA 3650 MEDIA INDUSTRIES (3) LEC. 2. LAB. 2. The course provides students a comprehensive overview of how the media industries work, why they work as they do, and the broader theoretical and practical implications of the media industries.

MDIA 3700 AUDIENCES AND FAN CULTURE (3) LEC. 2. LAB. 2. This course explores theories of the audience in media and cultural studies, the history of studying media audiences, while also considering contemporary scholarship, technology, identity and fan communities.

MDIA 3750 RACE AND AMERICAN FILM HISTORY (3) LEC. 2. LAB. 2. A critical examination of the historical and social constructions of race and ethnicity in popular U.S. films.

MDIA 3970 SPECIAL TOPICS (3) AAB. 3. Topics in Media Studies at the intermediate level. Course may be repeated for a maximum of 6 credit hours.

MDIA 4200 TV HISTORY (3) LEC. 2. LAB. 2. An examination of the development and evolution of U.S. television broadcasting as an art form, industry and social institution from the early twentieth century to the present day.

MDIA 4210 POPULAR CULTURE STUDIES (3) LEC. 3. Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes. Declared major in AGCO, COMM, JRNL, JRSP, MDIA or PRCM.

MDIA 4250 SCREEN CULTURE (3) LEC. 2. LAB. 2. A critical study of the historical development and the cultural meanings of dominant screen technologies (film screens, TVs, computer screens, mobile devices).

MDIA 4300 MEDIA PROGRAMMING (3) LEC. 3. Introduces organizational concepts, strategies, processes, and frameworks for programming in various media systems, including broadcast, cable and streaming sources.

MDIA 4310 MEDIA AND SOCIETY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of the relationship between the mass communication industry and a mass society. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4350 TELEVISION CRITICISM (3) LEC. 3. LAB. 1. This course prepares students to critically analyze television with a deep study of the aesthetics of television coupled with an overview of critical approaches to television research.

MDIA 4390 FILM AUTHORS (3) LEC. 2. LAB. 2. In-depth study of one or more filmmakers important to the development of film as a popular art form. Declared major in AGCO, COMM, JRNL, JRSP, MDIA or PRCM.

MDIA 4400 ADVERTISING AND CONSUMER CULTURE (3) LEC. 2. LAB. 2. This course is a critical examination of the relationship between the advertising industries and the media industries and how they have influenced each other as well as mainstream US culture.

MDIA 4420 HISTORY OF MEDIA TECHNOLOGY (3) LEC. 3. History of media technology from 18th-21st centuries.

MDIA 4500 CULTURE AND TECHNOLOGY (3) LEC. 3. This course explores the complex interrelations, issues and impacts between culture and technology through a range of interdisciplinary academic, professional and global settings, contexts and texts.

MDIA 4580 FAME, CELEBRITY, AND MEDIA CULTURE (3) LEC. 3. Examination of celebrity and fame as distinguishing cultural phenomena.

MDIA 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (MDIA 3300 or MDIA 3303). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in MDIA or MDIV/MFLM. Requires admission to internship program.

MDIA 4930 DIRECTED STUDIES (3) IND. 3. Pr. MDIA 3300 or MDIA 3303. Study of narrowly-defined MDIA topic not already covered in the MDIA curriculum and under the direction of an MDIA faculty. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV/MFLM or PRCM. May count either MDIA 4930 or MDIA 4933 or MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

MDIA 4970 SPECIAL TOPICS (3) LEC. 3. Topics in Media Studies at the advanced level. Course may be repeated for a maximum of 6 credit hours.

MDIA 5500 GLOBAL MEDIA (3) LEC. 3. LAB. 0, SEM. 0. Pr. MDIA 2350 and MDIA 3300. Global media is focused on the complex global dimensions of media production, distribution and reception, situated within the study of critical theory.

Media Studies - Film Courses

FILM 2420 INTRODUCTION TO FILMMAKING (3) DSL/STU. 3. A studio course introducing students to the theory and practice of cinematography and editing for the short film.

FILM 2700 INTRODUCTION TO VISUAL MEDIA (3) DSL/STU. A studio course introducing students to concepts and techniques of digital image-making for the short film.

FILM 3100 INTERMEDIATE FILMMAKING (3) DSL/STU. 3. Pr. (MDIA 2420 or FILM 2420) and (MDIA 2700 or MDIA 2703 or FILM 2700). An intermediate studio course in which students develop sound design skills for the short film.

FILM 3110 CINEMATOGRAPHY (3) STU. 3. Pr. (MDIA 2420 or FILM 2420) and (MDIA 2700 or FILM 2700). An intermediate studio course in which students explore the art of filmmaking through methods and techniques of cinematography for the short film. The course structure will emphasize short scene studies which focus on visual outcomes including cameras technology, motion, lighting, composition and post-production.

FILM 3120 FILM EDITING (3) STU. 3. Pr. (MDIA 2700 or FILM 2700) and (MDIA 2420 or FILM 2420). An intermediate studio course in which students explore the theory and practice of editing for the short film.

FILM 3350 SCREENWRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (MDIA 2350 or MDIA 2353). A writing course introducing students to the basic concepts of screen storytelling and the craft of turning story ideas into screenplays.

FILM 3820 SEQUENCE DESIGN (3) STU. 3. A studio course in which students develop animation skills for title design.

FILM 4600 ADAPTATION FOR THE SHORT FILM (3) LEC. 3. Pr. MDIA 3100 or MDIA 3103 or FILM 3100. A survey of ways in which film can be adapted from pre-existing sources to create new works that stand on their own. Declared major in AGCO, COMM, JRNL, MDIA, MDIV/MFLM or PRCM. May count either MDIA 4600 or MDIA 4603 or RTVF 4600.

FILM 4940 FILM PROJECTS (3) DSL/STU. 3. Pr. MDIA 3100 or MDIA 3103 or FILM 3100. Capstone course in which students work as a team on an advanced film project.

Public Relations Commu Courses

PRCM 1000 PR AND MEDIA RELATIONS FUNDAMENTALS (3) DSL/LEC. Introduction to the public relations discipline, including its history, theory, ethics and its relationship to media relations, with an emphasis on developing fundamental public relations writing skills.

PRCM 2400 FOUNDATIONS OF PUBLIC RELATIONS (3) LEC. 3. This course is designed to be an overview of the functions, practices and growing application of public relations in both private industry and the public sector.

PRCM 2500 PUBLIC RELATIONS CASE STUDIES & ETHICS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. This is a course designed to provide Public Relations students with an understanding of both effective and ineffective methods of PR through studying actual cases from the field itself with special attention given to the ethical aspect of decision making.

PRCM 3000 MULTIMEDIA WRITING FOR PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2500 or PRCM 2503) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). PRCM or AGCO major only. This course will have an emphasis on communication tactics; plan, write and produce public relations tools; audience and media selection; print and electronic media.

PRCM 3080 INTERNATIONAL PUBLIC RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Exploration of public relations theory, research, and practice in an international context.

PRCM 3090 PUBLIC RELATIONS IN POLITICAL PROCESSES (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Surveys of the intersection of politics and public relations, emphasizing theoretical and practical principles in political processes.

PRCM 3260 STRATEGIC COMMUNICATION IN PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or PRCM 1000 or JRNL 1103 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). PRCM or AGCO majors only. Framework for the strategy and integration of messages within public relations.

PRCM 3270 PUBLIC RELATIONS IN THE NOT-FOR-PROFIT ARENA (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Nonprofit organizations and foundations and the role of public relations within those organizations.

PRCM 3280 SOCIAL MEDIA AND PUBLIC RELATIONS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). Declared major in AGCO or PRCM. Examination of how new social media impact public relations strategies.

PRCM 3450 DIGITAL MEDIA ANALYTICS (3) LEC. 3. Pr. (PRCM 2400 or PRCM 2403). This course prepares students with essential skills and knowledge to understand the power of digital media analytics in today's digital landscape.

PRCM 4020 DIGITAL STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503). PRCM or AGCO major only. Introduction to the use of style and design in public relations messages. Departmental approval or Declared major in AGCO or PRCM.

PRCM 4400 PUBLIC RELATIONS RESEARCH (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2500 or PRCM 2503) and (PRCM 2400 or PRCM 2403). PRCM or AGCO major only. Identifying, characterizing and evaluating stakeholder groups and alternative channels of communication; formal research procedures including sampling, instrument design, information gathering, data processing, analysis and reporting.

PRCM 4500 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2500 or PRCM 2503) and (PRCM 2400 or PRCM 2403) and PRCM 3000 and PRCM 4400. Application of theory, research data, and problem-solving techniques in the development of comprehensive public relations strategies.

PRCM 4920 INTERNSHIP (3) AAB/INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 3000 or PRCM 3003). Opportunity to apply classroom experience in career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

PRCM 4930 DIRECTED STUDIES IN PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 3040 or PRCM 3043 or PRCM 2400 or PRCM 2403). Independent Study on a specific topic of interest not already addressed in any regular PRCM course.

PRCM 4970 SPECIAL TOPICS IN PUBLIC RELATIONS (3) LEC. 3. Pr. (PRCM 2500 or PRCM 2503). Focus on narrowly defined PRCM topics not already covered in the current PRCM curriculum. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

Communication Courses

COMM 1000 PUBLIC SPEAKING (3) LEC. 3. Oral communication theory and practice in a public speaking setting, with emphasis on content, organization, delivery, and adaptation to the audience.

COMM 1007 HONORS PUBLIC SPEAKING (3) LEC. 3. Pr. Honors College. This course will focus on numerous elements of oral communication - public speaking, group communication and interpersonal communication. This is different from a typical speech class that focuses solely on public speaking. An emphasis will also be placed on debate (forensics).

COMM 2010 COMMUNICATION IN SOCIETY (3) LEC. 3. Learn the foundations of critical thinking and audience analysis for message construction and consumption. Provides groundwork for intermediate and advanced courses. May count either COMM 2010 or COMM 2013.

COMM 2400 INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Learn the introductory principles of workplace communication, such as cultural awareness, collaboration, and professional interaction. May count either COMM 2400 or COMM 2403.

COMM 2407 HONORS INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Learn the introductory principles of workplace communication, such as cultural awareness, collaboration, and professional interaction. May count either COMM 2400 or COMM 2403.

COMM 2410 SMALL GROUP COMMUNICATION (3) LEC. 3. Learn the key principles of small group communication, including leadership, active listening, and conflict management. May count either COMM 2410 or COMM 2413.

COMM 3100 PROFESSIONAL PRESENTATIONS (3) LEC. 3. Pr. COMM 1000 or COMM 1003. Learn advanced public speaking skills for effective presentations, such as analyzing audiences, stylistic adaptation, and delivery techniques.

COMM 3110 PERSUASION (3) LEC. 3. Learn to make messages more persuasive in a variety of communication contexts. Considers theories and practical applications of persuasive messages as students learn and practice effective communication. May count either COMM 3110 or COMM 3113.

COMM 3300 COMMUNICATION AND CONFLICT (3) LEC. 3. Learn and increase mindfulness of important components of conflict in interpersonal relationships. Develop skills in managing conflict in personal and professional relationships. May count either COMM 3300 or COMM 3303.

COMM 3400 ORGANIZATIONAL COMMUNICATION (3) LEC. 3. Learn how communication practices shape organizations by studying topics related to leadership, conflict management, in a variety of contexts including work, non-profits, and religious organizations. May count either COMM 3400 or COMM 3403.

COMM 3450 INTERCULTURAL COMMUNICATION (3) LEC. 3. Learn skills that will prepare you to communicate across a variety of intercultural settings, both personal and professional. Develop an awareness of potential challenges and opportunities when communicating interculturally. May count either COMM 3450 or COMM 3453.

COMM 3500 FOUNDATIONS OF HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn foundational communication theories and how they are applied in various contexts including friendships, romantic relationships, workplaces, and more. May count either COMM 3500 or COMM 3503.

COMM 3510 RESEARCH IN HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn the ins and outs of research to better understand communication processes. Develop an understanding of qualitative methods such as in-depth interviews and quantitative methods such as surveys. May count either COMM 3510 or COMM 3513.

COMM 3600 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn rhetorical theory and analysis to understand the creation and consumption of persuasive discourse in our society. Theories covered equip students to be more conscientious of public messages. May count either COMM 3600 or COMM 3603.

COMM 3610 RESEARCH IN RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103). Learn how to apply rhetorical theories of persuasion to better understand how to create and analyze messages in public forums. May count either COMM 3610 or COMM 3613.

COMM 3700 ARGUMENTATION (3) LEC. 3. Learn the foundations of how argument works with a focus on how to create and evaluate persuasive arguments in a variety of contexts and for varied audiences. May count either COMM 3700 or COMM 3703.

COMM 3800 FAMILY COMMUNICATION (3) LEC. 3. Learn the role communication plays in family relationships, including how to evaluate and manage healthy interactions among members. May count either COMM 3800 or COMM 3803.

COMM 3970 SPECIAL TOPICS IN COMMUNICATION (3-6) LEC. Topics that range beyond what is covered in other courses within the COMM curriculum. Specific subject matter is left up to the individual instructor. Course may be repeated for a maximum of 6 credit hours.

COMM 4100 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the persuasive strategies used in a variety of social movements to attract members, solidify support, and advocate for social change.

COMM 4410 THEORIES OF LEADERSHIP (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Learn and apply communication theories and research to improve leadership skills and processes in organizations.

COMM 4420 COMMUNICATION AND CREATIVITY (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn to apply creativity research and communication principles to collaborative environments to generate unique solutions to problems facing organizations. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count either COMM 4420 or COMM 4423.

COMM 4430 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Learn to apply advanced communication theories to identify and address problems in a variety of organizations to improve workplace environments.

COMM 4480 HEALTH COMMUNICATION CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, PAOH, or Departmental approval. Learn the theories and skills needed to create compelling health communication campaigns.

COMM 4490 HEALTH MEDIA & COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Must have a declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Learn the communication principles common to health media, including how media influence how we think, talk, and behave in relation to our health.

COMM 4500 COMMUNICATION AND COGNITION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Explores theory and research related to cognitive and affective influences on communication in interpersonal and social interactions. May count either COMM 4500 or COMM 4503.

COMM 4700 LEGAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn how to identify and apply critical principles of communication to the legal system. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count either COMM 4700 or COMM 4703.

COMM 4800 INTERPERSONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn to apply communication practices, goals, and perceptions in the creation and development of friendships, romantic partnerships, and work relationships. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count as either COMM 4800 or COMM 4803.

COMM 4810 NONVERBAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3613) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the forms and functions of non-linguistic communication practices in personal and professional contexts.

COMM 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in COMM. Requires admission to internship program.

COMM 4930 DIRECTED STUDIES IN COMMUNICATION (3) IND. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Independent study on a specific topic of interest not already addressed in any regular COMM course.

COMM 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Honors level independent study on a specific topic of interest not already addressed in any regular COMM course. Course may be repeated for a maximum of 3 credit hours.

COMM 4997 HONORS THESIS (1-3) IND. Pr. Honors College. COMM 3500 or COMM 3503 and COMM 3600 or COMM 3603. and CMJN 2100 or CMJN 2103. and COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. 2.3 GPA. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

COMM 5430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the history, theory, and concepts central to the study of gender, work, and communication. Builds on organizational communication theories.

COMM 5440 CURRENT PROBLEMS IN ORGANIZATIONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3610 or COMM 3613 or COMM 3510 or COMM 3513). Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. This course examines current issues in organizations through the lens of cutting edge organizational communication theories.

COMM 5450 COMMUNICATION & IMMIGRATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study of immigration from a communication perspective. May count either COMM 5450 or COMM 5453.

COMM 5470 HEALTH COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the basics of the health communication field. Students learn and discuss how communication affects health in diverse settings.

COMM 5600 POLITICAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 5700 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Pr. (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the forms and functions of language in social interaction as they reflect and influence our identity.

COMM 5970 SPECIAL TOPICS IN COMMUNICATION (3) LEC. 3. Pr. COMM 3500 and COMM 3600 and (COMM 3510 or COMM 3610). Topics in Communication. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 6300 SEX, GENDER, AND SPORT (3) LEC. 3. Focuses on sport, as a gendered institution. The course examines intersections of gender with age, sexual orientation, social class, gender identity, race and ethnicity and politics.

COMM 6430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study of gender, work, and communication.

COMM 6470 HEALTH COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study and practice of health communication.

COMM 6500 GLOBAL MEDIA (3) LEC. 3. Global media is focused on the complex global dimensions of media production, distribution and reception.

COMM 6600 POLITICAL COMMUNICATION (3) LEC. 3. This course will examine the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 6700 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Advanced approaches to examining the challenges, problems, and ideal situations of social interaction in interpersonal, group, and institutional contexts. Graduate students only.

COMM 6800 EVERYDAY TALK AND IDENTITY (3) LEC. 3. Examines the building blocks of interpersonal and small group conversation as they combine to reflect and shape identities of self and others.

COMM 6970 SPECIAL TOPICS IN COMMUNICATION (3) AAB/LEC. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities not currently offered in the program. Course may be repeated for credit with change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 7000 COMMUNICATION THEORY (3) LEC. 3. Critical examination of contemporary theories in communication.

COMM 7010 QUALITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Qualitative research in communication; emphasis on understanding and engaging in a variety of qualitative methods.

COMM 7020 QUANTITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Quantitative research in communication; emphasis on understanding and doing empirical research.

COMM 7100 INSTRUCTIONAL COMMUNICATION THEORY & PRACTICE (3) SEM. 3. History, theory, and concepts central to the study and practice of instructional communication.

COMM 7230 RHETORICAL CRITICISM (3) LEC. 3. Advanced methods in rhetorical criticism, including tools for the analysis of persuasive messages.

COMM 7300 APPROACHES TO STUDYING LANGUAGE AND SOCIAL INTERACTION (3) LEC. 3. Major approaches to studying language and social interaction that collectively make up discourse analysis.

COMM 7410 DEVELOPMENT OF RHETORICAL THEORY (3) LEC. 3. Historical survey of rhetorical theory from ancient to contemporary era; special attention to the role of rhetoric in shaping attitudes towards persuasion.

COMM 7420 SEMINAR IN PERSUASION AND ATTITUDE CHANGE (3) LEC. 3. Critical examination of current theory and research in the persuasive act and its effects.

COMM 7430 SEMINAR IN AMERICAN PUBLIC ADDRESS (3) LEC. 3. Investigation of key issues and debates that have emerged in post-World War II America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3) SEM. 3. Analysis of the fundamental theories of argumentation.

COMM 7450 SEMINAR IN INTRAPERSONAL PROCESSES IN COMMUNICATION (3) SEM. 3. Theories of cognitive and affective processing of information during speaking and listening.

COMM 7460 SEMINAR IN INTERPERSONAL COMMUNICATION (3) SEM. 3. Theories of the structure and function of interpersonal (dyadic) communication focusing on conversational behavior, traits, relationships, and persuasion.

COMM 7470 SEMINAR IN SMALL GROUP COMMUNICATION (3) SEM. 3. Advanced study of the principles of communication as they apply to the small group setting.

COMM 7480 SEMINAR IN ORGANIZATIONAL COMMUNICATION (3) SEM. 3. In-depth approach to the study of communication processes within the setting of modern organizations.

COMM 7490 HEALTH COMMUNICATION (3) LEC. 3. Examination and application of social science research approaches to the study of health communication.

COMM 7500 GENDER COMMUNICATION (3) LEC. 3. Exploration of current theories and research on the relationship between communication and gender.

COMM 7600 MASS COMMUNICATION THEORY (3) LEC. 3. Exploration of major areas of concern to the theoretical study of mass communication and the social impact of mediated messages.

COMM 7610 STUDIES IN POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3. Critical approaches to identifying, interpreting and experiencing popular culture texts within historical, cultural and communication contexts.

COMM 7620 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Exploration of critical, theoretical, and organizational issues relevant to programming and the production of culture within mass media environments.

COMM 7630 MEDIA MANAGEMENT (3) LEC. 3. In-depth analysis of current management issues specific to media managers in a multi-cultural world.

COMM 7640 SEMINAR IN FILM THEORY AND CRITICISM (3) SEM. 3. Exploration of classical and contemporary film theories and criticism.

COMM 7660 CULTURAL STUDIES IN MASS MEDIA (3) LEC. 3. Examination of communication research approaches to the study of culture and media.

COMM 7670 CONTEMPORARY ISSUES IN FIRST AMENDMENT LAW (3) LEC. 3. Exploration of controversial issues and cases in First Amendment Law that have been recently decided, are currently before courts, and have shaped the constitutional landscape in the United States.

COMM 7680 SPORTS, MEDIA, AND CULTURE (3) LEC. 3. Cultural implications of the relationship between sports and media.

COMM 7810 PUBLIC RELATIONS THEORY (3) LEC. 3. Current areas of concern in the theoretical study of public relations.

COMM 7820 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Application of public relations and communication concepts to campaign challenges.

COMM 7830 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Examination of research on public relations case studies to provide a theoretical basis for analyzing similar situations in on the job.

COMM 7840 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Theory, concepts, and skills needed to be an effective communication trainer or consultant.

COMM 7850 PUBLIC RELATIONS ETHICS (3) LEC. 3. This course provides a framework for understanding ethics in public relations. We will discuss ethical behavior and thinking within the context of practicing public relations. Topics discussed will include relationships, accountability, responsibility, advocacy, truth, and transparency.

COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research, and reports in general communication, mass communication, or public relations. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS IN COMMUNICATION (3) SEM. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities. Course may be repeated for credit with change in topic.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATION (3-6) LEC. SU. Pr. COMM 7000 and COMM 7010 and COMM 7020. and Minimum 27 graduate hours. Professional experience in communication area of interest. Must include managerial experience. Only 3 hours will apply to the degree. Course may be repeated for a maximum of 6 credit hours.

COMM 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

Communication and Journalism Courses

CMJN 2100 CONCEPTS IN COMMUNICATIONS AND JOURNALISM (3) LEC. 2. LAB. 1. Introduction to the basic principles of various communication forms, the dominant communication theories, and communication industries. May count either CMJN 2100 or CMJN 2103.

CMJN 2910 COMMUNICATION AND JOURNALISM PRACTICUM (1-3) PRA. SU. Departmental Approval. Practical experiences in potential career fields gained while working in professional settings. One to three hours variable credit. Course may be repeated for a maximum of 3 credit hours.

CMJN 3350 VISUAL COMMUNICATION (3) LEC. 3. Visual literacy, cognition, aesthetics, critical evaluation, and technology in human communication, with emphasis on impact of visual media in informative, interpretive, and persuasive message.

CMJN 3550 SPORTS INTERVIEWING (3) LEC. 3. Pr. CMJN 2100. This course examines interviewing techniques in various sport media and technological contexts.

CMJN 3650 RHETORIC OF SPORTS (3) LEC. 3. Learn the role that persuasive messages and social expectations play in sports environments through communication and critical thinking research. May count either CMJN 3650 or COMM 3650.

CMJN 4000 MASS MEDIA LAW AND REGULATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. and junior or senior standing. Laws and regulations that govern journalists, media content and industries.

CMJN 4340 MASS COMMUNICATION AND FAMILY (3) LEC. 3. Examination of the relationship between the American family and the mass communication industry.

CMJN 4370 MASS COMMUNICATION AND RELIGION (3) LEC. 3. Examines the relationship between mass communication and religion. Portrayals and influences will be analyzed.

CMJN 4400 GENDER COMMUNICATION (3) LEC. 3. Learn the critical role gender plays in communication processes as well as skills for navigating difficult issues in organizations and other settings.

CMJN 4430 SPORTS, MEDIA AND SOCIETY (3) LEC. 3. Cultural and professional implications of the relationship between sports and media. May count either CMJN 4430 or JRNL 4430.

CMJN 4970 SPECIAL TOPICS IN COMMUNICATION AND JOURNALISM (3) LEC. 3. Specialized topics related to the study and practice of Communication, Journalism, Media Studies and/or Public Relations. Course may be repeated for a maximum of 6 credit hours.

CMJN 5100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

CMJN 6100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

Journalism Courses

JRNL 1000 FOUNDATIONS OF JOURNALISM (3) LEC. 3. An introduction to the field of journalism; including its role in democracy and society, history, and ethics, with an emphasis on media literacy and professional writing skills. This course replaces JRNL 1100. Credit will not be given for both (JRNL 1AA0/1100/1103) and JRNL 1000.

JRNL 1100 JOURNALISM FUNDAMENTALS (3) LEC. 3. Emphasis on Associated Press Stylebook, word usage, and punctuation for students interested in print, broadcast, public relations, and web-based writing.

JRNL 1AA0 JOURNALISM FUNDAMENTALS ENTRANCE EXAM (0) LAB. 1.5. SU. JRNL 1AA0 is an exam option for students who are required to take JRNL 1100. The course will test students on punctuation, grammar, Associated Press Style and word usage to mirror content covered in the in-person course.

JRNL 2210 NEWSWRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 or JRNL 1000 or PRCM 1000. Introduction to newswriting techniques, with emphasis on learning news values, recognizing parts of a story, and writing stories that meet standards of accuracy, grammar, style, spelling, law, and ethics.

JRNL 2310 REPORTING (3) LEC. 3. Pr. JRNL 2210 or JRNL 2213. Preparation for careers in gathering and telling the news. Course emphasizes the writing of accurate, clear, and meaningful news stories for print and digital formats.

JRNL 3010 BROADCAST & DIGITAL NEWS PRODUCTION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or JRNL 1000 or PRCM 1000). Introduction to the basics of digital video production. Emphasis on techniques used in producing newscasts for broadcast, web and mobile devices.

JRNL 3020 BROADCAST & DIGITAL NEWS REPORTING (3) LEC. 3. Pr. JRNL 2210 and JRNL 3010. Writing and reporting digital news stories on deadline for broadcast, online, social media, and mobile outlets.

JRNL 3100 GLOBAL JOURNALISM AND MEDIA SYSTEMS (3) LEC. 3. The Internet and social media have created a world more connected than ever. Examines the economic, political, technological, and cultural changes that impact media and journalism globally.

JRNL 3110 INTRODUCTION TO APPLIED JOURNALISM (3) LEC. 3. Pr. (JRNL 2310 or JRNL 2313) and (CMJN 2100 or CMJN 2103). Introduction to how a media organization operates; provides an opportunity for students to gain practical, hands-on journalism experience.

JRNL 3220 MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Introduction to writing colorful, human-interest non-fiction pieces that illustrate drama and impact. Students will learn how to pitch their ideas to editors in print and digital markets.

JRNL 3410 PHOTOJOURNALISM (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Uses, techniques, and processes of digital photography for the newspaper, magazine, and web-based industries. Operations of digital SLRs and Photoshop and techniques for variety of assignments are addressed.

JRNL 3470 EDITING AND DESIGN (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Introduction to the basics of design, layout, headline writing, typography, use of color, and selection of images for visual impact. Students will learn how to design news, sports, and magazine layouts, using Adobe InDesign and Photoshop.

JRNL 3510 MULTIMEDIA JOURNALISM (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Introduction to multimedia journalistic storytelling. Reporting and production course where students use various technologies to produce journalism stories for digital platforms.

JRNL 3530 SPORTS REPORTING (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Sports reporting for print, broadcast, and online media, with emphasis on interviewing athletes, covering sporting events, and learning about issues surrounding sports.

JRNL 4230 ADVANCED REPORTING (3) LEC. 3. Pr. (JRNL 2313 or JRNL 2310) and (JRNL 3220 or JRNL 3510 or JRNL 3530 or JRNL 3020). Developing and writing news stories under deadline pressure; investigative and interpretative reporting.

JRNL 4320 ENTREPRENEURIAL JOURNALISM (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or PRCM 1000 or JRNL 1000) and (CMJN 2100 or CMJN 2103). Emphasis on content, advertising, audience, and marketing in news organizations and applying entrepreneurial principles to journalism start-ups.

JRNL 4410 JOURNALISM HISTORY (3) LEC. 3. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues.

JRNL 4470 ADVANCED MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (JRNL 2310 or JRNL 2313) and (JRNL 3220 or JRNL 3223) and (JRNL 3020 or JRNL 3023 or JRNL 3530 or JRNL 3533 or JRNL 3510 or JRNL 3513). Emphasis on creating long-form, non-fiction articles for print and digital publications through graceful and innovative writing techniques and skillful reporting.

JRNL 4490 LITERARY JOURNALISM (3) LEC. 3. Survey course on the best non-fiction produced by journalists.

JRNL 4530 ADVANCED SPORTS REPORTING (3) LEC. 3. Pr. (JRNL 3530 or JRNL 3533). JRNL 4530 provides the capstone course experience for students in the sports journalism emphasis. Students will build skills in areas such as writing long form articles, personality features, enterprise reporting, oral history projects, and comprehensive game coverage, and working with tight deadlines.

JRNL 4850 REPORTING ISSUES OF SOCIAL CHANGE (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or PRCM 1000 or JRNL 1000). Engagement with solutions-based journalism wherein story narratives about people, communities, and societal issues give voice and weight to problems and solutions.

JRNL 4870 COMMUNITY JOURNALISM (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Civic role of community journalists.

JRNL 4920 JOURNALISM INTERNSHIP (3) INT. Pr. JRNL 2310 and (JRNL 3020 or JRNL 3220 or JRNL 3510 or JRNL 3530) and (JRNL 3010 or JRNL 3110 or JRNL 3410 or JRNL 3470). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in JRNL. Requires admission to internship program.

JRNL 4930 DIRECTED STUDIES (1-4) IND. Research and analysis of specific areas of journalism. Course may be repeated for a maximum of 6 credit hours.

JRNL 4970 SPECIAL TOPICS IN JOURNALISM (3) AAB. 3. Pr. JRNL 2210. Study of narrowly defined journalism topics not already covered in the current JRNL curriculum. Course may be repeated for a maximum of 6 credit hours.

Journalism-Sports Production Courses

JRSP 3110 SPORTS MEDIA RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Focuses on the major concepts and theories of the management of sports media relations. Will include discussion of issues, philosophies and cases. May count CMJN 3110 or CMJN 3113 or JRSP 3110.

JRSP 3210 NEWS AND SPORTS ANNOUNCING (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. This class focuses on the theory and practical technique of studio and field announcing. Primary emphasis will be placed on announcing for news and sports. Additional attention will be given to voice over announcing. May count either CMJN 3210 or JRSP 3210.

JRSP 3410 INTRODUCTION TO SPORTS VIDEO PRODUCTION (3) LEC. 2, DSL/LST. 1. Introduction to multi-camera live sports production, video and audio editing techniques, how to operate equipment, create basic animated graphics, learn work crew positions and understand a script. Students will complete work for the SEC Network and War Eagle Productions. May count CMJN 3410 or JRSP 3410.

JRSP 3510 CONTROL ROOM OPERATIONS (3) LEC. 3. Pr. JRSP 3410 or CMJN 3410 or CMJN 3413. Introduction to various control room positions and equipment associated with a live broadcast. Students will learn the skills needed to set up, adjust and operate production equipment before and during broadcasts. May count CMJN 3510 or JRSP 3510.

JRSP 4320 SPORTS MEDIA MANAGEMENT (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Addresses principles and practices of managing sports media properties across multiple platforms. May count JRSP 4320 or CMJN 4320.

JRSP 4410 ADVANCED SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Pr. (CMJN 2100 or CMJN 2103) and (CMJN 3410 or CMJN 3413 or JRSP 3410). This course is designed to give students in-depth training that covers advanced video editing techniques and effects. In addition, students will gain experience with advanced camera operation and techniques, focusing on high-quality production throughout the process. May count CMJN 4410 or JRSP 4410.

JRSP 4510 SPORTS STORYTELLING & VIDEO PROFILES (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (CMJN 3410 or JRSP 3410 or CMJN 3413) and (JRNL 2210 or JRNL 2213). Technology has changed the landscape of how sports stories are seen and ingested today. Students will explore the art of sports storytelling and learn the foundational skills needed to effectively use cameras, lighting, editing equipment and other industry-standard tools to tell a visual story. May count CMJN 4510 or JRSP 4510.

JRSP 4610 LIVE SPORTS PRODUCING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213) and (CMJN 3510 or JRSP 3510). Students will learn how to produce live events for broadcast and in-venue video boards. Students will gain the necessary knowledge and skills for producing a high-quality live event. This includes preparation, decision making skills and industry-standard terminology. May count CMJN 4610 or JRSP 4610.

JRSP 4920 JOURNALISM SPORTS PRODUCTION INTERNSHIP (3) INT. Pr. JRSP 3410 and JRSP 3510. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in JRSP. Requires admission to internship program.

JRSP 4970 SPECIAL TOPICS IN JOURNALISM: SPORTS PRODUCTION (3) LEC. 3. Specialized topics related to the study and practice of sports media production. Course may be repeated for a maximum of 6 credit hours.

Media Studies Courses

MDIA 2350 INTRODUCTION TO FILM STUDIES (3) LEC. 2. LAB. 2. Introduction to film analysis, modes of film practice and critical approaches to the study of cinema. May count either MDIA 2350/MDIA 2353.

MDIA 3210 SOUNDTRACKS, MUSIC AND MEDIA (3) LEC. 3. Historical, artistic, sociocultural and economic contexts of music and media.

MDIA 3300 FOUNDATION OF MEDIA STUDIES (3) LEC. 2. LAB. 2. Pr. MDIA 2350 or MDIA 2353. This is a foundational course that provides students with a survey of the key theoretical approaches to studying the cultural, social, political and economic dimensions of entertainment media.

MDIA 3310 HISTORY OF NEW AND EMERGING MEDIA (3) LEC. 3. This course examines the origins and development of the Internet and related platforms including USENET, the World Wide Web, and social media. In the process, the course addresses many of the social, political, economic, and industrial implications that have accompanied the use of the Internet as a communication technology.

MDIA 3320 GENDER AND SEXUALITY IN MEDIA (3) LEC. 2. LAB. 2. Examines the relationship between gender, sexuality, identity and the media, from the perspective of key theories, representation, audience engagement and industry.

MDIA 3360 AUDIO STORYTELLING AND PODCASTING (3) STU. 3. Students will gain hands-on experience in producing audio stories and in designing and producing podcasts.

MDIA 3370 GLOBAL MEDIA (3) LEC. 2. LAB. 2. Global media is focused on the complex global dimensions of media production, distribution and reception, with a primary focus on entertainment media.

MDIA 3580 REPRODUCING POPULAR CULTURE (3) LEC. 3. Postmodern study on the widespread recycling of media artifacts. May count either MDIA 3580 or MDIA 3583 or RTVF 3580.

MDIA 3600 FILM GENRES (3) LEC. 2. LAB. 2. A critical examination of popular film genres and how they have been used historically within the film industry, film studies, media criticism and popular culture.

MDIA 3650 MEDIA INDUSTRIES (3) LEC. 2. LAB. 2. The course provides students a comprehensive overview of how the media industries work, why they work as they do, and the broader theoretical and practical implications of the media industries.

MDIA 3700 AUDIENCES AND FAN CULTURE (3) LEC. 2. LAB. 2. This course explores theories of the audience in media and cultural studies, the history of studying media audiences, while also considering contemporary scholarship, technology, identity and fan communities.

MDIA 3750 RACE AND AMERICAN FILM HISTORY (3) LEC. 2. LAB. 2. A critical examination of the historical and social constructions of race and ethnicity in popular U.S. films.

MDIA 3970 SPECIAL TOPICS (3) AAB. 3. Topics in Media Studies at the intermediate level. Course may be repeated for a maximum of 6 credit hours.

MDIA 4200 TV HISTORY (3) LEC. 2. LAB. 2. An examination of the development and evolution of U.S. television broadcasting as an art form, industry and social institution from the early twentieth century to the present day.

MDIA 4210 POPULAR CULTURE STUDIES (3) LEC. 3. Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes. Declared major in AGCO, COMM, JRNL, JRSP, MDIA or PRCM.

MDIA 4250 SCREEN CULTURE (3) LEC. 2. LAB. 2. A critical study of the historical development and the cultural meanings of dominant screen technologies (film screens, TVs, computer screens, mobile devices).

MDIA 4300 MEDIA PROGRAMMING (3) LEC. 3. Introduces organizational concepts, strategies, processes, and frameworks for programming in various media systems, including broadcast, cable and streaming sources.

MDIA 4310 MEDIA AND SOCIETY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of the relationship between the mass communication industry and a mass society. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4350 TELEVISION CRITICISM (3) LEC. 3. LAB. 1. This course prepares students to critically analyze television with a deep study of the aesthetics of television coupled with an overview of critical approaches to television research.

MDIA 4390 FILM AUTHORS (3) LEC. 2. LAB. 2. In-depth study of one or more filmmakers important to the development of film as a popular art form. Declared major in AGCO, COMM, JRNL, JRSP, MDIA or PRCM.

MDIA 4400 ADVERTISING AND CONSUMER CULTURE (3) LEC. 2. LAB. 2. This course is a critical examination of the relationship between the advertising industries and the media industries and how they have influenced each other as well as mainstream US culture.

MDIA 4420 HISTORY OF MEDIA TECHNOLOGY (3) LEC. 3. History of media technology from 18th-21st centuries.

MDIA 4500 CULTURE AND TECHNOLOGY (3) LEC. 3. This course explores the complex interrelations, issues and impacts between culture and technology through a range of interdisciplinary academic, professional and global settings, contexts and texts.

MDIA 4580 FAME, CELEBRITY, AND MEDIA CULTURE (3) LEC. 3. Examination of celebrity and fame as distinguishing cultural phenomena.

MDIA 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (MDIA 3300 or MDIA 3303). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in MDIA or MDIV/MFLM. Requires admission to internship program.

MDIA 4930 DIRECTED STUDIES (3) IND. 3. Pr. MDIA 3300 or MDIA 3303. Study of narrowly-defined MDIA topic not already covered in the MDIA curriculum and under the direction of an MDIA faculty. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV/MFLM or PRCM. May count either MDIA 4930 or MDIA 4933 or MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

MDIA 4970 SPECIAL TOPICS (3) LEC. 3. Topics in Media Studies at the advanced level. Course may be repeated for a maximum of 6 credit hours.

MDIA 5500 GLOBAL MEDIA (3) LEC. 3. LAB. 0, SEM. 0. Pr. MDIA 2350 and MDIA 3300. Global media is focused on the complex global dimensions of media production, distribution and reception, situated within the study of critical theory.

Media Studies - Film Courses

FILM 2420 INTRODUCTION TO FILMMAKING (3) DSL/STU. 3. A studio course introducing students to the theory and practice of cinematography and editing for the short film.

FILM 2700 INTRODUCTION TO VISUAL MEDIA (3) DSL/STU. A studio course introducing students to concepts and techniques of digital image-making for the short film.

FILM 3100 INTERMEDIATE FILMMAKING (3) DSL/STU. 3. Pr. (MDIA 2420 or FILM 2420) and (MDIA 2700 or MDIA 2703 or FILM 2700). An intermediate studio course in which students develop sound design skills for the short film.

FILM 3110 CINEMATOGRAPHY (3) STU. 3. Pr. (MDIA 2420 or FILM 2420) and (MDIA 2700 or FILM 2700). An intermediate studio course in which students explore the art of filmmaking through methods and techniques of cinematography for the short film. The course structure will emphasize short scene studies which focus on visual outcomes including cameras technology, motion, lighting, composition and post-production.

FILM 3120 FILM EDITING (3) STU. 3. Pr. (MDIA 2700 or FILM 2700) and (MDIA 2420 or FILM 2420). An intermediate studio course in which students explore the theory and practice of editing for the short film.

FILM 3350 SCREENWRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (MDIA 2350 or MDIA 2353). A writing course introducing students to the basic concepts of screen storytelling and the craft of turning story ideas into screenplays.

FILM 3820 SEQUENCE DESIGN (3) STU. 3. A studio course in which students develop animation skills for title design.

FILM 4600 ADAPTATION FOR THE SHORT FILM (3) LEC. 3. Pr. MDIA 3100 or MDIA 3103 or FILM 3100. A survey of ways in which film can be adapted from pre-existing sources to create new works that stand on their own. Declared major in AGCO, COMM, JRNL, MDIA, MDIV/MFLM or PRCM. May count either MDIA 4600 or MDIA 4603 or RTVF 4600.

FILM 4940 FILM PROJECTS (3) DSL/STU. 3. Pr. MDIA 3100 or MDIA 3103 or FILM 3100. Capstone course in which students work as a team on an advanced film project.

Public Relations Commu Courses

PRCM 1000 PR AND MEDIA RELATIONS FUNDAMENTALS (3) DSL/LEC. Introduction to the public relations discipline, including its history, theory, ethics and its relationship to media relations, with an emphasis on developing fundamental public relations writing skills.

PRCM 2400 FOUNDATIONS OF PUBLIC RELATIONS (3) LEC. 3. This course is designed to be an overview of the functions, practices and growing application of public relations in both private industry and the public sector.

PRCM 2500 PUBLIC RELATIONS CASE STUDIES & ETHICS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. This is a course designed to provide Public Relations students with an understanding of both effective and ineffective methods of PR through studying actual cases from the field itself with special attention given to the ethical aspect of decision making.

PRCM 3000 MULTIMEDIA WRITING FOR PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2500 or PRCM 2503) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). PRCM or AGCO major only. This course will have an emphasis on communication tactics; plan, write and produce public relations tools; audience and media selection; print and electronic media.

PRCM 3080 INTERNATIONAL PUBLIC RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Exploration of public relations theory, research, and practice in an international context.

PRCM 3090 PUBLIC RELATIONS IN POLITICAL PROCESSES (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Surveys of the intersection of politics and public relations, emphasizing theoretical and practical principles in political processes.

PRCM 3260 STRATEGIC COMMUNICATION IN PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or PRCM 1000 or JRNL 1103 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). PRCM or AGCO majors only. Framework for the strategy and integration of messages within public relations.

PRCM 3270 PUBLIC RELATIONS IN THE NOT-FOR-PROFIT ARENA (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Nonprofit organizations and foundations and the role of public relations within those organizations.

PRCM 3280 SOCIAL MEDIA AND PUBLIC RELATIONS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). Declared major in AGCO or PRCM. Examination of how new social media impact public relations strategies.

PRCM 3450 DIGITAL MEDIA ANALYTICS (3) LEC. 3. Pr. (PRCM 2400 or PRCM 2403). This course prepares students with essential skills and knowledge to understand the power of digital media analytics in today's digital landscape.

PRCM 4020 DIGITAL STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503). PRCM or AGCO major only. Introduction to the use of style and design in public relations messages. Departmental approval or Declared major in AGCO or PRCM.

PRCM 4400 PUBLIC RELATIONS RESEARCH (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2500 or PRCM 2503) and (PRCM 2400 or PRCM 2403). PRCM or AGCO major only. Identifying, characterizing and evaluating stakeholder groups and alternative channels of communication; formal research procedures including sampling, instrument design, information gathering, data processing, analysis and reporting.

PRCM 4500 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2500 or PRCM 2503) and (PRCM 2400 or PRCM 2403) and PRCM 3000 and PRCM 4400. Application of theory, research data, and problem-solving techniques in the development of comprehensive public relations strategies.

PRCM 4920 INTERNSHIP (3) AAB/INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 3000 or PRCM 3003). Opportunity to apply classroom experience in career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

PRCM 4930 DIRECTED STUDIES IN PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 3040 or PRCM 3043 or PRCM 2400 or PRCM 2403). Independent Study on a specific topic of interest not already addressed in any regular PRCM course.

PRCM 4970 SPECIAL TOPICS IN PUBLIC RELATIONS (3) LEC. 3. Pr. (PRCM 2500 or PRCM 2503). Focus on narrowly defined PRCM topics not already covered in the current PRCM curriculum. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

Communication (COMM)

Students must apply for admission to the COMM major. Before applying, students must:

- Complete CMJN 2100 with a C or better.
- Complete COMM 1000 with a C or better.
- Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and proficiency credits) and be a student in good standing at the time of the application.
- In a well written, 300-word essay, discuss: 1) What interests you about human communication; 2) What you would like to learn more about; and 3) What specific Communication courses would help you achieve your educational and career goals? Please be specific in your response and provide examples (i.e., list specific skills, name specific classes).
- Students who transfer to Auburn University may apply to the COMM major, but must complete at least one semester at Auburn University before admission.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	Foreign Language II (College Core)	4
Foreign Language I (College Core)	4	Core Social Studies or History to complete sequence[3]	3
COMM 1000 Public Speaking	3	ENGL 1120 English Composition II	3
Core Social Science	3	Elective	3
Core History[3]	3	Core Mathematics	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[3]	3	Core Humanities or Core Literature to complete sequence[3]	3
Core Science I	4	Core Science II	4
Core Social Studies	3	Core Fine Arts	3

CMJN 2100 Concepts in Communications and Journalism	**3**	**Course from Group 1[2]**	**3**
LBAR 2010 Liberal Arts Careers Preparation	2	Course for Supporting Area[1]	3
	15		**16**

Junior

Fall	Hours	Spring	Hours
COMM 3500 Foundations of Human Communication	**3**	**COMM 3600 Foundations of Rhetoric and Social Influence**	**3**
Course for Supporting Area[1]	3	**Courses from Group 2[2]**	**6**
Elective	3	Course for Supporting Area[1]	3
Course from Group 2[2]	**3**	Elective	3
COMM 3510 Research in Human Communication *or* 3610 Research in Rhetoric and Social Influence	**3**		
	15		**15**

Senior

Fall	Hours	Spring	Hours
Courses from Group 3[2]	**6**	**Courses from Group 3[2]**	**6**
Courses from Group 4[2]	**6**	**COMM 4920 Internship**	**3**
Course for Supporting Area[1]	3	Course for Supporting Area[1]	3
		UNIV 4AA0 Achieve the Creed	0
	15		**12**

Total Hours: 120

1 Students must see their advisers for approved Supporting Area courses.
2 Students must see their advisers for approved course listings for Groups 1, 2, 3, and 4.
3 Students are required to take at least one Core History and one Core Literature course. They are also required to take a second course from either Core History or Core Literature to complete the two-course sequence.

Communication Minor

Code	Title	Hours
CMJN 2100	Concepts in Communications and Journalism	3
Select one of the following:		3
COMM 3500	Foundations of Human Communication	
COMM 3600	Foundations of Rhetoric and Social Influence	
Additional twelve hours of courses in COMM.		12
Total Hours		**18**

1 Minimum 9 hours at 3000-level or above
2 Students must earn at least a 2.0 in the minor to successfully complete it.

See advisor for approved list of courses and suggested emphasis areas.

Film and Media Studies (FMDA)

Students must apply for admission to the FMDA major. Before applying, students must:

1. Complete CMJN 2100 with a C or better.
2. Complete MDIA 2350 with a C or better.
3. Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and proficiency credits) and be a student in good standing at the time of the application.
4. In a well written 300-word essay, choose any example of a popular film, TV show, popular song, etc., that you find interesting and explain why you find it significant. Next, in 3-5 sentences, tell us what you hope to learn in the FMDA/FILM program and how the program fits with your academic and professional goals. Please be specific in your response and provide examples when answering each question.
5. Students who transfer to Auburn University may apply to the FMDA/FILM major but must complete at least one semester at Auburn University before admission.

Freshman

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking[1]	3	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Social Science	3
Core Social Science	3	Foreign Language II (College Core)	4
Foreign Language I (College Core)	4	Core Mathematics	3
Core History	3	Core Humanities	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
CMJN 2100 Concepts in Communications and Journalism	**3**	**MDIA 2350 Introduction To Film Studies**	**3**
LBAR 2010 Liberal Arts Careers Preparation	2	Core Science II	4
Core Science I	4	Core History	3
Core Literature	3	Supporting coursework[2]	6
Supporting coursework[2]	3		
	15		**16**

Junior

Fall	Hours	Spring	Hours
FILM 2420 Introduction to Filmmaking ***or*** 2700 Introduction to Visual Media	3	**Major Electives[3]**	**12**
MDIA 3300 Foundation of Media Studies	**3**	Supporting coursework[2]	3
Major Electives[3]	**3**		
Core Fine Arts (Other than MDIA 2350 Introduction to Film Studies)	3		
Supporting coursework[2]	3		
	15		**15**

Senior

Fall	Hours	Spring	Hours
Major Electives[3]	**9**	**MDIA 4920 Internship**	**3**
Elective courses[2]	6	**Major Electives[3]**	**9**

		UNIV 4AA0 Achieve the Creed	0
	15		**12**

Total Hours: 120

1 COMM 1000 fulfills SLO 7.
2 Students must meet with their advisers to determine appropriate electives and courses for their supporting coursework.
3 Students must meet with their advisor to identify approved Major Electives. Students will complete 33 total hours from the approved list with at least 27 of those hours from Group 1.

Film and Media Studies — Film Option (FILM)

Students must apply for admission to the major. Before applying, students must:

1. Complete CMJN 2100 with a C or better.
2. Complete MDIA 2350 with a C or better.
3. Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and proficiency credits) and be a student in good standing at the time of the application.
4. In a well written 300-word essay, choose any example of a popular film, TV show, popular song, etc., that you find interesting and explain why you find it significant. Next, in 3-5 sentences, tell us what you hope to learn in the FMDA/FILM program and how the program fits with your academic and professional goals. Please be specific in your response and provide examples when answering each question.
5. Students who transfer to Auburn University may apply to the major but must complete at least one semester at Auburn University before admission.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	**MDIA 2350 Introduction To Film Studies**	**3**
Core Math	3	ENGL 1120 English Composition II	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
Core Social Science	3	Core Social Science	3
Core History	3	Core History to complete sequence	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking[1]	3	LBAR 2010 Liberal Arts Careers Preparation (College Core)	2
CMJN 2100 Concepts in Communications and Journalism	**3**	FILM 2700 Introduction to Visual Media	3
FILM 2420 Introduction to Filmmaking	3	Supporting Coursework[2]	3
Core Literature	3	Core Humanities	3
Core Science	4	Core Science	4
	16		**15**

Junior

Fall	Hours	Spring	Hours
CMJN 3350 Visual Communication	**3**	FILM 3110 Cinematography	3
FILM 3100 Intermediate Filmmaking	3	**Major Electives[3]**	**6**
MDIA 3300 Foundation of Media Studies	**3**	Supporting Coursework[2]	3

Supporting Coursework[2]	3	FILM 3350 Screenwriting	3
Core Fine Arts (Other than MDIA 2350)[3]	3		
	15		**15**

Senior

Fall	Hours	Spring	Hours
Major Electives[3]	**6**	**MDIA 4920 Internship**	**3**
FILM 3120 Film Editing	3	Supporting Coursework[2]	6
FILM 4940 Film Projects	3	Elective Course[2]	6
		UNIV 4AA0 Achieve the Creed	0
	12		**15**

Total Hours: 120

1 COMM 1000 fulfills SLO7.
2 Students must meet with their advisers to determine appropriate electives and courses for their supporting coursework.
3 Students must meet with their advisor to identify approved Major Electives. Students will complete 12 total hours from the approved list with at least 6 of those hours from Group 1.

Intercultural Communication Minor

Minor in Intercultural Communication

The 18 hour Intercultural Communication minor is designed to provide students with a comprehensive understanding of the nature of communication and culture in order to prepare them for living and working in a diverse and complex society. The minor is open to all undergraduates students with the exception of those majoring in programs housed within the School of Communication and Journalism.

Required Courses (6 hours):

Code	Title	Hours
CMJN 2100	Concepts in Communications and Journalism Required	3
COMM 3450	Intercultural Communication Required	3

Electives (12 hours)

Code	Title	Hours
Group 1: See advisor for approved course list.*		6
Group 2: See advisor for approved course list.*		6

*at least nine hours from Group 1 & Group 2 must be at the 3000 level or higher.

Note: If a student has taken a course to fulfill requirements of the School/College core or the major, it cannot count toward the minor. In this case, the student must select an additional three hour course from the approved list of courses. Students must earn at least a 2.0 in the minor to successfully complete it.

Total Hours: 18

Journalism (JRNL)

Journalism (JRNL) or Sports Production (JRSP)

Students must apply for admission to the JRNL /JRSP major.

Before applying, students must:

- Complete CMJN 2100 with a C or better.
- Complete the fundamentals class:
  - If the student applies Fall 2023 or later, the student must complete JRNL 1000 with a “C” or better.
  - If the student applies prior to Fall 2023, the student must complete JRNL 1AA0 or JRNL 1100 with a “C” or better.

- Complete JRNL 2210 with a “C” or better.
- Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and proficiency credits) and be a student in good standing at the time of the application.
- In a well written a 300-word essay, free of spelling and grammar errors, explain how the Journalism program fits with your academic and professional goals.
- Students who transfer to Auburn University may apply to the JRNL major but must complete one semester at Auburn University before applying for admission.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History[1]	3	COMM 1000 Public Speaking	3
Core Social Science	3	Core Social Science or Core History to complete sequence[1]	3
Core Math	3	Foreign Language II (College Core)	4
Foreign Language I (College Core)	4	**JRNL 1000 Foundations of Journalism**	**3**
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Humanities or Core Literature to complete sequence [1]	3
Core Science I	4	Core Science II	4
Core Fine Arts	3	Core Social Science	3
JRNL 2210 Newswriting	**3**	**JRNL 2310 Reporting**	**3**
CMJN 2100 Concepts in Communications and Journalism	**3**	LBAR 2010 Liberal Arts Careers Preparation (College Core)	2
	16		**15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
Courses from Journalism Groups 1, 2, or 3[2]	**9**	**Courses from Journalism Groups 1, 2, or 3[2]**	**9**	**JRNL 4920 Journalism Internship**	**3**
Electives[3]	6	Electives[3]	6		
	15		**15**		**3**

Senior

Fall	Hours	Spring	Hours
CMJN 4000 Mass Media Law and Regulation	**3**	**Courses from Journalism Groups 3 or 4[2]**	**6**
Course from Journalism Groups 3 or 4[2]	**6**	Electives[3]	6
Electives[3]	3	UNIV 4AA0 Achieve the Creed	0
	12		**12**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.
2 Students should meet with their advisers about appropriate courses from Groups 1, 2 and 3.
3 Electives must be selected from courses outside the School of Communication and Journalism. Students must see their advisers for appropriate electives.

Journalism Minor

The minor in journalism introduces students to the role of the news media in American society and the basic skills necessary for the practice of the field. The minor is open to all undergraduate students.

Code	Title	Hours
Required Courses		
JRNL 1000	Foundations of Journalism	3
CMJN 2100	Concepts in Communications and Journalism	3
JRNL 2210	Newswriting	3
Select 9 additional hours from JRNL.		9
Total Hours		**18**

1 Students must earn at least a 2.0 in the minor to successfully complete it.
2 If a student has taken a course to fulfill requirements of the College or School core/major, it cannot count toward the minor. In this case, the student must select an additional three hour course from the approved list of courses.
3 This minor requires 9 hours of foundations course work and 9 hours of course work at the 3000 level and above. Students must talk with their advisers to identify appropriate area course work and ensure that they meet the prerequisites for each course.

Journalism — Sports Production Option (JRSP)

Journalism (JRNL) or Sports Production (JRSP)

Students must apply for admission to the JRNL /JRSP major.

Before applying, students must:

- Complete CMJN 2100 with a C or better
- Complete the fundamentals class:
  - If the student applies Fall 2023 or later, the student must complete JRNL 1000 with a “C” or better
  - If the student applies prior to Fall 2023, the student must complete JRNL 1AA0 or JRNL 1100 with a “C” or better
- Complete JRNL 2210 with a “C” or better
- Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and proficiency credits) and be a student in good standing at the time of the application.
- In a well written a 300-word essay, free of spelling and grammar errors, explain how the Journalism program fits with your academic and professional goal.
- Students who transfer to Auburn University may apply to the JRNL major but must complete one semester at Auburn University before applying for admission.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History[1]	3	COMM 1000 Public Speaking[2]	3
Core Social Science	3	Core Social Science or Core History to complete sequence[1]	3
Core Math	3	Foreign Language II (College Core)	4

Foreign Language I (College Core)	4	**JRNL 1000 Foundations of Journalism**	**3**
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Humanities or Literature to complete sequence[1]	3
Core Science I	4	Core Science II	4
Core Fine Arts	3	Core Social Science	3
JRNL 2210 Newswriting	**3**	LBAR 2010 Liberal Arts Careers Preparation (College Core)	2
CMJN 2100 Concepts in Communications and Journalism	**3**	**JRSP 3410 Introduction to Sports Video Production**	**3**
	16		**15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
JRSP 3510 Control Room Operations	**3**	**Course from Journalism Group 1 or 2[2]**	**9**	**JRSP 4920 Journalism Sports Production Internship**	**3**
Course from Journalism Group 1 or 2[2]	**6**	Electives[3]	6		
Electives[3]	6				
	15		**15**		**3**

Senior

Fall	Hours	Spring	Hours
CMJN 4000 Mass Media Law and Regulation	**3**	**Course from Journalism Group 1, 2, or 3[2]**	**6**
Course from Journalism Group 1, 2, or 3[2]	**6**	Electives[3]	6
Electives[3]	3	UNIV 4AA0 Achieve the Creed	0
	12		**12**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

2 Students should meet with their advisers about appropriate courses from Groups 1, 2 and 3.

3 Electives must be selected from courses outside the School of Communication and Journalism. Students must see their advisers for appropriate electives.

Media Studies Minor

The 18-hour minor in Media Studies provides students with an in-depth study of film, television, music, and digital media. The minor is open to all undergraduate students.

Code	Title	Hours
Required Courses:		**9**
CMJN 2100	Concepts in Communications and Journalism	

MDIA 2350	Introduction To Film Studies	
MDIA 3300	Foundation of Media Studies	
And nine additional hours in MDIA at 3000 level or higher:		**9**
Total Hours		**18**

Footnotes

[1] Students must earn at least a 2.0 in the minor to successfully complete it.

[2] If a student has taken a course to fulfill requirements of the College or School core/major, it cannot count toward the minor. In this case, the student must select an additional three hour MDIA course.

[3] Students should visit with their advisers to identify appropriate area course work and ensure that they meet the prerequisites for each course.

Public Relations (PRCM)

Students must apply for admission to the PRCM major.

- Complete CMJN 2100 with a C or better.
- Students must complete their foundations class.
  - Students who began Auburn Fall 2023 or later must complete PRCM 1000 with a “C” or better.
  - Students enrolled at Auburn prior to Fall 2023 must complete JRNL 1AA0 or JRNL 1100 with a “C” or better, or PRCM 1000 with a “C” or better.
- Complete PRCM 2400 with a “C” or better.
- Successfully complete 30 hours of degree-applicable course credits (including transfer, AP, and proficiency credits) and be a student in good standing at the time of the application.
- In a well written 300-word essay, explain how you expect to contribute to the field of Public Relations and your specific career goals.
- Students who transfer to Auburn University may apply to the PRCM major but must complete at least one semester at Auburn University before admission.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History[1]	3	Core Social Science	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
Core Mathematics	3	PRCM 1000	3
COMM 1000 Public Speaking	3	Core Social Science or Core History to complete sequence[1]	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Science II	4
Core Science I	4	LBAR 2010 Liberal Arts Careers Preparation (College Core)	2
CMJN 2100 Concepts in Communications and Journalism	**3**	Core Humanities or Core Literature to complete sequence[1]	3
Core Social Science	3	**JRNL 2210 Newswriting**	**3**

PRCM 2400 Foundations of Public Relations		**3**	**PRCM 2500 Public Relations Case Studies & Ethics**	**3**
		16		**15**

Junior

Fall	Hours		Spring	Hours	
PRCM 3000 Multimedia Writing for Public Relations		**3**	**PRCM 3260 Strategic Communication in Public Relations**		**3**
Course from Group 2[2]		**6**	**PRCM 4020 Digital Style and Design in Public Relations Messages**		**3**
Supporting Course Work[3]		3	**Course from Group 1**[2]		**3**
Core Fine Arts		3	**Course from Group 2**[2]		**3**
			Supporting Course Work[3]		3
		15			**15**

Senior

Fall	Hours		Spring	Hours	
PRCM 4400 Public Relations Research		**3**	**PRCM 4500 Public Relations Campaigns**		**3**
Course From Group 2[2]		**3**	**PRCM 4920 Internship**		**3**
Elective		6	Supporting Course Work[3]		3
Supporting Course Work[3]		3	Elective		3
			UNIV 4AA0 Achieve the Creed		0
		15			**12**

Total Hours: 120

1 Students are required to complete a two-course history sequence *or* a two-course literature sequence. They are also required to complete at least one Core History *or* one Core Literature course in the area not selected as the sequence.

2 Students should meet with their advisors about appropriate courses from Groups 1 and 2.

3 Students should meet with their advisors to identify Supporting Courses.

Public Relations Minor

The 18 hour Public Relations minor is designed to provide students with a comprehensive understanding of essential elements of the public relations process. The minor is open to all undergraduate students.

Code	Title	Hours
PRCM 1000	PR and Media Relations Fundamentals	3
CMJN 2100	Concepts in Communications and Journalism	3
PRCM 2400	Foundations of Public Relations	3
Three Additional Courses in PRCM (3000 and higher) [1]		9
Total Hours		**18**

1 Students must earn a GPA of at least 2.0 to successfully complete the minor.

2 If a student has taken a course to fulfill requirements of the College or School core/major, it cannot count toward the minor. In this case, the student must select an additional three hour course from the approved list of courses.

3 Students should visit with their advisers to identify appropriate area course work and ensure that they meet the prerequisites for each course.

Sport Communication Minor

The 18 hour minor in sport communication examines the role and place of sports in society and introduces students to sports production techniques. The minor is open to all undergraduate students.

Code	Title	Hours
CMJN 2100	Concepts in Communications and Journalism	3
JRSP 3410	Introduction to Sports Video Production	3
JRSP 3510	Control Room Operations	3
An additional 9 hours from CMJN and JRSP courses at the 3000 level and higher.		9
Total Hours		**18**

1 Students must earn at least a 2.0 in the minor to successfully complete it.

2 If a student has taken a course to fulfill requirements of a College or School core/major, it cannot count toward the minor. In this case, the student must select an additional three hour course.

3 Students must visit with their advisor to identify appropriate area course work and ensure that they meet the prerequisites for each course.

Department of Economics

Majors in the Department of Economics pursue careers in business, banking and finance, government, and consulting. They are also prepared to enter graduate or professional programs in economics, law, business, or public policy. The department offers a Bachelor of Science in Economics with a primary and a quantitative track. The primary track requires students to complete a minor outside of the Department of Economics. The quantitative track is intended for students with a strong interest in pursuing graduate education in economics, and it requires additional mathematics and statistics courses. Students should check with a departmental adviser for requirements in the quantitative track.

Students must maintain at least a 2.0 GPA in major courses to graduate.

Majors

- Economics — Primary Track (p. 1019)
- Economics — Quantitative Track (p. 1020)

Minor

- Economics (p. 1019)

Courses

ECON 2020 PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2027 HONORS PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2030 PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy. May count either ECON 2030 or ECON 2033.

ECON 2037 HONORS PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy.

ECON 3020 INTERMEDIATE MICROECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theory of pricing under varying market conditions and distribution of income among the factors of production.

ECON 3030 INTERMEDIATE MACROECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. A study of national economic aggregates and the market determination of output, employment, and inflation. Introduction to economic monetary and fiscal policy on the economy.

ECON 3040 CONSUMER ECONOMICS (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) or (ECON 2030 or ECON 2033 or ECON 2037). A broad study of consumer economics at both the household level and the national consumption aggregates.

ECON 3100 LAW AND ECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Description of the many substantive areas in which law has an economics foundation and an analysis of how law affects economic relations.

ECON 3200 MONEY AND BANKING (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Theoretical and institutional analyses of monetary systems, foreign exchange, and commercial banking.

ECON 3300 ECONOMICS OF SPORTS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Economic analysis of professional and collegiate sports, including the structure of competition and performance in individual and team sports.

ECON 3400 AMERICAN ECONOMIC HISTORY I (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ECON 2030 or ECON 2033 or ECON 2037). Examines development of the American economy from colonial history to present. Topics include changes in institutions, the standard of living, income distributions, social mobility, labor markets, demographic structure, technological development, and the financial system.

ECON 3420 AMERICAN ECONOMIC HISTORY II (3) LEC. 3. Pr. ECON 2020. This class will study the history of American business cycle fluctuations with extended discussions of the Great Depression and the Great Recession. A point of emphasis in this class will be on the importance of data construction in interpreting historical economic events.

ECON 3500 COMPARATIVE ECONOMIC SYSTEMS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Analysis of alternative government approaches to solving basic economic problems.

ECON 3600 MATHEMATICAL METHODS FOR ECONOMISTS (3) LEC. 3. Pr. ECON 3020 and (MATH 1690 or MATH 2630 or MATH 2637). Fundamental mathematical and quantitative methods employed by economists. Application of calculus, probability, statistics, and linear algebra to economics.

ECON 3700 HISTORY OF ECONOMIC THOUGHT (3) LEC. 3. Pr. ECON 2030 or ECON 2037. Development of economic ideas, principles and systems of analysis from early times to the present.

ECON 3800 PUBLIC CHOICE (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic analysis of public sector decision making. Emphasis on actions taken by voters, bureaucrats, and lobbyists elected to influence public sector outcomes.

ECON 4000 ECONOMICS OF WORK AND PAY (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theoretical and institutional examination of the labor market, including wage theories, unionism, occupational choice, and public policy.

ECON 4100 INDUSTRIAL ORGANIZATION (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Relationship of market structure to the pricing behavior and economic performance of firms. Topics include regulation, research and development, and technical change.

ECON 4200 GOVERNMENT, BUSINESS AND SOCIETY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or ECON 2020 or ECON 2023 or ECON 2027. Economic role of government in a free enterprise economy. Application of microeconomic theory to policy issues, particularly antitrust and regulation.

ECON 4300 INTERNATIONAL ECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic consequences of free trade, including identification and measurement of gains and losses. Analysis of trade restrictions, such as quotes, tariffs, VERs. Examination of labor and capital movements between nations.

ECON 4600 ECONOMETRICS I (4) LEC. 3. LAB. 1. Pr. ECON 3600 and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3600 or PSYC 2130 or PSYC 2133 or BUAL 2600 or BUAL 2603). Basic statistical toolbox to analyze economic data and evaluate economic models. Topics include simple and multivariate linear regressions, maximum likelihood estimation, serial correlation and heteroscedasticity, simultaneous equations, qualitative response models, and basic time series.

ECON 4920 INTERNSHIP (1-3) AAB/INT. SU. Pr. (ECON 2030 or ECON 2033 or ECON 2037) or departmental approval. Course may be repeated for a maximum of 3 credit hours.

ECON 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

ECON 4970 SPECIAL TOPICS (1-3) AAB/IND. SU. Pr., Departmental approval. Investigation and research into economic problems of special interest to the student and instructor. Course may be repeated for a maximum of 6 credit hours.

ECON 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

ECON 5020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617) or Departmental approval. Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty, and strategic behavior.

ECON 5030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 5100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Cause and effects of economic growth and development, for example, ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 5400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 5600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.

ECON 5700 HEALTH ECONOMICS (3) LEC. 3. Pr., Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 5800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr., Departmental approval. The economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 6020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617). Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty and strategic behavior.

ECON 6030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 6100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Causes and effects of economic growth and development, for example ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 6400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. or Departmental approval.Survey of the economic advancement of the United States from European origins to the present.

ECON 6600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level

ECON 6700 HEALTH ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 6800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 7110 MICROECONOMICS I (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Consumer behavior and market models of competition and monopoly. Traditional and contemporary theories of consumer and household behavior under constraint; models of competitive behavior.

ECON 7120 MICROECONOMICS II (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of producer behavior, including production theory, cost theory, profit maximization, theories of various market structures, and derived demand for inputs.

ECON 7130 MATHEMATICAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 and ECON 6030 or Departmental approval. Fundamental mathematical methods in economics and econometrics, including linear and matrix algebra, calculus, comparative statistics, optimization, concavity, constrained optimization dynamics difference equations, and differential equations.

ECON 7210 MACROECONOMICS I (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Evaluation of fundamental theoretical and policy-oriented issues in macroeconomics, emphasizing post-Keynesian developments.

ECON 7220 MACROECONOMICS II (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Foundations of macroeconomics, neoclassical production and growth theory, overlapping generations models, optimal saving, open economy macroeconomics, applied time series macrodynamics.

ECON 7310 ECONOMETRICS I (3) LEC. 3. Pr., Departmental approval. Advanced treatment of the standard linear model of least square theory, including assumptions and properties of the SLM and the statistical testing of behavioral hypotheses.

ECON 7320 ECONOMETRICS II (3) LEC. 3. Pr. ECON 7310. Econometric techniques employed in advanced empirical research. Topics include estimation and inference in simultaneous equation systems, limited dependent variables, non-nested testing, time-series analysis.

ECON 7330 MICROECONOMETRICS (3) LEC. 3. Pr. ECON 7310. Econometric techniques for applied microeconomics. Limited dependent variable models, survival and count data analysis, and selection bias.

ECON 7340 MACROECONOMETRICS (3) LEC. 3. Pr. ECON 7310. Analysis of economic time series and identification and estimation of parameters in multi-equation models.

ECON 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

ECON 8110 ADVANCED MICROECONOMICS I (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Advanced analysis, integrating the economics of time and uncertainty into mainline price theory.

ECON 8120 ADVANCED MICROECONOMICS II (3) LEC. 3. Pr. ECON 7120. or Departmental approval. Advanced analysis, integrating imperfect information and strategic behavior into economic models of trade and investment.

ECON 8210 TOPICS IN MACROECONOMICS (3) LEC. 3. Pr. ECON 7220 or Departmental approval. Goals, procedures and achievements in attaining monetary objectives domestically and abroad. Emphasis on macro-money models and effects of monetary policy on economic activity.

ECON 8540 SEMINAR IN ENVIRONMENTAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Advanced analysis of pricing and allocation of renewable and non-renewable resources.

ECON 8610 INDUSTRIAL ORGANIZATION I (3) LEC. 3. Pr. ECON 7120. or Departmental approval.. Determinants of market structure, effects of market structure on industry performance, theory of the firm, research and development, advertising, and vertical integration.

ECON 8620 INDUSTRIAL ORGANIZATION II (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Case studies in the history and current practice of regulation in the United States at all levels.

ECON 8710 INTERNATIONAL TRADE (3) LEC. 3. Pr., Departmental approval. Trade theory, including classical, neoclassical, factor proportions, and industrial organization. Applied trade theory and empirical applications.

ECON 8720 INTERNATIONAL MACROECONOMICS (3) LEC. 3. Pr., Departmental approval.Theoretical and applied time series analysis at open economy macroeconomic models, international monetary and financial theory, balance of payments theory, and exchange rates.

ECON 8810 LABOR MARKET ANALYSIS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of labor markets, and determination of wages and other terms of employment. Emphasis on academic studies of labor market issues.

ECON 8820 TOPICS IN LABOR ECONOMICS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Selected topics, including education and on-the-job training. Labor mobility and immigration, employment discrimination, and the impact of labor unions.

ECON 8970 SPECIAL TOPICS (1-3) IND. Pr., Departmental approval. Advanced topics related to economics. Course may be repeated for a maximum of 12 credit hours.

ECON 8980 ECONOMICS WORKSHOP (1) LEC. 1. Pr., Departmental approval. Individual research projects, presentations, and discussions of the economics profession.

ECON 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Economics Minor

15 semester hours in economics (all at 3000-level or above). This minor is designed to offer students majoring in other disciplines the opportunity to gain additional training in the field of economics. This 15 hour program allows students the flexibility to tailor course work to their specific academic interests and career goals.

Economics: Primary Track (ECNL)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	Core History[1]	3
Core Fine Arts	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I ***or*** 1680 Calculus with Business Applications I	4	**MATH 1690 Calculus With Business Apps II**	**3**
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
		Core Humanities	3
	14		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Humanities or Core Literature to complete the sequence[1]	3
Core Social Science or Core History to complete the sequence[1]	3	Core Science II	4
Core Science I	4	**Select one of the following:**	**3**
ECON 2020 Principles of Microeconomics	3	STAT 2610 Statistics for Business and Economics	
LBAR 2010 Liberal Arts Careers Preparation	2	PSYC 2130 Analytics for Social and Behavioral Sciences	
		STAT 2510 Statistics for Biological and Health Sciences	
		BUAL 2600 Business Analytics I	
		ECON 2030 Principles of Macroeconomics	3
		Elective[2]	3
	15		**16**

Junior

Fall	Hours	Spring	Hours
ECON 3020 Intermediate Microeconomics	**3**	**ECON 3030 Intermediate Macroeconomics**	**3**
ECON 4300 International Economics	**3**	**ECON 3600 Mathematical Methods for Economists**	**3**
Electives[2]	8	Electives[2]	9
	14		**15**

Senior

Fall	Hours	Spring	Hours
ECON 4600 Econometrics I	**4**	**Economics Electives**[3]	**9**
Economics Electives[3]	**6**	Electives[2]	6
Electives[2]	5	UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or one Core Literature in the discipline not selected as the sequence.
2 Students must complete an outside minor.
3 Students should meet with their advisers to select appropriate Economics electives at the 3000-level or above.

Economics: Quantitative Track (ENCL)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	Core History[1]	3
Core Fine Arts	3	ENGL 1120 English Composition II	3
MATH 1610/1617 Calculus I	4	**MATH 1620 Calculus II**	**4**
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
		Core Humanities	3
	14		**17**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Humanities or Core Literature to complete sequence[1]	3
Core Social Science or Core History to complete sequence[1]	3	Core Science II	4
Core Science I	4	**Select one of the following:**	**3**
ECON 2020 Principles of Microeconomics	3	STAT 2610 Statistics for Business and Economics	
LBAR 2010 Liberal Arts Careers Preparation	2	PSYC 2130 Analytics for Social and Behavioral Sciences	
		STAT 2510 Statistics for Biological and Health Sciences	
		BUAL 2600 Business Analytics I	
		ECON 2030 Principles of Macroeconomics	3
		MATH 2630 Calculus III	**4**
	15		**17**

Junior

Fall	Hours	Spring	Hours
ECON 3020 Intermediate Microeconomics	**3**	**ECON 3030 Intermediate Macroeconomics**	**3**
ECON 4300 International Economics	**3**	**ECON 3600 Mathematical Methods for Economists**	**3**

MATH 3100/STAT 3600 Introduction to Advanced Mathematics	**3**	**MATH 2660 Topics in Linear Algebra**	**3**
Elective[2]	3	**MATH 5200/STAT 3610 Analysis I**	**3**
		Elective[2]	3
	12		**15**

Senior

Fall	Hours	Spring	Hours
ECON 4600 Econometrics I	**4**	**ECON 5030 Macroeconomic Theory and Policy**	**3**
ECON 5020 Advanced Microeconomics	**3**	**Economics Electives[2]**	**6**
Economics Elective[2]	**3**	Electives[2]	6
Electives[2]	5	UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

2 Students must check with their advisers to determine appropriate economics electives and other electives.

Department of English

Students graduating with English majors find careers as writers, marketing and advertising professionals, paralegals, teachers, editors, and a surprising range of other professions. Many students choose to pursue graduate or professional education, including advanced degrees in English or in other areas such as law, divinity, business, or medicine. The Department of English offers students a choice of studying in three different tracks: creative writing, literature, or professional and public writing.

Majors

- English — Creative Writing Option (p. 1029)
- English — Literature Option (p. 1031)
- English — Professional and Public Writing Option (p. 1032)

Minors

- English (p. 1029)
- English — Creative Writing (p. 1029)
- English — Technical Professional Communication (p. 1029)
- Linguistics (p. 1033)
- Medieval and Renaissance Early Modern Studies (p. 1033)

Courses

ENGL 1100 ENGLISH COMPOSITION I (3) LEC. 3. English Composition Core. Intensive study of and practice in effective expository and argumentative writing. May not be taken concurrently with ENGL 1120 or ENGL 1127.

ENGL 1107 HONORS WRITING SEMINAR I (3) LEC. 3. Pr. Honors College. English Composition Core. Topics in writing for students in the Honors College.

ENGL 1120 ENGLISH COMPOSITION II (3) LEC. 3. Pr. ENGL 1100 or ENGL 1103 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 1127 HONORS WRITING SEMINAR II (3) LEC. 3. Pr. Honors College. ENGL 1100 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 2000 INTRODUCTION TO CREATIVE WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the genres of creative writing.

ENGL 2010 INTRODUCTION TO PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the disciplines of professional writing.

ENGL 2020 INTRODUCTION TO LITERARY STUDIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Introduces students to the academic study of literary texts in English with an emphasis on formulating an argument about a text, developing goals and strategies for research, and managing the different stages of the writing process.

ENGL 2200 WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2207 HONORS WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2210 WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2217 HONORS WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2230 BRITISH LITERATURE BEFORE 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of British literature from its beginnings to the end of the 18th century.

ENGL 2240 BRITISH LITERATURE AFTER 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of British literature from the end of the 18th century to the present.

ENGL 2250 AMERICAN LITERATURE BEFORE 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of American literature from its beginnings to 1865.

ENGL 2260 AMERICAN LITERATURE AFTER 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of American literature from 1865 to the present.

ENGL 2270 AFRICAN AMERICAN LITERATURE BEFORE 1900 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. African American literature from its beginnings to 1900.

ENGL 2280 AFRICAN AMERICAN LITERATURE AFTER 1900 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. African American literature from 1900 to the present.

ENGL 3000 WRITING ACADEMIC RESEARCH (3) LEC. 3. Pr. ENGL 1100 and ENGL 1120. Writing Academic Research teaches advanced instruction in writing and research beyond ENGL 1100 and 1120.

ENGL 3020 WRITING IN LAW AND JUSTICE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. This course introduces students to the writing situations they may encounter in legal professions.

ENGL 3040 TECHNICAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Writing in engineering, scientific, and technical fields.

ENGL 3060 WRITING IN THE HEALTH PROFESSIONS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. Writing in medical and health-related fields. This course is designed to introduce students to rhetorical principles and textual and critical practices in medical and health-related fields.

ENGL 3080 BUSINESS WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Writing in business, management, or governmental service fields.

ENGL 3110 SURVEY OF LINGUISTICS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Structure of language, especially American English sounds, words, and syntax, along with study in such areas as dialects and language change.

ENGL 3120 SURVEY OF RHETORIC (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2207 or ENGL 2203 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Survey of rhetoric from Ancient Greece to the present.

ENGL 3130 SURVEY OF CRITICAL THEORY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Introduction to critical methods and theoretical approaches to the study of literature.

ENGL 3200 TOPICS IN CREATIVE WRITING (3) LEC. 3. Pr. (ENGL 1120 or ENGL 1123 or ENGL 1127) and ENGL 2000. A concentrated investigation of varying topics in Creative Writing.

ENGL 3210 FICTION WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of fiction writing; reading, studying, and writing short stories.

ENGL 3230 POETRY WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of poetry writing; reading, studying, and writing poetry.

ENGL 3250 CREATIVE NONFICTION WRITING I (3) LEC. 3. Pr. ENGL 2000. Creative Nonfiction Writing I aims to familiarize students with the intricacies of the genre, with a primary focus on work that falls under the broad label of Narrative Nonfiction.

ENGL 3360 THE BIBLE FOR STUDENTS OF LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2270 or ENGL 2280. Biblical backgrounds to English and American literature; the Bible as literature.

ENGL 3700 TOPICS IN CREATIVE WRITING (3) SEM. 3. Pr. (ENGL 1120 or ENGL 1123 or ENGL 1127) and ENGL 2000. A concentrated investigation of varying topics in Creative Writing.

ENGL 3710 SURVEY OF AFRICAN AMERICAN LITERATURE BEFORE 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. African American literature from its beginnings to 1900.

ENGL 3720 SURVEY OF AFRICAN AMERICAN LITERATURE AFTER 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. African American literature from 1900 to the present.

ENGL 3730 REPRESENTATIONS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. This topics course in literature aims to explore how writers of texts represent things, ideas, or individuals. Course may be repeated for a maximum of 6 credit hours.

ENGL 3740 IDENTITIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. This topics course in literature examines how identity is constructed in texts. Course may be repeated for a maximum of 6 credit hours.

ENGL 3750 CULTURAL STUDIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. A topics course in Cultural Studies. Course may be repeated for a maximum of 6 credit hours.

ENGL 3760 POPULAR LITERATURE & CULTURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. ENGL 3760 is a topics course in literature that addresses a genre of popular fiction with texts in "high" and popular culture, such as sci-fi, detective fiction, fantasy, romance, etc. Course may be repeated for a maximum of 6 credit hours.

ENGL 3850 STUDY IN LONDON (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Study Abroad in London providing an introduction to London's and England's literature and culture.

ENGL 3870 WORLD ENGLISH LITERATURES (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Non-British and non-American literature written in English.

ENGL 3890 WRITING CENTER THEORY AND PRACTICE (3) SEM. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2270 or ENGL 2280. Introduction to writing center theory, pedagogy, and history.

ENGL 4000 ADVANCED COMPOSITION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Theory and practice of expository and argumentative writing.

ENGL 4010 TOPICS IN WRITING (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. An in-depth study of a specific topic of writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4020 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Pr. ENGL 2010 or Departmental approval. Introduction to technical and professional editing.

ENGL 4030 DOCUMENT DESIGN IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Document design in technical and professional communication.

ENGL 4040 PUBLIC WRITING (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Writing in the public sphere.

ENGL 4140 LANGUAGE VARIATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Social, regional, and contextual forces that contribute to dialect diversity.

ENGL 4150 TOPICS IN LANGUAGE STUDY (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Concentrated investigation of varying topics in linguistics or rhetoric. Course may be repeated for a maximum of 6 credit hours.

ENGL 4160 TECHNOLOGY, LITERACY, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280 or Departmental approval. Connections between technology, literacy, and culture, including instruction in advanced computer applications.

ENGL 4170 HISTORY OF THE ENGLISH LANGUAGE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2207 or ENGL 2210 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Chronological development of the English language. May count ENGL 5410 or ENGL 4170.

ENGL 4180 RHETORICAL THEORY AND PRACTICE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Advanced study of topics in rhetorical theory and practice.

ENGL 4210 FICTION WRITING II (3) LEC. 3. Pr. ENGL 3210 or ENGL 4200. Advanced fiction writing.

ENGL 4230 POETRY WRITING II (3) LEC. 3. Pr. ENGL 3230 or ENGL 4220. Advanced poetry writing.

ENGL 4250 CREATIVE NONFICTION WRITING II (3) LEC. 3. Pr. ENGL 3250. Creative Nonfiction Writing II explores writing lyric nonfiction.

ENGL 4300 MEDIEVAL LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British and continental medieval literature.

ENGL 4310 RENAISSANCE ENGLISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. English literature 1485-1660. Course may be repeated for a maximum of 6 credit hours.

ENGL 4320 RESTORATION AND 18TH-CENTURY LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1660-1800. Course may be repeated for a maximum of 6 credit hours.

ENGL 4330 AGE OF REVOLUTION IN BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1770-1830.

ENGL 4340 19TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1830-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4350 20TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1910-2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4360 TWENTY-FIRST CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature since 2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4370 IRISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Periods, movements, or major figures of the literature of Ireland.

ENGL 4400 EARLY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature from its beginnings to 1800.

ENGL 4410 19TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature 1800-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4420 20TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature 1910-2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4430 TWENTY-FIRST CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature since 2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4440 SOUTHERN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Literature of the American South.

ENGL 4450 TOPICS IN AFRICAN AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Concentrated investigation of varying topics in African American literature and culture.

ENGL 4500 STUDIES IN POETRY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study in one or more kinds of poetry.

ENGL 4510 18TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of novels produced in the 18th century.

ENGL 4520 19TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of novels produced in the 19th century.

ENGL 4530 20TH-CENTURY FICTION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of fiction produced in the 20th century.

ENGL 4540 STUDIES IN DRAMA (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more periods or kinds of drama.

ENGL 4550 STUDIES IN FILM AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Examining the interconnections between film and literature.

ENGL 4600 CHAUCER (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Major works of Chaucer in Middle English.

ENGL 4610 SHAKESPEARE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Shakespeare's works, career, and culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4620 MILTON (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Milton's principal poems, especially Paradise Lost, with some attention to his prose.

ENGL 4630 BRITISH AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more British authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4640 AMERICAN AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more American authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4700 TOPICS IN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Concentrated investigation of varying topics in literature. Course may be repeated for a maximum of 6 credit hours.

ENGL 4710 TOPICS IN GENDER AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Examination of varying topics related to the intersection between literature and gender. Course may be repeated for a maximum of 6 credit hours.

ENGL 4720 TOPICS IN ETHNIC STUDIES (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2233 or ENGL 2243 or ENGL 2253 or ENGL 2263 or ENGL 2270 or ENGL 2280. Literature of one or more ethnic groups. Course may be repeated for a maximum of 6 credit hours.

ENGL 4730 TOPICS IN POPULAR CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. One or more topics in popular culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4740 ENVIRONMENT, LITERATURE, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2210 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Topics related to the intersections between the environment, literature, and culture.

ENGL 4750 TOPICS IN MYTHOLOGY AND FOLKLORE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more topics in mythology or folklore. Course may be repeated for a maximum of 6 credit hours.

ENGL 4760 TOPICS IN DIASPORA LITERATURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. Topics class in the literature and culture of displaced groups. Course may be repeated for a maximum of 6 credit hours.

ENGL 4800 SEMINAR IN LITERATURE (3) LEC. 3. Pr. ENGL 3130. Research seminar in literature. Senior standing.

ENGL 4810 CAPSTONE IN PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 2010. Advanced course in developing complex professional writing projects.

ENGL 4820 CAPSTONE IN CREATIVE WRITING (3) LEC. 3. Pr. ENGL 4210 or ENGL 4230 or ENGL 4250. Capstone course in creative writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4830 EARLY AFRICAN AMERICAN LITERATURE (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of African American literature from beginnings to 1900 Course may be repeated for a maximum of 6 credit hours.

ENGL 4840 20TH-CENTURY AFRICAN AMERICAN LITERATURE (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of African American literature from 1900 to 2000 Course may be repeated for a maximum of 6 credit hours.

ENGL 4850 CONTEMPORARY AFRICAN AMERICAN LITERATURE (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of African American literature from 1945 to the present Course may be repeated for a maximum of 6 credit hours.

ENGL 4860 BLACK/AFRICAN AMERICAN LITERARY THEORY AND CRITICISM (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of Black/African American literary theory and criticism. Course may be repeated for a maximum of 6 credit hours.

ENGL 4920 INTERNSHIP IN ENGLISH STUDIES (3) AAB/IND. 3. SU. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Supervised experience in applying reading, writing, and research skills to the workplace.

ENGL 4960 SPECIAL PROBLEMS IN ENGLISH (3) IND. 3. Pr. 3.00 GPA. At least 5 courses in ENGL 4000-4999. Junior standing and Departmental approval. Individual reading programs determined by the instructor and student. Course may be repeated for a maximum of 6 credit hours.

ENGL 7000 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Research-based best practices in technical and professional editing.

ENGL 7010 TECHNICAL AND PROFESSIONAL COMMUNICATION: ISSUES AND APPROACHES (3) LEC. 3. Introduction to the history, practice, and profession of technical and professional communication.

ENGL 7020 PEDAGOGY IN WRITING STUDIES (3) LEC. 3. Methods, practices, and theories of technical and professional communication for prospective teachers.

ENGL 7030 STUDIES IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LEC. 3. Extensive study of selected types of research and writing for special purposes and novel situations. Course may be repeated for a maximum of 6 credit hours.

ENGL 7040 ENGLISH COMPOSITION: ISSUES AND APPROACHES (3) LEC. 3. Theory, research, and practice in English composition.

ENGL 7050 STUDIES IN COMPOSITION (3) LEC. 3. Advanced study of an approach or an issue in composition studies. Course may be repeated for a maximum of 9 credit hours.

ENGL 7060 WEB DEVELOPMENT (3) LEC. 3. Research-based best practices in web development.

ENGL 7070 GRANT AND PROPOSAL WRITING (3) LEC. 3. Research-based best practices in grant and proposal writing.

ENGL 7080 DOCUMENT DESIGN (3) LEC. 3. Research-based best practices in document design.

ENGL 7090 RESEARCH METHODS IN WRITING STUDIES (3) LEC. 3. An introduction to some of the most widely-used research methods and methodologies across the field (and varied subfields) of Writing Studies.

ENGL 7120 CREATIVE NONFICTION WRITING (3) LEC. 3. Workshop in the craft of writing creative nonfiction. Departmental approval required. Course may be repeated for a maximum of 9 credit hours.

ENGL 7130 FICTION WRITING (3) LEC. 3. Workshop in the craft and writing of fiction. Departmental approval required. Course may be repeated for a maximum of 9 credit hours.

ENGL 7140 POETRY WRITING (3) LEC. 3. Workshop in the craft and writing of poetry. Departmental approval required. Course may be repeated for a maximum of 9 credit hours.

ENGL 7150 STUDIES IN MEDIEVAL LITERATURE (3) LEC. 3. Major works and genres in Middle English and related literary traditions. Course may be repeated for a maximum of 9 credit hours.

ENGL 7160 EARLY MODERN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7170 18TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7180 19TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7190 AMERICAN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7200 LITERARY MODERNISMS (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7210 CONTEMPORARY LITERATURE AND CULTURE (3) LEC. 3. Major literary movements, authors, and /or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7280 STUDIES IN LINGUISTICS (3) LEC. 3. Selected topic in English linguistics, including historical syntax, dialectology, phonology. Course may be repeated for a maximum of 9 credit hours.

ENGL 7300 RHETORIC THEORY AND PRACTICE (3) LEC. 3. Issues and developments in rhetorical theory and analysis, with special attention to the rhetoric of written texts. Course may be repeated for a maximum of 9 credit hours.

ENGL 7770 AFRICAN AMERICAN LITERATURE (3) LEC. 3. Study of African American literature and literary theories of ethnicity and race. Course may be repeated for a maximum of 9 credit hours.

ENGL 7780 STUDIES IN RACE, GENDER, AND SEXUALITY (3) LEC. 3. Focused topics in literature and theory of ethnicity, sexuality, gender, race, class, or disability. Course may be repeated for a maximum of 9 credit hours.

ENGL 7790 LITERARY THEORY: ISSUES AND APPROACHES (3) LEC. 3. Overview of significant theoretical issues, approaches, and conversations in literary and cultural theory, historical and/or contemporary.

ENGL 7800 STUDIES IN LITERARY THEORY (3) LEC. 3. Close study of particular theoretical approaches to literary study, including cultural studies, postmodernism, textual criticism, anthropological approaches. Course may be repeated for a maximum of 6 credit hours.

ENGL 7810 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3. Comparative study of authors, genres, or issues from two or more cultures or critical perspectives. Course may be repeated for a maximum of 9 credit hours.

ENGL 7830 MAJORS AUTHOR(S) (3) LEC. 3. One or more major authors or a single work by a major author. Course may be repeated for a maximum of 9 credit hours.

ENGL 7850 STUDIES IN GENRE (3) LEC. 3. Study of one or more genres across literary periods. Course may be repeated for a maximum of 9 credit hours.

ENGL 7870 SPECIAL TOPICS IN ENGLISH STUDIES (3) LEC. 3. Special problems, topics, and materials in English studies not covered in other existing courses. Course may be repeated for a maximum of 9 credit hours.

ENGL 7910 PRACTICUM IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) PRA. 3. Pr., Departmental approval. Supervised client-based experience in tasks commonly performed by technical communicators analyzed through current research in technical communication.

ENGL 7920 INTERNSHIP IN ENGLISH STUDIES (3) INT. 3. SU. Departmental approval. Supervised professional experience in workplace or university outreach settings.

ENGL 7930 DIRECTED INDIVIDUAL STUDY (1-3) IND. Available on a limited basis for qualified students; requires advance permission of the department graduate committee. Credits are to be arranged. Course may be repeated for a maximum of 6 credit hours.

ENGL 7940 PRACTICUM IN TEACHING COLLEGE ENGLISH (1) LEC. 1. SU. An introduction to the teaching of English at Auburn University. Course may be repeated for a maximum of 2 credit hours.

ENGL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 20 credit hours.

ENGL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

English Minor

Code	Title	Hours
Courses required: NONE		
Elective Courses - See advisor for approved course listing.		15
Total Hours		**15**

[1] Minimum 9 hours at 3000-level or above

At least 9 hours required for the minor must be completed at Auburn.

English Minor (Creative Writing)

Code	Title	Hours
ENGL 2000	Introduction to Creative Writing	3
Choose two of the following:		6
ENGL 3210	Fiction Writing I	
ENGL 3230	Poetry Writing I	
ENGL 3250	Creative Nonfiction Writing I	
Choose two of the following:		6
ENGL 4210	Fiction Writing II	
ENGL 4230	Poetry Writing II	
ENGL 4250	Creative Nonfiction Writing II	
Total Hours		**15**

[1] Students choose two of the three two-part sequences in either Fiction Writing, Poetry Writing, or Creative Nonfiction Writing.

Students must earn a ‘C’ or higher in all minor courses

English Minor (Technical & Professional Communication)

Code	Title	Hours
ENGL 2010	Introduction to Professional Writing	3
ENGL 4020	Technical and Professional Editing (formerly ENGL 5000)	3
ENGL 4030	Document Design in Technical and Professional Communication (formerly ENGL 5010)	3
ENGL 4040	Public Writing (formerly ENGL 5030)	3
Select one of the following:		3
ENGL 3020	Writing in Law and Justice	
ENGL 3040	Technical Writing	
ENGL 3060	Writing in the Health Professions	
ENGL 3080	Business Writing	
ENGL 4010	Topics in Writing	
ENGL 4150	Rhetorics of Science, Technology, and Medicine	
ENGL 4160	Digital Writing and Rhetoric	
Total Hours		**15**

[1] Minimum 12 hours at 3000-level or above

English: Creative Writing (EGLC)

Students must take ENGL 2000 (Introduction to Creative Writing) as their gateway course to this track. Students choose to take two of three two-part sequences in either Fiction Writing, or Poetry Writing, or Creative Non-Fiction Writing. ENGL 4820 (Capstone in Creative

Writing) is the capstone course. No more than 6 hours may be at the 2000-level; at least 18 hours must be at the 4000-level or above. Effective Fall 2014, students must earn a C or better in any course counted toward the English major.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
Core Social Science	3	Core Fine Arts	3
Core Mathematics	3	Core Social Science	3
		Core Humanities	3
	13		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Literature[1]	3
Core Science I	4	Core Science II	4
HIST 1010/1017 World History I	3	HIST 1020/1027 World History II	3
ENGL 2000 Introduction to Creative Writing	**3**	LBAR 2010 Liberal Arts Careers Preparation	2
Approved Minor[2]	3	**Course from Group 1[3]**	**3**
	16		**15**

Junior

Fall	Hours	Spring	Hours
ENGL Elective (2000-level or higher)	**3**	**ENGL Elective (3000-level or higher)**	**3**
Choose One of the Following:	**3**	**Choose One of the Following:**	**3**
ENGL 3210 Fiction Writing I		ENGL 3210 Fiction Writing I	
ENGL 3230 Poetry Writing I		ENGL 3230 Poetry Writing I	
ENGL 3250 Creative Nonfiction Writing I		ENGL 3250 Creative Nonfiction Writing I	
Course from Group 2[3]	**3**	Approved Minor[2]	3
Electives	6	Electives	4
		4000-level Literature Course	**3**
	15		**16**

Senior

Fall	Hours	Spring	Hours
ENGL Elective (3000-level or higher)	**3**	**ENGL 4820 Capstone in Creative Writing**	**3**
Choose One of the Following:	**3**	**Choose One of the Following:**	**3**
ENGL 4210 Fiction Writing II		ENGL 4210 Fiction Writing II	
ENGL 4230 Poetry Writing II		ENGL 4230 Poetry Writing II	
ENGL 4250 Creative Nonfiction Writing II		ENGL 4250 Creative Nonfiction Writing II	
Approved Minor[2]	6	Approved Minor[2]	3
Electives	3	Electives	5
		UNIV 4AA0 Achieve the Creed	0
	15		**14**

Total Hours: 120

1 Students are required to complete a Core Literature **sequence**.
2 Students must complete a minor in a subject approved by the departmental adviser.
3 Students should see the departmental adviser to identify approved courses for Group 1 (Globalism, Sustainability, and Diversity), Group 2 (Linguistics or Rhetoric), and ENGL electives.

English: Literature (EGLL)

Students must take ENGL 2020 (Introduction to Literary Studies) as the gateway course to the Literature Track. ENGL 4800 (Seminar in Literature) is the capstone course for this track. No more than 6 hours may be at the 2000-level; at least 18 hours must be at the 4000-level or above. At least two 4000-level literature classes must cover material that was predominantly produced before 1800, and at least two 4000-level literature classes must cover material that was predominantly produced after 1800. Effective Fall 2014, students must earn a C or better in any course counted toward the English major.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
Core Social Science	3	Core Fine Arts	3
Core Mathematics	3	Core Social Science	3
		Core Humanities	3
	13		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Literature[1]	3
Core Science I	4	Core Science II	4
HIST 1010/1017 World History I	3	HIST 1020/1027 World History II	3
ENGL 2020 Introduction to Literary Studies	**3**	**Group 2[3]**	**3**
Approved Minor[2]	3	LBAR 2010 Liberal Arts Careers Preparation	2
	16		**15**

Junior

Fall	Hours	Spring	Hours
ENGL 3130 Survey of Critical Theory	**3**	**4400-level American literature course**	**3**
4300-level British literature course	**3**	**ENGL Elective (2000-level or higher)**	**3**
Course from Group 1[3]	**3**	Approved Minor[2]	3
Electives	6	Electives	6
	15		**15**

Senior

Fall	Hours	Spring	Hours
ENGL 3760 Popular Literature & Culture (or 4500-level Genre course)	**3**	**4600- or 4700-level Author or Topics course**	**3**
ENGL Elective (3000-level or higher)	**3**	**ENGL 4800 Seminar in Literature**	**3**
Approved Minor[2]	6	Approved Minor[2]	3
Electives	3	**ENGL Elective (3000-level or higher)**	**3**
		Electives	3

		UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

1 Students are required to complete a Core Literature **sequence**.
2 Students must complete a minor in a subject approved by their advisor.
3 Students should see their advisor to identify approved courses for Group 1 (Globalism, Sustainability, and Diversity), Group 2 (Linguistics or Rhetoric), and ENGL electives.

English: Professional and Public Writing (EGLW)

Students in this track must take ENGL 2010 (Introduction to Professional Writing) as the gateway course to this track. ENGL 4810 (Capstone in Professional Writing) is the capstone course. No more than 6 hours may be at the 2000-level; at least 18 hours must be at the 4000-level or above. Effective Fall 2014, students must earn a C or better in any course counted toward the English major.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
Core Social Science	3	Core Fine Arts	3
Core Mathematics	3	Core Social Science	3
		Core Humanities	3
	13		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Literature[1]	3
Core Science I	4	Core Science II	4
HIST 1010/1017 World History I	3	HIST 1020/1027 World History II	3
ENGL 2010 Introduction to Professional Writing	**3**	**Course from Group 1[3]**	**3**
Approved Minor[2]	3	LBAR 2010 Liberal Arts Careers Preparation	2
	16		**15**

Junior

Fall	Hours	Spring	Hours
ENGL 3120 Survey of Rhetoric *or* 4180 Rhetorical Theory and Practice	**3**	**ENGL 4020 Technical and Professional Editing *or* 4030 Document Design in Technical and Professional Communication**	**3**
ENGL Elective (2000-level or higher)	**3**	**ENGL Elective (3000-level or higher)**	**3**
Course from Group 2[3]	**3**	Approved Minor[2]	3
Electives	6	Elective	3
		4000-level Literature Course	**3**
	15		**15**

Senior

Fall	Hours	Spring	Hours
Select one of the following:	**3**	**Select one of the following:**	**3**

ENGL 3020 Writing in Law and Justice		ENGL 4010 Topics in Writing	
ENGL 3040 Technical Writing		ENGL 4040 Public Writing	
ENGL 3060 Writing in the Health Professions		ENGL 4160 Digital Writing and Rhetoric	
ENGL 3080 Business Writing		**ENGL 4810 Capstone in Professional Writing**	**3**
ENGL 4000 Advanced Composition		Approved Minor[2]	3
ENGL Elective (3000-level or higher)	**3**	Electives	6
Approved Minor[2]	6	UNIV 4AA0 Achieve the Creed	0
Electives	3		
	15		**15**

Total Hours: 120

1 Students are required to complete a Core Literature **sequence**.
2 Students must complete a minor in a subject approved by their advisor.
3 Students should see their advisor to identify approved courses from Group 1 (Globalism, Sustainability, and Diversity), Group 2 (Linguistics), and ENGL electives.

Linguistics Minor

Code	Title	Hours
ENGL 3110	Survey of Linguistics	3
ENGL 4150	Rhetorics of Science, Technology, and Medicine	3
ENGL 4170	History of the English Language	3
Select two of the following:		6
FLNG 3110	Introduction to Linguistics: A Multilingual Approach	
ENGL 4140	Language Variation	
ENGL 4160	Digital Writing and Rhetoric	
Students must earn a "C" or better in all minor courses.		
Total Hours		**15**

Medieval and Renaissance/Early Modern Studies Minor

Code	Title	Hours
Courses required: See advisor for approved course listing.		15
Total Hours		**15**

1 Minimum 9 hours at 3000-level or above; no more than 6 hours at 2000-level.

Students must earn at least a C for all courses that count toward the minor.

Department of History

The curriculum in history at Auburn endeavors to teach students both knowledge of the past and skills in the research and communication of that knowledge. As such, the Bachelor of Arts in History can serve as a sound foundation for graduates to pursue a number of career options. Auburn graduates in History have gone on to a diverse range of careers that include public history and archives, historic preservation, secondary education, public administration, law, military service, politics, and a range of business careers. While some students go on to teach history in schools and a small number pursue graduate education in history, most graduates are spread through career paths representing the broad possibilities that come with a well-developed ability to ask clear questions, research the information and sources necessary to construct an answer, write factually and persuasively, and think historically.

Students should check with their academic advisor to declare a History major.

To graduate with the BA in History, students must meet these requirements:

- All History majors should take HIST 3800 Historian's Craft as early as possible in their academic program after completing core history. Students must complete the course before enrolling in History courses above the 3000 level.
- Students must earn a grade of C or higher in HIST 3800 before taking HIST 4950 Senior Thesis.
- All students must complete a course at the 2000 level or above that is focused on a non-European, non-American topic.
- To graduate, students must earn a minimum 2.0 GPA overall and in the History major.

Majors

- History (p. 1042)

Minors

- History (p. 1043)

Courses

HIST 1000 AUBURN IN THE WORLD: INDUSTRY AND SOCIETY (4) LEC. 3. LAB. 1. Part of the Auburn Global International Accelerator Program, HIST1000 exposes first-year students to Auburn, Alabama, and regional history from a wide range of perspectives, among them social, cultural, and environmental changes, economics, technology, and politics.

HIST 1010 WORLD HISTORY I (3) LEC. 3. History Core. Survey of world history from early humanity to the 1500s. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures. May count either HIST 1010 or HIST 1013.

HIST 1017 HONORS WORLD HISTORY I (3) LEC. 3. Pr. Honors College. History Core. Survey of world history from early humanity to the 1500s. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures.

HIST 1020 WORLD HISTORY II (3) LEC. 3. History Core. Survey of world history from the 1500s to the present. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures.

HIST 1027 HONORS WORLD HISTORY II (3) LEC. 3. Pr. Honors College. History Core. Survey of world history from the 1500s to the present. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures.

HIST 1210 TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1217 HONORS TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1220 TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 1227 HONORS TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 2010 SURVEY OF UNITED STATES HISTORY TO 1877 (3) LEC. 3. Social, political, and economic development of the United States from earliest occupation through Reconstruction. May count either HIST 2010 or HIST 2013.

HIST 2020 SURVEY OF UNITED STATES HISTORY SINCE 1877 (3) LEC. 3. Social, political, and economic development of the United States from the end of Reconstruction to the present.

HIST 2070 SURVEY OF EUROPEAN HISTORY FROM THE RENAISSANCE TO 1789 (3) LEC. 3. Survey of European history from the first outbreak of the bubonic plague to the eve of the French Revolution.

HIST 2080 SURVEY OF EUROPEAN HISTORY FROM 1789 PRESENT (3) LEC. 3. European history from the French Revolution to the present.

HIST 2100 SURVEY OF LATIN AMERICAN HISTORY (3) LEC. 3. Latin American history from its Amerindian beginnings to the present.

HIST 2110 SURVEY OF ASIAN HISTORY (3) LEC. 3. Asian history from prehistoric times to the present.

HIST 2120 SURVEY OF MODERN AFRICAN HISTORY (3) LEC. 3. Modern African history, from the end of the slave trade to the rise of nationalism and independence.

HIST 2130 SURVEY OF MIDDLE EASTERN HISTORY I (3) LEC. 3. The course examines the history of the Middle East from late antiquity to the Ottoman era.

HIST 2140 SURVEY OF MIDDLE EASTERN HISTORY II (3) LEC. This course is a survey of Middle Eastern history from the Ottoman era to the present.

HIST 3000 HISTORY OF SOUTHEASTERN INDIANS (3) LEC. 3. History of the southeastern Indians from pre-contact to removal, including native culture, cultural change, trade, imperial rivalries, and wars.

HIST 3010 HISTORY OF ALABAMA (3) LEC. 3. Broad study of Alabama history since its European settlement.

HIST 3020 HISTORY OF WOMEN IN THE UNITED STATES (3) LEC. 3. History of women in America from colonial period to the present; explores differences of region, race, and class.

HIST 3030 AFRICAN-AMERICAN HISTORY (3) LEC. 3. History of African Americans from African origins to the modern era, focusing on enslavement, emancipation and the struggle for equal rights.

HIST 3040 AMERICAN RELIGIOUS HISTORY (3) LEC. 3. Religious ideas and institutions from the colonial period to the present, including how religion has intersected with political and social history.

HIST 3060 ISSUES IN AFRICAN-AMERICAN HISTORY (3) LEC. 3. Issues and personalities in African-American history. Course may be repeated for a maximum of 6 credit hours.

HIST 3080 THE CIVIL RIGHTS MOVEMENT (3) LEC. 3. History of the civil rights movement and its place in the broader African-American struggle for freedom. Social, political, and cultural history, with geographic and chronological focus on the United States South in the post-World War II period.

HIST 3090 HISTORY OF APPALACHIA (3) LEC. 3. Survey of the history of the Appalachian region from before European contact to the present.

HIST 3100 THE CIVIL WAR IN AMERICAN MEMORY (3) LEC. 3. A survey of the ways that Americans have remembered their civil war from 1865 to the present.

HIST 3300 GRECO-ROMAN CIVILIZATION (3) LEC. 3. Classical civilizations of the Greeks and Romans as well as the Egyptian and Persian civilizations that influenced them.

HIST 3310 EUROPE IN THE MIDDLE AGES (3) LEC. 3. Survey of the thousand years that has been called the birth of Europe.

HIST 3330 ISSUES IN THE HISTORY OF GERMANY AND CENTRAL EUROPE (3) LEC. 3. Variable topics in the history of Germans, Slavs, and other Central Europeans from the Era of Enlightened Absolutism through the fall of the Berlin Wall. Course may be repeated for a maximum of 6 credit hours.

HIST 3340 ISSUES IN THE HISTORY OF MODERN FRANCE (3) LEC. 3. Focus on specific issues, themes, or topics within the political, social, or cultural history of France between the 18th and 20th centuries. Themes will vary.

HIST 3350 SURVEY OF RUSSIAN HISTORY (3) LEC. 3. Russian history from the earliest development of a state in the area of Kiev down to the present Russian Federation.

HIST 3370 EUROPE AND THE WORLD (3) LEC. 3. Variable topics in the history of European interactions with non-European peoples, cultures, politics, and societies.

HIST 3500 HISTORY OF AVIATION (3) LEC. 3. History of aviation from the beginnings of human flight to the present.

HIST 3510 HISTORY OF SPACE EXPLORATION (3) LEC. 3. Origins, motivations, and culture of space exploration in a global context.

HIST 3520 SCIENTIFIC REVOLUTIONS (3) LEC. 3. History of science, focusing on the concept of scientific revolutions in their social and intellectual context.

HIST 3530 SCIENCE FICTION AS INTELLECTUAL HISTORY (3) LEC. 3. Interaction between science, technology, and other aspects of modern culture as dramatized in classic and contemporary works of science fiction.

HIST 3540 ISSUES IN TECHNOLOGY AND CULTURE (3) LEC. 3. Issues such as the automobile, environment, industrialization, and popular culture relating to the role technology plays in society and culture. Course may be repeated for a maximum of 6 credit hours.

HIST 3550 AMERICAN ENVIRONMENTAL HISTORY (3) LEC. 3. Environmental history of the United States from colonial era to present.

HIST 3560 TECHNOLOGY AND GENDER HISTORY (3) LEC. 3. Exploration of the relationship between gender and technology in comparative cultural, social, and historical perspectives from 18th century to present.

HIST 3570 THE AUTOMOBILE IN HISTORY (3) LEC. 3. Global history of the automobile, including technological developments as well as role of the automobile in culture.

HIST 3580 ISSUES IN THE HISTORY OF MEDICINE (3) LEC. 3. In this course students will explore the changing relationship between medicine, health, and society in different historical and geographic contexts. Themes will vary. Course may be repeated for a maximum of 6 credit hours.

HIST 3590 ISSUES IN FOOD AND AGRICULTURE (3) DSL/LEC. This course looks at the history of agricultural systems, foodways, and food politics. It explores debates and trends in food and agriculture and the social and cultural forces driving them.

HIST 3600 ISSUES IN WOMEN'S AND GENDER HISTORY (3) LEC. 3. Topics in the history of women and gender. Course may be repeated for a maximum of 6 credit hours.

HIST 3610 PRIVATE LIVES AND PUBLIC PLACES (3) LEC. 3. Examination of the shifting boundaries between the public and private in history including topics such as work, family, sexuality, and the state. Course may be repeated for a maximum of 6 credit hours.

HIST 3640 WORLD MILITARY HISTORY (3) LEC. 3. Economic, social, political, and technological roots of the ways of war employed by different civilizations throughout the ages.

HIST 3650 20TH-CENTURY WORLD WARS (3) LEC. 3. Causes, conduct, and consequences of World Wars I and II.

HIST 3660 WORLD NAVAL HISTORY (3) LEC. 3. Naval history from its origins in ancient times to the present, including the evolution of strategy and tactics, and the influences of, foreign policy and technological change.

HIST 3670 CONTEMPORARY HISTORY (3) LEC. 3. Examination of developments in the contemporary world to provide historical background on developments in selected areas or nations across the globe.

HIST 3800 HISTORIAN'S CRAFT (3) LEC. 3. Historical research methods and an introduction to historiography. For history majors only.

HIST 3920 HISTORY INTERNSHIP (3) LEC. 3. Pr., Departmental approval. Supervised on-the-job experience at archives, historical museums, historic preservation authorities, historical editing projects, and similar historical agencies.

HIST 3930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval and; 3.0 overall GPA. Individual reading or research projects in a specific area of history. Course may be repeated for a maximum of 3 credit hours.

HIST 3970 SPECIAL TOPICS (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 4950 SENIOR THESIS: HISTORICAL RESEARCH AND WRITING (3) LEC. 3. Pr. HIST 3800. with minimum grade of "C." Writing an original paper based on research in primary source materials.

HIST 4970 SENIOR SEMINAR (3) LEC. Pr. HIST 3800. Senior Seminar is a capstone course for upper-level undergraduate students. It may be research-based or historiography-based. Topics vary widely. HIST 4970 may be repeated once for credit. Course may be repeated for a maximum of 6 credit hours.

HIST 4997 HONORS THESIS (3) LEC. 3. Pr. Honors College. Writing an original paper based on research in primary materials.

HIST 5000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the North American colonies from European settlement to 1763.

HIST 5010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Revolutionary era and the foundations of the United States, including the struggle with England, Declaration of Independence, Revolutionary War, Confederation, Constitution, and Federalist-Republican conflicts.

HIST 5020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the early nation, including the influences of Thomas War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflicts.

HIST 5030 SOUTH TO 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 5040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Sectional conflict, Civil War, and Reconstruction including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 5050 THE SOUTH SINCE 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.

HIST 5060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the American economy, rise of big business, agrarian and labor protests, immigration, race relations, role of women, and role of government.

HIST 5070 MODERN UNITED STATES HISTORY: 1929 TO THE PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. United States history since 1929 with particular emphasis on the economy, changing role of government, America's role in world affairs and social changes.

HIST 5090 AMERICAN LEGAL HISTORY (3) LEC. 3. Pr. HIST 3800 or departmental approval. Survey of American legal history from the Constitution to the World Wars. Topics include citizenship, criminal justice, and economic regulation. C or better in HIST 3800

HIST 5300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 5310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 5320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Pr. HIST 3800. Departmental approval. Students not majoring in history must obtain a waiver from the department. Cultural, economic, and social developments as well as the politics and international relations of the major European states.

HIST 5330 20TH CENTURY EUROPE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 5360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the Roman period to the Tudor dynasty.

HIST 5370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from 1485 to the early 18th century.

HIST 5380 MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the political unification of England and Scotland to the present.

HIST 5500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. The Industrial Revolution of 18th, 19th and 20th centuries, with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 5580 THE HISTORY OF FLIGHT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of flight in political, economic, social, and cultural perspective.

HIST 5620 MODERN LATIN AMERICA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Latin America in the 19th and 20th centuries, using a thematic approach arranged chronologically.

HIST 5640 HISTORY OF ISLAM (3) LEC. 3. Pr. HIST 3800. HIST 3800 with grade of "C" or better. This course examines the history of Islam and Islamic Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 5650 HISTORY OF MODERN SOUTH ASIA (3) LEC. 3. Pr. HIST 3800. Development of the Indo-Islamic culture, the British rule of India, and the creation of Muslim Pakistan and secular India. Attention to role of individuals and events in history of nation-building.

HIST 5660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in China from 1800-2000.

HIST 5680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Pr. HIST 3800. Students not majoring in history must obtain a waiver from the department. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 5710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 5810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 5820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 5970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in the history must obtain a waiver from the department. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 6000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Development of the North American colonies from European settlement to 1763.

HIST 6010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3. Revolutionary era and the foundations of the United States, including struggle with England, Declaration of Independence, Revolutionary War, Confederation, Constitution, and Federalist-Republican conflicts.

HIST 6020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Development of the early nation, including the influences of Thomas Jefferson, War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflict.

HIST 6030 SOUTH TO 1877 (3) LEC. 3. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 6040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Sectional conflict, Civil War, and Reconstruction, including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 6050 THE SOUTH SINCE 1877 (3) LEC. 3. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.

HIST 6060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3. Development of the American economy, rise of big business, agrarian and labor protest, immigration, race relations, role of women, and role of government.

HIST 6070 MODERN UNITED STATES HISTORY: 1929 PRESENT (3) LEC. 3. United States history since 1929, with particular emphasis on the economy, changing role of government, America's role in world affairs, and social changes.

HIST 6090 AMERICAN LEGAL HISTORY (3) LEC. 3. This course provides an upper-level chronological survey of American Legal History from the Constitution to the Civil Rights Era through broad themes that include: race and law, economic development, citizenship and belonging, marriage and family law, and criminal justice. The course will examine how major events and processes like Emancipation, Industrialization, and the World Wars brought changes in the workings of American law. At its heart, legal history investigates how law actually worked, how it affected the lives of individuals, and how that shifted over time. This course helps students refine universally-applicable skills, such as conducting original legal-historical research, writing, oral communication, and teaching, all while focusing on those areas of American Legal History that most interest them. The class requires regular reading quizzes, two exams, and a research project that is broken up into smaller assignments throughout the semester. This course also requires a teaching demonstration for graduate students.

HIST 6300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 6310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 6320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Cultural, economic, and social developments as well as the politics and international relations of the major European states between 1815-1918.

HIST 6330 20TH CENTURY EUROPE (3) LEC. 3. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 6360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. British history from the Roman period to the Tudor dynasty.

HIST 6370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. British history from 1485 to the early 18th century.

HIST 6500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. The Industrial Revolution of 18th, 19th, and 20th centuries with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 6580 TOPICS IN THE HISTORY OF FLIGHT (3) LEC. 3. The history of flight in political, economic, social, and cultural perspective.

HIST 6620 MODERN LATIN AMERICA (3) LEC. 3. History of Latin America in 19th and 20th centuries using a thematic approach arranged chronologically.

HIST 6640 HISTORY OF ISLAM (3) LEC. 3. This course examines the history of Islam and Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 6660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Examination and analysis of the political, social, economic and intellectual changes in China from 1800-2000.

HIST 6680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 6710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 6810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 6820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 6970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 7110 SEMINAR IN AMERICAN COLONIAL HISTORY (3) SEM. 3. Development of the British North American colonies, including discussions concerning Indians, English background, exploration, settlement, rebellions, religion, slavery, imperial rivalries, and women.

HIST 7120 SEMINAR IN AMERICAN REVOLUTION AND EARLY NATION (3) SEM. 3. Birth of the American nation and its re-birth under the Constitution.

HIST 7130 SEMINAR IN EARLY AMERICAN REPUBLIC (3) SEM. 3. Issues in the Early Republic, including political transformations, sectional conflict, women and gender roles, industrialization, and reform movements.

HIST 7140 SEMINAR IN OLD SOUTH (3) SEM. 3. History of the Old South, including discussions of colonial settlement, slavery, political transformations, sectional conflict, women and gender roles, and religion.

HIST 7150 SEMINAR IN CIVIL WAR ERA (3) SEM. 3. Sectional conflict, Civil War, and Reconstruction, including political, military and social development.

HIST 7160 SEMINAR IN NEW SOUTH (3) SEM. 3. The South in United States history since 1877.

HIST 7180 SEMINAR IN MODERN UNITED STATES HISTORY (3) LEC. 3. Broad introduction to United States history since 1929.

HIST 7190 SEMINAR IN AFRICAN-AMERICAN HISTORY (3) SEM. 3. Analysis of the major historiographical works on the social, political, and economic history of African Americans.

HIST 7200 SEMINAR IN UNITED STATES WOMEN'S HISTORY (3) SEM. 3. Change and continuity in the lives of American women.

HIST 7210 SEMINAR IN AMERICAN RELIGIOUS HISTORY (3) SEM. 3. Role of religion in American history; recent writing on religion; and sociological and anthropological theories of religion.

HIST 7220 DEVELOPMENT IN CIVIL RIGHTS MOVEMENT (3) LEC. 3. In-depth study of the civil rights movement, with emphasis on the United States South in the post-World War II period. Major topics, basic literature, and historiographical debates examined.

HIST 7230 SEMINAR IN AMERICAN SLAVERY (3) SEM. 3. This course will explore the history of the institution of chattel slavery in the Americas. Focusing primarily on North American slavery, the course will begin with an overview of the development and continuation of the slave systems of the Americas. The course explores the many ways that slavery differed based on the particular time, place, and colonial power or government structure in place at that time. This seminar investigates slaves' lives and experiences from the perspectives of legal history, medical history, gender history, and social history, encompassing such themes as resistance, culture, work lives, and politics. The course will conclude with a look at the Mississippi Valley, its slave system, and its commitment to slavery's economy and politics in the late antebellum years. The course will require weekly book review assignments and students will give one short lecture each semester.

HIST 7240 DEBATES IN EARLY AMERICAN HISTORY (3) SEM. A reading intensive course that introduces students to some of the major debates, methods, and controversies in Early American historiography. Course may be repeated for a maximum of 6 credit hours.

HIST 7250 DEBATES IN MODERN AMERICAN HISTORY (3) SEM. A reading intensive course that introduces students to some of the major debates, methods, and controversies in Modern American historiography. Course may be repeated for a maximum of 6 credit hours.

HIST 7380 THE GLOBAL COLD WAR (3) SEM. This course uses a global approach to explore the post-World War Two rivalry between the United States and the Soviet Union over ideologies, governments, and economic systems.

HIST 7420 SEMINAR IN POPULAR CULTURE IN EARLY MODERN EUROPE (3) SEM. 3. Major themes in the popular culture of Early Modern Europe, 1450-1800.

HIST 7440 SEMINAR IN MODERN EUROPEAN CULTURAL POLITICS (3) SEM. 3. Traditional and revisionist approaches to the study of the political uses of culture in 19th and 20th century Europe.

HIST 7450 SEMINAR IN THE FRENCH REVOLUTION (3) SEM. 3. Historiography in the French Revolution's origins and legacy.

HIST 7460 SEMINAR IN EARLY MODERN BRITAIN (3) SEM. 3. Main themes and events of British history between 1603 and the 1760s.

HIST 7470 SEMINAR IN FASCISM (3) SEM. 3. Seminar on the history of fascism in interwar Europe and the debates over the definition of fascism as an ideology.

HIST 7480 DEBATES IN EUROPEAN HISTORY (3) SEM. A reading intensive course that introduces students to some of the major debates, methods, and controversies in European historiography. Course may be repeated for a maximum of 6 credit hours.

HIST 7510 INTRODUCTORY SEMINAR IN HISTORIOGRAPHY OF TECHNOLOGY (3) SEM. 3. Problems and issues in the history of technology; reviews important, literature.

HIST 7520 SEMINAR IN POLITICS AND TECHNOLOGY IN THE SPACE AGE (3) SEM. 3. Political and technological context of the space age.

HIST 7540 SEMINAR IN AEROSPACE HISTORY (3) SEM. 3. Central problems, issues, and literature in aerospace history.

HIST 7590 AMERICAN LABOR AND WORKING CLASS HISTORY (3) SEM. This course surveys the historiographical themes and issues of the history and lives of the working class in the modern United States from the late 19th through the early 21st centuries.

HIST 7690 SEMINAR IN MODERN WORLD HISTORY (3) SEM. 3. Examination of world historiography and theory, with topical readings on comparative themes such as imperialism and colonialism, catch-up industrialization, decolonization, the Atlantic world, gender systems, religious diasporas, trade, and exploration.

HIST 7700 SEMINAR IN HISTORICAL METHODS (3) SEM. 3. Methodology and theory of historical research. Preparation of a significant original research paper.

HIST 7710 GRADUATE RESEARCH AND WRITING SEMINAR (3) SEM. 3. Pr. HIST 7700. A writing-intensive course designed to sharpen graduate students' research and writing skills.

HIST 7720 SEMINAR IN ARCHIVAL THEORY AND PRACTICE (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Development of archival theory in the major functional areas of archival practice, including appraisal, acquisition, description, preservation, reference and access, outreach, and advocacy.

HIST 7730 SEMINAR IN THE HISTORY OF RECORDS AND ARCHIVES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Origins, organization, and development of records, record keeping systems, and archival institutions in Europe and North America.

HIST 7760 PRACTICUM IN PUBLIC DIGITAL HUMANITIES (3) PRA/SEM. 3. Only graduate students in History or Public History Certificate program. An interdisciplinary course on the theory, method, and practice of public facing digital humanities.

HIST 7770 PRACTICUM IN MUSEUM STUDIES (3) SEM. 3. This course acquaints students with issues relating to the history and contemporary practice of museums. With a focus on both theoretical concepts and current professions within the field, the class balances practical applications with methodological training.

HIST 7810 RESEARCH SEMINAR IN UNITED STATES HISTORY SINCE 1865 (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7820 RESEARCH SEMINAR IN EARLY MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7830 RESEARCH SEMINAR IN MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7840 RESEARCH SEMINAR IN HISTORY OF TECHNOLOGY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7860 RESEARCH PROJECT DESIGN (3) SEM. SU. This course introduces students to the task of formalizing a research project proposal, typically referred to as a thesis or dissertation prospectus. Students will produce a draft project proposal that includes 1) a review of the relevant historiography that justifies the topic as a meaningful contribution to the literature; 2) an historical context that situates the topic within a chronological timeline, a geography, and an overall theme; 3) a reasonable plan for accomplishing the research.

HIST 7910 PUBLIC HISTORY INTERNSHIP (3) PRA. 3. Pr. HIST 6810 and P/C HIST 7700. Application of principles of public history practice within a functioning venue or site under supervision of public historian; final written report required. Course may be repeated for a maximum of 6 credit hours.

HIST 7920 ARCHIVAL INTERNSHIP (1-6) INT. Pr. HIST 6710 or Departmental approval. Application of the principles of archival practice within the context of a functioning archival repository under the supervision of professional archivists. Course may be repeated for a maximum of 6 credit hours.

HIST 7970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 9 credit hours.

HIST 7990 RESEARCH AND THESIS (1-10) MST. Research and writing of the MA thesis. Course may be repeated with change in topic.

HIST 8000 READING COURSE IN AMERICAN HISTORY TO 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history to 1877. Course may be repeated for a maximum of 6 credit hours.

HIST 8010 READING COURSE IN AMERICAN HISTORY SINCE 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history since 1877 Course may be repeated for a maximum of 6 credit hours.

HIST 8300 READING COURSE IN EUROPEAN HISTORY TO 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history to 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8310 READING COURSE IN EUROPEAN HISTORY SINCE 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history since 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8500 READING COURSE IN THE HISTORY OF TECHNOLOGY (3) PRL. 3. Pr., Departmental approval. Selected topics in the history of technology. Course may be repeated for a maximum of 6 credit hours.

HIST 8600 READING COURSE IN LATIN AMERICAN HISTORY (3) PRL. 3. Pr., Departmental approval. Selected topics in Latin American history. Course may be repeated for a maximum of 6 credit hours.

HIST 8610 READING COURSE IN WORLD HISTORY (3) LEC. 3. Pr., Departmental approval. Directed readings in modern world history, focusing on one or two geographic areas or themes.

HIST 8700 HISTORIOGRAPHY AND THEORY OF HISTORY (3) SEM. 3. Exploration of the nature of history by tracing changing conceptions of historical thought and practice from their origins to the present.

HIST 8710 INTRODUCTION TO THE TEACHING OF HISTORY (3) SEM. SU. Introduction to some of the challenges involved in teaching history at the college level.

HIST 8720 INTRODUCTION TO GRADUATE STUDIES (1) SEM. SU. This course is required for all graduate students in their first semester to prepare them for the history department’s graduate program and to introduce them to the fundamentals of the history profession. Students are introduced to various aspects of graduate level study in history.

HIST 8730 INTRODUCTION TO THE HISTORICAL PROFESSION (1) SEM. SU. This course is a required pass/fail course that students take in the second semester of their second year (for M.A. students) or in the second semester of their third year (for PhD students) to further prepare them for the history profession. Students are introduced to various aspects of “professional life after graduate school.”

HIST 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and writing of the PhD dissertation. Course may be repeated with change in topics.

History (HIST)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
Core History	3	Core History to complete the sequence	3

Core Mathematics	3	Core Fine Arts	3
		Free Electives	2
	13		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core Social Science	3
Core Humanities	3	Core Science II	4
Core Social Science	3	LBAR 2010 Liberal Arts Careers Preparation	2
Core Science I	4	**Group 1 course**[2]	**3**
Group 1 course[2]	**3**	**HIST 3800 Historian's Craft**[3]	**3**
	16		**15**

Junior

Fall	Hours	Spring	Hours
Group 2 courses[2]	**6**	**Group 2 courses**[2]	**6**
Liberal Arts Elective[2]	3	Free Electives[2]	10
Free Elective[2]	6		
	15		**16**

Senior

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking	3	**HIST 4950 Senior Thesis: Historical Research and Writing *or* 4970 Senior Seminar**	**3**
Group 3 courses[1]	**6**	**Group 3 course**[1]	**3**
Free Electives[2]	3	Free Electives[2]	9
Liberal Arts Elective[2]	3	UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

1 Group 1 courses consist of any 2000-level history course; Group 2 courses consist of any 3000-level history course; Group 3 courses consist of any 5000-level history course. One three-hour course must cover topics outside of European and United States history. The following courses will meet this one-course requirement: HIST 2100, HIST 2110, HIST 2120, HIST 2130, HIST 3640, HIST 5620, HIST 5640, HIST 5650, HIST 5660, and HIST 5680. The history advisor may also approve specific sections of HIST 3970 and HIST 5970 if they are focused on non-European and non-United States topics.

2 Students must meet with their advisor to identify liberal arts and free electives.

3 Students must successfully complete HIST 3800 before they can take 5000-level courses in history. In addition, they must complete HIST 3800 with at least a C to enroll in HIST 4950 or HIST 4970.

History Minor

Code	Title	Hours
Courses Required: Minimum of 6 hours at the 2000-level and 9 hours at the 3000-level or above.		15
Total Hours		**15**

1 All above the 1000-level

At least 9 hours required for the minor must be completed at Auburn or through AU approved study abroad.

Department of Music

The Department of Music offers the Bachelor of Music and Bachelor of Arts degree programs, as well as a Minor in Music Business. There are also many ensemble performance opportunities for both music majors and non-music majors.

Degrees and Programs

Bachelor of Music

Considered a professional degree by the National Association of Schools of Music, the Bachelor of Music degree is available in the following areas of concentration:

- Instrumental Performance (p. 1063)
- Piano Performance (p. 1057)
- Vocal Performance (p. 1065)
- Composition (Technology) (p. 1062)
- Commercial Music (p. 1060)

The Bachelor of Music degree prepares students for careers as performers, applied music teachers, composers, songwriters, and music business and industry professionals as well as preparing them for advanced study in graduate music programs.

Bachelor of Arts (p. 1059)

The Bachelor of Arts degree is a more generalized music degree that combines training in basic musicianship and performance with a wide range of music electives and an additional minor. This degree prepares students for careers in the music industry that may be less performance-intensive, or as a partner with another, unrelated degree program in preparation for careers that may require both areas of expertise.

Bachelor of Music Education (p. 505)

The Department of Music works in cooperation with the College of Education to provide course offerings for the Bachelor of Music Education degree. This degree includes the study of basic musicianship, performance, and education and leads to Alabama state certification as a K-12 music teacher.

Minor in Music Business (p. 1066)

This minor is available to all Auburn students and provides coursework and training in the organization and structure of the commercial music industry, the business aspect of recording studios and music distribution, concert/event promotion, and artist promotion. The minor in music business is a 15 credit-hour program and takes two full years to complete.

Ensembles

The Department of Music provides qualified and interested students, regardless of their major, with the opportunity to participate in a variety of performance groups. All ensembles are courses for credit. Concert Bands, Choirs & Vocal Ensembles, Orchestra, Marching Band, Jazz Band, Commercial Ensembles, and Chamber Ensembles are all available. For more information, please visit the Ensembles page of the Department of Music website. Many performance groups require a successful audition for participation, which can be arranged through the ensemble's director.

Admission

Students must comply with these requirements to be admitted to the Bachelor of Music, Bachelor of Arts, or Bachelor of Music Education degree programs:

- Apply for admission and be accepted to the university.
- Apply to the Department of Music and successfully complete an audition in their applied field of study.

Detailed information about auditions for degree programs is available on the Music Department website.

Majors

- Bachelor of Arts in Music (p. 1059)
- Bachelor of Music: Commercial Music track (p. 1060)
- Bachelor of Music: Composition (Technology) track (p. 1062)

- Bachelor of Music: Instrumental track (p. 1063)
- Bachelor of Music: Piano track (p. 1057)
- Bachelor of Music: Voice track (p. 1065)

Minors

- Music (p. 1066)
- Music Business (p. 1066)

Music Courses

MUSI 1000 PERFORMANCE ATTENDANCE (0) LEC. 1. SU. Pr., Enrollment in MUAP. Required during each semester of MUAP enrollment. Monitored attendance at studio and departmental convocations, as well as approved concerts, lectures, and special presentations within the Department of Music and the community. Course may be repeated with change in topics.

MUSI 1020 PIANO SKILLS I - RUDIMENTS (1) LEC. 2. Group instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1030, MUSI 2040, or MUSI 2050.

MUSI 1030 PIANO SKILLS II (1) LEC. 2. Pr. MUSI 1020 or Departmental approval. Group Instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2040 or MUSI 2050.

MUSI 1050 SINGER'S DICTION (1) LEC. 2. Coreq., Enrolled in MUAP (Applied Voice) class. Introduction to the rules of singing in English, Italian, German, and French as applied to art songs and arias through use of the IPA.

MUSI 1310 MUSIC THEORY I (2) LEC. 2. Coreq. MUSI 1320. Systematic study of music composition procedures, form, and style during the Period of Common Practice. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1410 or MUSI 2310.

MUSI 1320 MUSIC SKILLS I (1) LEC. 3. Coreq. MUSI 1310. Development of aural, keyboard and sight singing skills with an understanding of basic harmonic practices. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1420 or MUSI 2320.

MUSI 1330 MUSIC THEORY AND SKILLS I (3) LEC. 3. LAB. 2. Pr. P/C MUAP 1110 or P/C MUAP 1520 or P/C MUAP 1530. The purpose of the course is to help students acquire an appreciation for, and understanding of, the compositional procedures, form, and style found during the Period of Common Practice through the systematic study of the fundamentals of music, chords, voice-leading, harmonic progressions, and analysis of musical scores.

MUSI 1410 MUSIC THEORY II (2) LEC. 2. Pr. MUSI 1310 or Departmental approval. Systematic study of music composition procedures, form, and style during the Period of Common Practice. For Music majors and minors. Normally taken with MUSI 1420. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2310. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1310 to enroll in this course.

MUSI 1420 MUSIC SKILLS II (1) LEC. 3. Pr. MUSI 1320 or Departmental approval. Development of aural, keyboard, and sight-singing skills with an understanding of basic harmonic practices. For Music majors and minors. Normally taken concurrently with MUSI 1410. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2320. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1320 to enroll in this course.

MUSI 1430 MUSIC THEORY AND SKILLS II (3) LEC. 3. LAB. 2. Pr. (MUSI 1330) and (P/C MUAP 1210 or P/C MUAP 1620 or P/C MUAP 1630). The second in the series of Music Theory and Skills courses. Designed to create an increased ability to understand and apply compositional procedures, forms, and styles found during the Period of Common Practice. This course is also designed to develop aural and sight-singing skills with melodic, harmonic, and rhythmic dictation and performance.

MUSI 2040 FUNCTIONAL PIANO I (1) LEC. 2. Pr. MUSI 1030 or Departmental approval. Development of functional piano skills for use in classroom, rehearsal or studio. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2050. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1030 to enroll in this course.

MUSI 2050 FUNCTIONAL PIANO II (1) LEC. 2. Pr. MUSI 2040 or Departmental approval. Development of functional piano skills for use in classroom, rehearsal or studio. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 2040 to enroll in this course.

MUSI 2150 ADVANCED DICTION (1) LAB. 2. Pr. MUSI 1050. Coreq., Enrolled in a MUAP (Applied Voice) class. Advanced study of the rules of singing in Italian, Spanish, German, and French through the use of the IPA. BA in Music and BM majors must receive a grade of "C" or better in MUSI 1050 to enroll in this course.

MUSI 2200 FUNDAMENTALS OF ARRANGING FOR COMMERCIAL MUSIC (2) LEC. 2. Pr. (MUSI 1430). A systematic study of the fundamentals of notation using Finale and/or Sibelius and the principles and techniques of writing and arranging for rhythm section and lead-line in a solo instrument or voice.

MUSI 2310 MUSIC THEORY III (2) LEC. 2. Pr. MUSI 1410 and MUSI 1320 or Departmental approval. Systematic study of music composition procedures, form and style from the advent of chromaticism through the music of late 19th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1320 and MUSI 1410 to enroll in this course.

MUSI 2320 MUSIC SKILLS III (1) LEC. 3. Pr. MUSI 1410 and MUSI 1420 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 1420 to enroll in this course.

MUSI 2330 MUSIC THEORY AND SKILLS III (3) LEC. 3. LAB. 2. Pr. (MUSI 1430) and (P/C MUAP 2110 or P/C MUAP 2520 or P/C MUAP 2530). The third course of a four-course sequence, Theory and Skills III is a systematic study of harmony, compositional procedures, form, and style of tonal music from the late 17th Century through the music of the early 20th Century. Because this course will also continue the development of aural dictation and sight-singing, mastery of material from the first two courses is assumed.

MUSI 2410 MUSIC THEORY IV (2) LEC. 2. Pr. MUSI 1420 and MUSI 2310 or Departmental approval. Systematic study of music composition procedures, form, and style from the late 19th century through the music of the 20th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1420 and MUSI 2310 to enroll in this course.

MUSI 2420 MUSIC SKILLS IV (1) LEC. 3. Pr. MUSI 1410 and MUSI 2320 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with the understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 2320 to enroll in this course.

MUSI 2430 MUSIC THEORY AND SKILLS IV (3) LEC. 3. LAB. 2. Pr. (MUSI 2330) and (P/C MUAP 2210 or P/C MUAP 2620 or P/C MUAP 2630). A systematic study of compositional procedures, form, and style from the late 19th Century through the music of the 20th Century. As the final course in a four semester sequence, mastery of material from the first three courses is assumed.

MUSI 2440 MUSIC THEORY AND SKILLS IV: COMMERCIAL MUSIC (3) LEC. 2. LAB. 2. Pr. MUSI 2330. A systematic study of compositional procedures, form and style from the late 19th century through the music of the 20th century with special focus on American popular music styles. As the final course in a four semester sequence, mastery of material from the first three courses is assumed.

MUSI 2450 ELECTRONIC MUSIC HISTORY (2) LEC. 2. Overview of the development and rise of electronic musical instruments, digital instruments, and circuitry-based music technologies.

MUSI 2480 FOUNDATIONS OF MUSIC TECHNOLOGY (3) LEC. 3. A foundational study of essential academic, creative, and professional music technology tools and techniques used in MIDI sequencing, digital recording, digital audio workstations, and digital music notation.

MUSI 2730 APPRECIATION OF MUSIC (3) LEC. 3. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2737 HONORS APPRECIATION OF MUSIC (3) LEC. 3. Pr. Honors College. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2740 SURVEY OF POPULAR MUSIC (3) LEC. 3. Fine Arts Core. Survey of popular music styles from the late 19th century to the present day. No previous music training required. May count either MUSI 2740, MUSI 2743, or MUSI 2747.

MUSI 2747 HONORS SURVEY OF POPULAR MUSIC (3) LEC. 3. Pr. Honors College. Fine Arts Core. Survey of popular music styles from the late 19th century to the present day. No previous music training required. May count either MUSI 2740 or MUSI 2743.

MUSI 2750 MUSIC AND SCIENCE (3) LEC. 3. Fine Arts Core. Music and its connection to science throughout history. No previous music training required.

MUSI 3040 BRASS INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching brass musical instruments.

MUSI 3060 WOODWIND INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Class instruction and practice in the techniques of playing and teaching woodwind musical instruments.

MUSI 3080 PERCUSSION INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching various percussion instruments.

MUSI 3090 STRING INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching upper and lower string musical instruments.

MUSI 3110 PIANO LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Renaissance to the Classical era, with emphasis on musical styles.

MUSI 3120 PIANO LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Romantic era to the present, with emphasis on musical styles.

MUSI 3130 VOCAL LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Survey of representative art song repertoire, including techniques and application of song study, musicianship, interpretation, and performance practice.

MUSI 3140 VOCAL LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the development of opera and oratorio literature from 1600 to the present time.

MUSI 3150 BRASS LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on brass instruments.

MUSI 3160 PERCUSSION LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on percussion instruments.

MUSI 3170 WOODWIND LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on woodwind instruments.

MUSI 3180 STRING LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on string instruments.

MUSI 3200 FORM AND ANALYSIS (3) LEC. 3. Pr. MUSI 2410. Study of the formal structure of music from 1700-1950 with an emphasis on standard forms and analytical techniques.

MUSI 3290 JAZZ THEORY AND IMPROVISATION (3) LEC. 3. Pr. MUSI 1410. Major practical and theoretical areas informing jazz performance.

MUSI 3300 SONGWRITING (3) LEC. 3. Pr. MUSI 1430. A systematic study of basic songwriting techniques covering a variety of styles, with an introduction to lyric considerations and an emphasis on compositional decisions and choices available to the lyricist. Prior musical training and performance experience required.

MUSI 3440 AUDIO ENGINEERING I (2) LEC. 1, LST. 1. An overview of digital recording studio equipment, recording techniques and procedures, signal flow and audio processing, microphone design and application, as well as digital audio editing and mixing.

MUSI 3450 AUDIO ENGINEERING II (3) LEC. 1.5. LAB. 1.5. Pr. (MUSI 3440). An in-depth study of advanced, professional level audio recording, editing, mixing, mastering, and live sound techniques through hands-on experiences in a recording studio setting.

MUSI 3510 MUSIC HISTORY I (3) LEC. 3. Pr. MUSI 1430. Study of the development of music from the earliest times through early 18th-century styles through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1430 to enroll in this course.

MUSI 3520 MUSIC HISTORY II (3) LEC. 3. Pr. MUSI 3510. Study of the development of music from the early 18th century to the present day through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3510 to enroll in this course.

MUSI 3610 CHORAL CONDUCTING I (2) LEC. 2. Pr. MUSI 2430. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3620 CHORAL CONDUCTING II (2) LEC. 2. Pr. MUSI 3610. Advanced conducting technique with practical experience in preparing choral groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3610 to enroll in this course.

MUSI 3630 INSTRUMENTAL CONDUCTING I (2) LEC. 2. Pr. MUSI 2430. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3640 INSTRUMENTAL CONDUCTING II (2) LEC. 2. Pr. MUSI 3630. Advanced conducting technique with practical experience in preparing instrumental groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3630 to enroll in this course.

MUSI 3700 ADVANCED DIGITAL AUDIO WORKSTATION OPERATIONS (2) LEC. 2, LST. 1. Pr. (P/C MUSI 2430 or P/C MUSI 2440). Advanced study of digital audio workstation operations focusing on Logic Pro.

MUSI 3800 JUNIOR PERFORMANCE RECITAL (1) PRL. 1. SU. Pr. MUAP 3520. Coreq., Enrollment in a MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a junior recital.

MUSI 3810 PORTFOLIO AND PROFESSIONAL DEVELOPMENT (2) LEC. 2. Analysis, evaluation and creation of portfolio materials needed for successful entry into the music business. Development of communication and interview skills.

MUSI 3830 MUSIC BUSINESS I: SURVEY OF THE MUSIC INDUSTRY (3) LEC. 3. An overview of the commercial music industry, including a focus on the professionals who comprise the artist's team, how music is distributed and the value of music in the marketplace.

MUSI 3840 MUSIC BUSINESS II: BRANDING AND PROMOTION (3) LEC. 3. Pr. MUSI 3830. An entrepreneurial approach to branding and promotion in the commercial music industry.

MUSI 3850 PROMOTION IN THE MUSIC INDUSTRY: HOW TO PROMOTE AN ARTIST (3) LEC. 3. A focused study of the essential elements of artist self-promotion or promotion of other artists, from traditional and non-traditional media to imaging, marketing and branding.

MUSI 3860 LEGAL ASPECTS OF THE MUSIC INDUSTRY (3) LEC. 3. Legal Aspects of the Music Industry examines the legal issues business leaders, artists, musicians, engineers, and producers encounter when building their companies and careers, focusing on important legal changes that have evolved as a result of the continuing shifts in the music business landscape.

MUSI 3970 SPECIAL TOPICS IN MUSIC (3) LEC. 3. Study of substantive topics and issues in music. Course may be repeated for a maximum of 6 credit hours.

MUSI 4000 MUSIC EDUCATION SENIOR RECITAL PROJECT (1) PRL. SU. Pr., Music Education major and MUAP 3120. Coreq., MUAP 3220. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital project.

MUSI 4010 VOCAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. For prospective voice teachers. Intensive study of the materials and methods of voice training.

MUSI 4020 INSTRUMENTAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. and BA in Music or BM major. For prospective instrumental teachers. Intensive study of the materials and methods of teaching various brass, woodwind and percussion instruments.

MUSI 4030 PIANO PEDAGOGY (2) LEC. 2. Music majors and minors specializing in piano or Departmental approval. Study of techniques, methods and experiences of former and current teachers to equip the student for future piano teaching.

MUSI 4280 AMERICAN ART MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. and BA in Music major or BM major or departmental approval. Survey of American art music from colonial times until the present.

MUSI 4290 FILM MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. History and analysis of film music. Basic scoring techniques will be applied to short scoring projects.

MUSI 4620 ORCHESTRATION FOR VIRTUAL ENSEMBLES (2) LEC. 2, LST. 1. Pr. MUSI 2430 or MUSI 2440. Techniques and sample technologies used in virtual orchestration and hybrid-music production with emphasis placed on the production values of the student work. Issues and techniques related to expression, musicality, idiomatic performance, and sonic quality will be addressed throughout the course.

MUSI 4660 COMMERCIAL MUSIC: RECORDING AND PRODUCTION (3) LEC. 3. Create, produce, and bring to market a product of recorded music. Develop and implement marketing materials and campaigns, and deliver that product across all media outlets.

MUSI 4670 COMMERCIAL MUSIC: CONCERT PROMOTION (3) LEC. 3. Create, produce, and promote two live concert events. Develop and implement marketing materials and campaigns and deliver that product across all media outlets.

MUSI 4700 BA CAPSTONE PROJECT (3) LEC. 1. SU. Pr. MUAP 2620. Capstone course requiring a culminating thesis or project bringing together prior music coursework.

MUSI 4800 SENIOR PERFORMANCE RECITAL (2) PRL. 2. SU. Pr. MUAP 4520. Coreq., Enrollment in MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital.

MUSI 4920 INTERNSHIP (3) INT. Pr. MUSI 3810 and MUSI 3830 and MUSI 3840 and MUSI 4660 and MUSI 4670. Supervised work experience in the student's preferred discipline of the commercial music industry, applying classroom concepts in a real-world setting. Departmental approval required.

MUSI 4930 DIRECTED STUDY (1-3) IND. Pr., Departmental approval. Independent study directed toward desired objectives related to student's areas of interest and specialization. Course may be repeated with change in topic. Course may be repeated for a maximum of 3 credit hours.

MUSI 5110 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 6110 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 7000 GRADUATE CHORAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7010 GRADUATE CHORAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7000 or MUSI 7006. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7040 GRADUATE INSTRUMENTAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7050 GRADUATE INSTRUMENTAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7040 or MUSI 7046. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7100 CHORAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7110 CHORAL ARRANGING II (3) LEC. 3. Pr. MUSI 7100 or MUSI 7106. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7140 ORCHESTRAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for the orchestra.

MUSI 7230 ADVANCED FORMAL ANALYSIS (3) LEC. 3. Advanced formal analysis of standard music literature.

MUSI 7240 WIND BAND LITERATURE I (3) LEC. 3. Coreq., Approved MUSE course. History of the development of the wind band to 1950. Advanced analysis of Grades 1-3 wind band literature.

MUSI 7250 WIND BAND LITERATURE II (3) LEC. 3. Coreq., Approved MUSE course. History of the development of the wind band from 1950 to present.

MUSI 7310 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 7320 AFRICAN-AMERICAN CHORAL MUSIC (3) LEC. 3. A study of the choral music of African-American composers and its interaction with western musical styles.

MUSI 7970 SPECIAL TOPICS IN MUSIC (1-6) DMU. Provides an opportunity for graduate students to pursue cooperatively selected topics. Course may be repeated for a maximum of 12 credit hours.

Music - Applied Courses

MUAP 1110 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1210 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1110. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1310 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1410 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1310. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1520 PERFORMANCE I (2) PRL. 1. Pr., Successful audition and Departmental approval. Instruction in major performance medium for the first-year BM or BA in Music major. One-hour private lesson per week.

MUAP 1620 PERFORMANCE II (2) PRL. 1. Pr. MUAP 1520. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year BM or BA in Music major. One hour private lesson per week.

MUAP 2110 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1210. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week

MUAP 2210 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2110. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week.

MUAP 2520 PERFORMANCE III (2) PRL. 1. Pr. MUAP 1620. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 2620 PERFORMANCE IV (2) PRL. 1. Pr. MUAP 2520. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3120 PERFORMANCE V (1) PRL. 1. Pr. MUAP 2210. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3220 PERFORMANCE VI (1) PRL. 1. Pr. MUAP 3120. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3520 PERFORMANCE V (2) PRL. 1. Pr. MUAP 2620. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3620 PERFORMANCE VI (2) PRL. 1. Pr. MUAP 3520. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4520 PERFORMANCE VII (2) PRL. 1. Pr. MUAP 3620. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4620 PERFORMANCE VIII (2) STU. 1. Pr. MUAP 4520. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week. Course may be repeated for a maximum of 4 credit hours.

MUAP 4630 PERFORMANCE (1) PRL. 1. Pr. MUAP 4530. Departmental approval. Instruction in major performance medium for the fourth-yearmusic theatre major. Two half-hour private lessons perweek. Successful audition and

Music Ensemble Courses

MUSE 1100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 1150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 1160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 1240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 1260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 1300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 1440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 1600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 1620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 2100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2120 SYMPHONIC BAND (1) LAB. 3. Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 2150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 2160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 2240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 2260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 2300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2310 CONDUCTOR'S CHORUS (1) LAB. 3. . Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 2440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 2600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 2620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 3100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 3150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 3160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 3240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 3260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 3300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 3360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 3440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 3480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 3600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 3620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 4100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 4150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 4160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 4240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 4260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 4300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4390 HORN ENSEMBLE (1) LAB. 3. Pr., Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Department approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 4440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 4600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 4620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 7400 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7410 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7510 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7610 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

Music (BMU): Piano Track (MSLA)

Students must apply for admission to the Department of Music and successfully complete an audition in their applied area. Audition information and requirements are available from the music department office. Music majors must earn a grade of C (or higher) or S in music courses (MUSI, MUAP, MUSE) to satisfy course prerequisites and have them count toward the degree.

Freshman

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 1520 Performance I	**2**	**MUAP 1620 Performance II**	**2**
MUSE 1000-level Ensemble	**1**	**MUSE 1000-level Ensemble**	**1**
MUSI 1330 Music Theory and Skills I	**3**	**MUSI 1430 Music Theory and Skills II**	**3**
MUSE 1000-level Ensemble	**1**	**MUSE 1000-level Ensemble**	**1**
MUSI 2040 Functional Piano I	**1**	**MUSI 2050 Functional Piano II**	**1**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History[1]	3	Elective[2]	1
Elective[2]	1	Core Fine Arts[3]	3
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 2520 Performance III	**2**	**MUAP 2620 Performance IV**	**2**
MUSE 2000-level Ensemble	**1**	**MUSE 2000-level Ensemble**	**1**
MUSI 2330 Music Theory and Skills III	**3**	**MUSI 2430 Music Theory and Skills IV**	**3**
Core Literature[1]	3	Core Humanities (except COMM 1000) or Core Literature to complete sequence[1]	3
Core Math	3	Core Social Science	3
Core Social Science or Core History to complete sequence[1]	3	MUSI 3810 Portfolio and Professional Development ***or*** LBAR 2010 Liberal Arts Careers Preparation[4]	2
	15		**14**

Junior

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 3520 Performance V	**2**	**MUAP 3620 Performance VI**	**2**
MUSI 3510 Music History I	**3**	**MUSI 3800 Junior Performance Recital**	**1**
MUSI 3610 Choral Conducting I *or* 3630 Instrumental Conducting I	**2**	**MUSI 3520 Music History II**	**3**
MUSI 3110 Piano Literature I	**2**	**MUSI 3120 Piano Literature II**	**2**
MUSE 3000-level Ensemble	**1**	**MUSE 3000-level Ensemble**	**1**
Core Science I	4	Core Humanities	3
Elective[2]	2	Core Science II	4
	16		**16**

Senior

Fall	Hours	Spring	Hours
MUAP 4520 Performance VII	**2**	**MUAP 4620 Performance VIII**	**2**
Music Elective[2]	**2**	**Music Elective[2]**	**3**
MUSE 4000-level Ensemble	**1**	**Music Elective[2]**	**3**
MUSI 4030 Piano Pedagogy	**2**	**MUSE 4000-level Ensemble**	**1**

Core Social Science	3	**MUSI 4800 Senior Performance Recital**	**2**
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
		UNIV 4AA0 Achieve the Creed	0
	14		**15**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the area not selected as the sequence.

2 Students should meet with their advisers to determine appropriate elective courses.

3 Music students may not count MUSI 2730 or MUSI 2737 toward the Fine Arts Core requirement.

4 Music students are encouraged to take MUSI 3810 to fulfill this requirement. If LBAR 2010 is used, MUSI 3810 cannot be used as an elective.

Music (BA) (MULA)

Students must apply for admission to the Department of Music and successfully complete an audition in their applied area. Audition information and requirements are available from the music department office. Music majors must earn a grade of C (or higher) or S in music courses (MUSI, MUAP, MUSE) to satisfy course prerequisites and have them count toward the degree.

Freshman

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 1520 Performance I	**2**	**MUAP 1620 Performance II**	**2**
MUSE 1000-level Ensemble	**1**	**MUSE 1000-level Ensemble**	**1**
MUSI 1330 Music Theory and Skills I	**3**	**MUSI 1430 Music Theory and Skills II**	**3**
MUSI 1020 Piano Skills I - Rudiments	**1**	**MUSI 1030 Piano Skills II**	**1**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History[1]	3	Core Fine Arts[5]	3
Minor[2]	2	Minor[2]	2
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 2520 Performance III	**2**	**MUAP 2620 Performance IV**	**2**
MUSE 2000-level Ensemble	**1**	**MUSE 2000-level Ensemble**	**1**
MUSI 2330 Music Theory and Skills III	**3**	**MUSI 2430 Music Theory and Skills IV**	**3**
MUSI 2040 Functional Piano I	**1**	**MUSI 2050 Functional Piano II**	**1**
Core Literature[1]	3	Core Humanities (except COMM 1000) or Core Literature to complete sequence[1]	3
Core Social Science or Core History to complete sequence[1]	3	Core Social Science	3
Minor[2]	2	MUSI 3810 Portfolio and Professional Development ***or*** LBAR 2010 Liberal Arts Careers Preparation[3]	2
	15		**15**

Junior

Fall	Hours	Spring	Hours
MUSI 3510 Music History I	**3**	**MUSI 3520 Music History II**	**3**
MUSI 3610 Choral Conducting I *or* 3630 Instrumental Conducting I	**2**	**Music Elective[4]**	**2**
MUSE 3000-level Ensemble	**1**	**MUSE 3000-level Ensemble**	**1**
Core Science I	4	Core Science II	4
Core Math	3	Core Humanities	3
Minor[2]	2	Minor[2]	2
	15		**15**

Senior

Fall	Hours	Spring	Hours
3000/4000-level course in Music History/Theory	**3**	**MUSE 4000-level Ensemble**	**1**
MUSE 4000-level Ensemble	**1**	**Music Elective[4]**	**2**
Music Elective[4]	**2**	**MUSI 4700 BA Capstone Project**	**3**
Core Social Science	3	Foreign Language II (College Core)	4
Foreign Language I (College Core)	4	Minor[2]	5
Electives[3]	2	UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the area not selected as the sequence.
2. Requirements for minors vary. Students should check with their advisers for appropriate courses.
3. Music students are encouraged to take MUSI 3810 to fulfill this requirement. If LBAR 2010 is used, MUSI 3810 cannot be used as an elective.
4. Students should meet with their advisers to determine appropriate music electives and other elective courses.
5. Music Majors may not count MUSI 2730 or 2737 toward the Fine Arts Core requirement.

Music (BMU): Commercial Music Track (MSLA)

Students must apply for admission to the Department of Music and successfully complete an audition in their applied area. Audition information and requirements are available from the music department office. Music majors must earn a grade of C (or higher) or S in music courses (MUSI, MUAP, MUSE) to satisfy course prerequisites and have them count toward the degree.

Freshman

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 1520 Performance I	**2**	**MUAP 1620 Performance II**	**2**
MUSI 1020 Piano Skills I - Rudiments	**1**	**MUSI 1030 Piano Skills II**	**1**
MUSI 1330 Music Theory and Skills I	**3**	**MUSI 1430 Music Theory and Skills II**	**3**
1000 Level Ensemble	**1**	**1000 Level Ensemble**	**1**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3

Core History	3	Core Fine Arts[3]	3
	13		**13**

Sophomore

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 2520 Performance III	**2**	**MUAP 2620 Performance IV**	**2**
2000 Level Ensemble	**1**	**2000 Level Ensemble**	**1**
MUSI 2330 Music Theory and Skills III	**3**	**MUSI 2440 Music Theory and Skills IV: Commercial Music**	**3**
MUSI 2200 Fundamentals of Arranging for Commercial Music	**2**	MUSI 3810 Portfolio and Professional Development ***or*** LBAR 2010 Liberal Arts Careers Preparation[4]	2
Core Literature	3	Core Humanities (except COMM 1000) or Core Literature to complete sequence[1]	3
Core Social Science or Core History to complete sequence[1]	3	Core Social Science	3
	14		**14**

Junior

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 3520 Performance V	**2**	**MUAP 3620 Performance VI**	**2**
MUSI 3510 Music History I (300)	**3**	**MUSI 3520 Music History II**	**3**
MUSI 3830 Music Business I: Survey of the Music Industry	**3**	**MUSI 3840 Music Business II: Branding and Promotion**	**3**
Music Elective[2]	**3**	**3000 Level Ensemble**	**1**
3000 Level Ensemble	**1**	Core Math	3
Core Science I	4	Core Science II	4
	16		**16**

Senior

Fall	Hours	Spring	Hours	Summer	Hours
MUAP 4520 Performance VII	**2**	**MUAP 4620 Performance VIII**	**2**	**MUSI 4920 Internship**	**3**
MUSI 4660 Commercial Music: Record Company Operations	**3**	**MUSI 4800 Senior Performance Recital**	**2**		
Music Elective[2]	**3**	**MUSI 4670 Commercial Music: Concert Promotion**	**3**		
4000 Level Ensemble	**1**	**4000 Level Ensemble**	**1**		
Core Social Science	3	Core Humanities	3		
Foreign Language I	4	Foreign Language II	4		
		UNIV 4AA0 Achieve the Creed	0		
	16		**15**		**3**

Total Hours: 120

1 Students are required to complete a two-course history sequence *or* a two-course literature sequence. They are also required to complete one Core History *or* Core Literature course in the area not selected as the sequence.
2 Students should meet with their advisers to determine appropriate elective courses.
3 Music Students may not count MUSI 2730 or MUSI 2737 toward the Fine Arts Core requirement.
4 Music students are encouraged to take MUSI 3810 to fulfill this requirement. If LBAR 2010 is used, MUSI 3810 cannot be used as an elective.

Music (BMU): Composition (Technology) Track (MSLA)

Students must apply for admission to the Department of Music and successfully complete an audition in their applied area. Audition information and requirements are available from the music department office. Music majors must earn a grade of C (or higher) or S in music courses (MUSI, MUAP, MUSE) to satisfy course prerequisites and have them count toward the degree.

Freshman

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 1520 Performance I	**2**	**MUAP 1620 Performance II**	**2**
MUSE 1000-level Ensemble	**1**	**MUSE 1000-level Ensemble**	**1**
MUSI 1330 Music Theory and Skills I	**3**	**MUSI 1430 Music Theory and Skills II**	**3**
MUSI 1020 Piano Skills I - Rudiments	**1**	**MUSI 1030 Piano Skills II**	**1**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History[1]	3	Core Fine Arts[3]	3
	13		**13**

Sophomore

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 2520 Performance III	**2**	**MUAP 2620 Performance IV**	**2**
MUSE 2000-level Ensemble	**1**	**MUSE 2000-level Ensemble**	**1**
MUSI 2330 Music Theory and Skills III	**3**	**MUSI 2430 Music Theory and Skills IV**	**3**
MUSI 2040 Functional Piano I	**1**	**MUSI 2050 Functional Piano II**	**1**
MUSI 2480 Foundations of Music Technology	**3**	**MUSI 2450 Electronic Music History**	**2**
Core Literature[1]	3	Core Humanities (except COMM 1000) or Core Literature to complete sequence[1]	3
Core Social Science or History to complete sequence[1]	3	Core Social Science	3
		MUSI 3810 Portfolio and Professional Development ***or*** LBAR 2010 Liberal Arts Careers Preparation[4]	2
	16		**17**

Junior

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 3520 Performance V	**2**	**MUAP 3620 Performance VI**	**2**
MUSI 3510 Music History I	**3**	**MUSI 3520 Music History II**	**3**
MUSI 3440 Audio Engineering I	**2**	**MUSI 3700 Advanced Digital Audio Workstation Operations**	**2**

Music Elective[2]	**3**	**MUSI 3450 Audio Engineering II**	**3**
Select one of the following:	**2**	Core Math	3
MUSI 3630 Instrumental Conducting I[3]		Core Science II	4
MUSI 3610 Choral Conducting I			
Core Science I	4		
	16		**17**

Senior

Fall	Hours	Spring	Hours
MUAP 4520 Performance VII	**2**	**MUAP 4620 Performance VIII**	**2**
MUSI 4620 Orchestration for Virtual Ensembles	**2**	**MUSI 4800 Senior Performance Recital**	**2**
Music Elective[2]	**3**	Core Humanities	3
Core Social Science	3	Foreign Language II	4
Foreign Language I	4	Music Elective[2]	3
		UNIV 4AA0 Achieve the Creed	0
	14		**14**

Total Hours: 120

1 Students are required to complete a two-course history sequence *or* a two-course literature sequence. They are also required to complete one Core History *or* Core Literature course in the area not selected as the sequence.
2 Students should meet with their advisers to determine appropriate elective courses.
3 Music Students may not count MUSI 2730 or MUSI 2737 toward the Fine Arts Core requirement.
4 Music students are encouraged to take MUSI 3810 to fulfill this requirement. If LBAR 2010 is used, MUSI 3810 cannot be used as an elective.

Music (BMU): Instrumental Track (MSLA)

Students must apply for admission to the Department of Music and successfully complete an audition in their applied area. Audition information and requirements are available from the music department office. Music majors must earn a grade of C (or higher) or S in music courses (MUSI, MUAP, MUSE) to satisfy course prerequisites and have them count toward the degree.

Freshman

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 1520 Performance I	**2**	**MUAP 1620 Performance II**	**2**
MUSE 1000-level Ensemble	**1**	**MUSE 1000-level Ensemble**	**1**
MUSI 1330 Music Theory and Skills I	**3**	**MUSI 1430 Music Theory and Skills II**	**3**
MUSI 1020 Piano Skills I - Rudiments	**1**	**MUSI 1030 Piano Skills II**	**1**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History[1]	3	Core Fine Arts[3]	3
	13		**13**

Sophomore

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 2520 Performance III	**2**	**MUAP 2620 Performance IV**	**2**

MUSE 2000-level Ensemble	**1**	**MUSE 2000-level Ensemble**	**1**
MUSI 2330 Music Theory and Skills III	**3**	**MUSI 2430 Music Theory and Skills IV**	**3**
MUSE 2000-level Ensemble	**1**	**MUSE 2000-level Ensemble**	**1**
MUSI 2040 Functional Piano I	**1**	**MUSI 2050 Functional Piano II**	**1**
Core Literature[1]	3	Core Humanities (except COMM 1000) or Core Literature to complete sequence[1]	3
Core Social Science or Core History to complete sequence[1]	3	Core Social Science	3
		MUSI 3810 Portfolio and Professional Development ***or*** LBAR 2010 Liberal Arts Careers Preparation[4]	2
	14		**16**

Junior

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 3520 Performance V	**2**	**MUAP 3620 Performance VI**	**2**
MUSI 3510 Music History I	**3**	**MUSI 3800 Junior Performance Recital**	**1**
Select one of the following courses:	**2**	**MUSI 3520 Music History II**	**3**
MUSI 3150 Brass Literature		**MUSE 3000-level Ensemble**	**1**
MUSI 3160 Percussion Literature		**MUSE 3000-level Ensemble**	**1**
MUSI 3170 Woodwind Literature		Core Math	3
MUSI 3180 String Literature		Core Science II	4
MUSI 3630 Instrumental Conducting I	**2**	Elective[2]	1
MUSE 3000-level Ensemble	**1**		
MUSE 3000-level Ensemble	**1**		
Core Science I	4		
Elective[2]	1		
	16		**16**

Senior

Fall	Hours	Spring	Hours
MUAP 4520 Performance VII	**2**	**MUAP 4620 Performance VIII**	**2**
Music Elective[2]	**3**	**Music Elective[2]**	**3**
MUSE 4000-level Ensemble	**1**	**MUSE 4000-level Ensemble**	**1**
MUSE 4000-level Ensemble	**1**	**MUSE 4000-level Ensemble**	**1**
MUSI 4020 Instrumental Pedagogy	**2**	**MUSI 4800 Senior Performance Recital**	**2**
Core Social Science	3	Core Humanities	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
		UNIV 4AA0 Achieve the Creed	0
	16		**16**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the area not selected as the sequence.

2 Students should meet with their advisers to determine appropriate elective courses.

3 Music Students may not count MUSI 2730 or MUSI 2737 toward the Fine Arts Core requirement.

[4] Music students are encouraged to take MUSI 3810 to fulfill this requirement. If LBAR 2010 is used, MUSI 3810 cannot be used as an elective.

Music (BMU): Voice Track (MSLA)

Students must apply for admission to the Department of Music and successfully complete an audition in their applied area. Audition information and requirements are available from the music department office. Music majors must earn a grade of C (or higher) or S in music courses (MUSI, MUAP, MUSE) to satisfy course prerequisites and have them count toward the degree.

Freshman

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 1520 Performance I	**2**	**MUAP 1620 Performance II**	**2**
MUSE 1000-level Ensemble	**1**	**MUSE 1000-level Ensemble**	**1**
MUSI 1330 Music Theory and Skills I	**3**	**MUSI 1430 Music Theory and Skills II**	**3**
MUSI 1020 Piano Skills I - Rudiments	**1**	**MUSI 1030 Piano Skills II**	**1**
MUSI 1050 Singer's Diction	**1**	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Fine Arts[3]	3
Core History[1]	3		
	14		**13**

Sophomore

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 2520 Performance III	**2**	**MUAP 2620 Performance IV**	**2**
MUSE 2000-level Ensemble	**1**	**MUSE 2000-level Ensemble**	**1**
MUSI 2330 Music Theory and Skills III	**3**	**MUSI 2430 Music Theory and Skills IV**	**3**
MUSE 2000-level Ensemble	**1**	**MUSE 2000-level Ensemble**	**1**
MUSI 2040 Functional Piano I	**1**	**MUSI 2050 Functional Piano II**	**1**
Music Elective[2]	1	Core Humanities (except COMM 1000) or Core Literature to complete sequence[1]	3
Core Literature[1]	3	MUSI 3810 Portfolio and Professional Development ***or*** LBAR 2010 Liberal Arts Careers Preparation[4]	2
Core Social Science or Core History to complete sequence [1]	3	Core Social Science	3
	15		**16**

Junior

Fall	Hours	Spring	Hours
MUSI 1000 Performance Attendance	**0**	**MUSI 1000 Performance Attendance**	**0**
MUAP 3520 Performance V	**2**	**MUAP 3620 Performance VI**	**2**
MUSI 3510 Music History I	**3**	**MUSI 3800 Junior Performance Recital**	**1**
MUSI 3610 Choral Conducting I	**2**	**MUSI 3520 Music History II**	**3**
MUSI 3130 Vocal Literature I	**2**	**MUSI 3140 Vocal Literature II**	**2**
MUSE 3000-level Ensemble	**1**	**MUSE 3000-level Ensemble**	**1**
Core Science I	4	Core Math	3

Music Elective[2]		2	Core Science II	4
		16		**16**
Senior				
Fall	**Hours**		**Spring**	**Hours**
MUAP 4520 Performance VII		**2**	**MUAP 4620 Performance VIII**	**2**
Music Elective[2]		**3**	**Music Elective[2]**	**3**
MUSE 4000-level Ensemble		**1**	**MUSE 4000-level Ensemble**	**1**
MUSI 4010 Vocal Pedagogy		**2**	**MUSI 4800 Senior Performance Recital**	**2**
Core Social Science		3	Core Humanities	3
Foreign Language I (College Core)		4	Foreign Language II (College Core)	4
			UNIV 4AA0 Achieve the Creed	0
		15		**15**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the area not selected as the sequence.

2 Students should meet with their advisers to determine appropriate elective courses.

3 Music Majors may not count MUSI 2730 or MUSI 2737 toward the Fine Arts Core requirement.

4 Music students are encouraged to take MUSI 3810 to fulfill this requirement. If LBAR 2010 is used, MUSI 3810 cannot be used as an elective.

Music Business Minor

Code	Title	Hours
MUSI 3830	Music Business I: Survey of the Music Industry	3
MUSI 3840	Music Business II: Branding and Promotion	3
MUSI 3850	Promotion in the Music Industry: How to Promote An Artist	3
MUSI 4660	Commercial Music: Record Company Operations	3
MUSI 4670	Commercial Music: Concert Promotion	3

Music Minor

To minor, arrange for a music theory skills test and performance audition with an applied music instructor. No course may be duplicated other than repeated ensembles. A minimum of nine (9) hours must be in 3000 or 4000 level courses.

Code	Title	Hours
MUSE Ensemble		1
MUSE Ensemble		1
MUSE Ensemble		1
MUSI 1310	Music Theory I	2
MUSI 1320	Music Skills I	1
MUSI 1410	Music Theory II	2
MUSI 1420	Music Skills II	1
MUSI 1000	Performance Attendance (2 semesters required)	0
Select from Group A or Group B:		2
Group A		
MUSI 3610	Choral Conducting I	
or MUSI 3630	Instrumental Conducting I	
Group B		

MUSI 4010	Vocal Pedagogy	
or MUSI 4020	Instrumental Pedagogy	
or MUSI 4030	Piano Pedagogy	
Select from Group A or Group B:		2-3
Group A		
MUSI 3510	Music History I	
or MUSI 3520	Music History II	
Group B		
MUSI 3110	Piano Literature I	
or MUSI 3120	Piano Literature II	
or MUSI 3130	Vocal Literature I	
or MUSI 3140	Vocal Literature II	
or MUSI 3150	Brass Literature	
or MUSI 3160	Percussion Literature	
or MUSI 3170	Woodwind Literature	
or MUSI 3180	String Literature	
Electives		
Select from Group A, Group B, Group C or Group D:		2-3
Group A		
MUAP 1310	Performance I (I) [1]	
MUAP 1410	Performance II (II)	
Group B		
MUSI 3510	Music History I	
Group C		
MUSI 3520	Music History II	
Group D		
MUSI 3110	Piano Literature I	
or MUSI 3120	Piano Literature II	
or MUSI 3130	Vocal Literature I	
or MUSI 3140	Vocal Literature II	
or MUSI 3150	Brass Literature	
or MUSI 3160	Percussion Literature	
or MUSI 3170	Woodwind Literature	
or MUSI 3180	String Literature	
Total Hours		**15-17**

[1] Entry is dependent upon successful audition and studio space.

Department of Philosophy

The curriculum in philosophy at Auburn cultivates skills in thinking, writing, and logical criticism, preparing students for any career path in which these skills are valued. Many Auburn graduates with a BA in philosophy have chosen to pursue degrees from professional schools, whether in law, business, or medicine. Others have chosen to enter seminary or to pursue graduate degrees in philosophy. Others have found success entering the workforce immediately, starting their own businesses, working in media outlets, or pursuing careers in politics.

Majors

- Philosophy (p. 1071)

Minors

- Philosophy (p. 1072)
- Philosophy and Religion (p. 1072)

Philosophy Courses

PHIL 1010 INTRODUCTION TO LOGIC (3) LEC. 3. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1017 HONORS LOGIC (3) LEC. 3. Pr. Honors College. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1020 INTRODUCTION TO ETHICS (3) LEC. 3. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought. May count either PHIL 1020 or PHIL 1023.

PHIL 1027 HONORS ETHICS (3) LEC. 3. Pr. Honors College. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought.

PHIL 1030 ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1037 HONORS ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Pr. Honors College. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1040 BUSINESS ETHICS (3) LEC. 3. Humanities Core. Types of ethical theory; application to such normative issues in commerce as advertising, management, and business abroad.

PHIL 1050 INTRODUCTION TO POLITICAL PHILOSOPHY (3) LEC. 3. Humanities Core. Principal theories and thinkers in political philosophy from antiquity to the present.

PHIL 1060 PHILOSOPHY EAST AND WEST (3) LEC. 3. Humanities Core. Principal thinkers and theories in four philosophical traditions: Indian, Chinese, European, and Arabic.

PHIL 1070 ART, VALUE, AND SOCIETY (3) LEC. 3. Humanities Core. Introduction to philosophical aesthetics, focusing on the relationship of artistic values and the extra-artistic values of societies that house them.

PHIL 1080 INTRODUCTION TO PHILOSOPHY OF RELIGION (3) LEC. 3. Humanities Core. Philosophy of religion, including questions about God's existence, relationship of reason and faith, religious epistemology, and language.

PHIL 1090 PHILOSOPHY OF RACE AND GENDER (3) LEC. 3. Humanities Core. Philosophical issues associated with race and gender, including role of biology and social construction, nature of prejudice, questions about justice and redress.

PHIL 1100 INTRODUCTION TO PHILOSOPHY (3) LEC. 3. Humanities Core. Methods of philosophical inquiry and examination of selected philosophical topics. May count either PHIL 1100 or PHIL 1103.

PHIL 1110 ETHICAL AND CONCEPTUAL FOUNDATIONS OF SCIENCE (3) LEC. 3. Introduction to the moral and conceptual foundations of science, concentrating on ethical facets of scientific research, theorizing, and knowledge production, as well as conceptual issues regarding the nature of causation, induction, scientific explanation and confirmation. May count either PHIL 1110 or PHIL 1113.

PHIL 1120 INTRODUCTION TO ENVIRONMENTAL ETHICS (3) LEC. 3. Ethical inquiry into environmental issues such as non-human animal welfare, environmental justice, global climate change, resource use, and conservationism versus preservationism.

PHIL 1130 MINDS AND MACHINES: THE PHILOSOPHY OF ARTIFICIAL INTELLIGENCE (3) LEC. 3. LAB. 0, LEC. 0. The course explores the foundations and ethical implications of Artificial Intelligences, including the nature of mind and consciousness, the moral ramifications of AI, and the relationship between AI and human creativity.

PHIL 2110 LOGIC AND REASONING (3) LEC. 3. Students will refine their ability to wield the tools of logical analysis in situations which call for precise reasoning, learning to apply these tools in a variety of contexts.

PHIL 2970 GATEWAY SEMINAR (3) LEC. 3. An introduction to philosophy through special topics. The course is designed to provide students with the basic skills required for more advanced work in philosophy. Topics vary. Course may be repeated for a maximum of 6 credit hours.

PHIL 3050 AESTHETICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Modern and contemporary theories of the nature of art.

PHIL 3060 PHILOSOPHY OF FILM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Consideration of philosophical issues raised within particular films and by the nature of cinematic representation in general.

PHIL 3100 ETHICAL THEORY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Overview of contemporary questions and positions in ethics, including moral realism, the rationality of moral action, subjectivism and non-cognitivism, naturalism, and various theories of practical reason.

PHIL 3110 SYMBOLIC LOGIC (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area IV) Propositional logic and predicate logic through relations; natural language and logic; some philosophical problems in logic.

PHIL 3200 RACE AND JUSTICE (3) LEC/SEM. Pr. A grade of D or higher in PHIL 1000-2999. This course is an intermediate introductory course that examines themes of race and justice from a philosophical perspective in both historical and contemporary contexts.

PHIL 3300 PHILOSOPHY OF RELIGION (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Nature of religion, religious experience, religious knowledge, religious theories of humanity and evil, arguments for the existence of God and immortality of the soul.

PHIL 3330 HISTORY OF ANCIENT PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from the Pre-Socratics through the Hellenistic philosophers, emphasizing Plato and Aristotle.

PHIL 3340 HISTORY OF EARLY MODERN PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Descartes to Kant, emphasizing major figures in the rationalist and empiricist traditions.

PHIL 3350 HISTORY OF LATE MODERN AND PRE-ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Kant to the Pre-Analytic philosophers, possibly including Schopenhauer, Hegel, Nietzsche, Kierkegaard, James, Brentano, Frege, Meinong, Cook-Wilson, Bradley, and Moore.

PHIL 3360 HISTORY OF EARLY ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought in the early Analytic period, including the works of Russell, Moore, Wittgenstein, and members of the Vienna Circle.

PHIL 3400 MEDIEVAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from late antiquity through the Middle Ages, with emphasis on the ideas of Plotinus, Islamic thinkers, Augustine, Abelard, Anselm, and Thomas Aquinas.

PHIL 3500 EPISTEMOLOGY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Origin, nature, kinds, and validity of knowledge, with considerations of faith, institution, belief, opinion, certainty, and probability.

PHIL 3510 PHILOSOPHY OF SCIENCE (3) LEC. 3. Student must have taken at least one philosophy course prior to taking PHIL 3510. Empirical meaning, verifiability, measurement, probability, causality and determinism.

PHIL 3530 PHILOSOPHY OF PHYSICS (3) LEC. 3. An overview of the philosophy of physics, with attention to topics such as the nature of matter, motion, change, space, time, space-time, time travel, Einstein's theories of special and general relativity, and non-relativistic quantum mechanics.

PHIL 3540 PHILOSOPHY OF MIND (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Classical and modern texts on the phenomenology of consciousness and mind-body problems.

PHIL 3550 PHILOSOPHY OF LANGUAGE (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Survey of contemporary philosophical discussions of the nature of language.

PHIL 3600 CLASSICAL POLITICAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. At least one course in philosophy at the 1000 level. Political thought of classical thinkers, including Plato, Aristotle, Machiavelli, Hobbes, Locke, Mill, Spencer, and Marx. (Area I for PHIL major)

PHIL 3620 CONTEMPORARY POLITICAL PHILOSOPHY (3) LEC. 3. Pr. POLI 3020. or at least one PHIL course at the 1000 or 2000 level. A survey of major schools of 20th- and 21st-century political thought, including liberalism, communitarianism, libertarianism, feminism, and anarchism. May count either PHIL 3620 or POLI 4340.

PHIL 3640 PHILOSOPHY OF LAW (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Functions of law, including judicial reasoning, ground of authority, natural law, legal responsibility, punishment, civil disobedience, and the relation of law to ethics.

PHIL 3660 APPLIED ETHICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Advanced philosophical study of the ethical issues that arise in intellectual endeavors, such as law, business, military science, and engineering.

PHIL 3700 METAPHYSICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Critical analysis of such topics as monism and pluralism, freedom and determinism, realism and nominalism, and the mind-body problem.

PHIL 3740 EXISTENTIALISM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Selected works of such authors as Kierkegaard, Neitzsche, Sartre, Jaspers, and Heidegger.

PHIL 3800 FEMINISM AND PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. This is an intermediate level philosophy course introducing students to feminist philosophers' attempts to grapple with traditional philosophical problems that either directly or indirectly bear on issues of gender and oppression. Texts may include historical and contemporary discussions of topics of concern to feminists, in any of the following areas: metaphysics, epistemology, ethics, philosophy of science, language, law and social political philosophy.

PHIL 3970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Topics vary. Course may be repeated for a maximum of 6hours.

PHIL 4110 ADVANCED LOGIC (3) LEC. 3. Pr. (P/C PHIL 3110 or P/C MATH 3100). Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics. May count either PHIL 4110 or MATH 4110.

PHIL 4920 INTERNSHIP (3) INT. 200. SU. Opportunity to apply skills acquired in classroom in career setting. Internship must be supervised and appropriate to major.

PHIL 4960 SPECIAL PROBLEMS IN PHILOSOPHY (1-6) IND. Pr., Departmental approval. Reading program on a particular philosopher, period, or problem. Course may be repeated for a maximum of 6 credit hours.

PHIL 4967 HONORS SPECIAL PROBLEMS IN PHILOSOPHY (1-3) IND. Pr. Honors College or Departmental approval. Reading program on a philosopher, period, or problem. Course may be repeated for a maximum of 3 credit hours.

PHIL 4970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 6 credits in PHIL 3000-3999. Advanced topics in ethics and value theory, metaphysics and epistemology, or history of philosophy. Emphasis on readings drawn from the contemporary, professional literature. Course may be repeated for a maximum of 9 credit hours. Area distribution requirement fulfilled depends on class content.

PHIL 4980 UNDERGRADUATE RESEARCH (3) PRA. Pr. A grade of D or higher in PHIL 4000-4999. Pr. One 3-hour philosophy class at the 4000 level or instructor permission. Capstone course in which students develop previously written paper into presentation to be delivered at end-of-semester conference.

PHIL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Senior thesis. Course may be repeated for a maximum of 3 credit hours.

PHIL 6950 SEMINAR (1-3) SEM. Pr., Departmental approval. Content varying from movements of thought to an extensive study of one of the great thinkers. Course may be repeated for a maximum of 3 credit hours.

Religion Courses

RELG 1020 INTRODUCTION TO THE HEBREW SCRIPTURES (3) LEC. 3. Historical-critical study of the Hebrew scriptures in their cultural setting; emphasis on development of ancient Hebrew thought.

RELG 1030 INTRODUCTION TO THE NEW TESTAMENT (3) LEC. 3. Historical-critical study of the New Testament in its cultural setting; major issues in New Testament study.

RELG 1040 INTRODUCTION TO WESTERN RELIGIONS (3) LEC. 3. Introduction to Islam, Judaism, and Christianity, with attention to Druze religion and Bah'al. May count either RELG 1040 or RELG 3340.

RELG 1050 INTRODUCTION TO EASTERN RELIGIONS (3) LEC. 3. Introduction to Hinduism, Buddhism, and Confucianism, with secondary attention to other Asian religions. May count either RELG 1050 or RELG 3330.

RELG 4960 SPECIAL PROBLEMS IN RELIGIOUS STUDIES (3) LEC. 3. Independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.

RELG 4970 SPECIAL TOPICS (3) LEC. 3. Course may be repeated with change in topics.

Philosophy (PHIL)

Philosophy major requires completion of a total of 33 hours (excluding PHIL 4920) with no more than 3 hours at the 1000 level, no more than 3 hours at the 2000 level, and at least 6 hours at the 4000 level (excluding PHIL 4920), including 3 hours of 4980.

Freshman

Fall	Hours	Spring	Hours
Core Math	3	Core Social Science	3
ENGL 1100 English Composition I	3	Core Fine Arts	3
Core History	3	Foreign Language II (College Core)	4
Core Philosophy	3	ENGL 1120 English Composition II	3
Foreign Language I (College Core)	4		
	16		**13**

Sophomore

Fall	Hours	Spring	Hours
Core Social Science	3	Core Science II	4
Core Science I	4	Core History to complete sequence	3
Courses from Part 3: 1000- or 2000-Level Topics in Philosophy[2]	**3**	**Courses from Part 2: History of Philosophy[1]**	**3**
Core Literature	3	**PHIL 3110 Symbolic Logic**	**3**
LBAR 2010 Liberal Arts Careers Preparation	2	Elective	3
	15		**16**

Junior

Fall	Hours	Spring	Hours
Courses from Part 2: History of Philosophy[1]	**3**	Electives	9
COMM 1000 Public Speaking	3	**Courses from Part 3: Topics in Philosophy[2]**	**3**
Electives	6	**3000 / 4000 PHIL Electives**	**3**
Courses from Part 3: Topics in Philosophy[2]	**3**		
	15		**15**

Senior

Fall	Hours	Spring	Hours
Electives	9	**PHIL 4980 Undergraduate Research**	**3**
PHIL 4970 Special Topics[3]	**3**	**Philosophy Elective[4]**	**3**
Courses From Part 3: Topics in Philosophy[2]	**3**	Electives	9
		UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

[1] Part 2: History of Philosophy Courses - PHIL 3330,PHIL 3400, PHIL 3340, PHIL 3350, PHIL 3360, and PHIL 3740
[2] Part 3: Topics in Philosophy Courses - Every 1000-Level PHIL course (can only count one 1000-level in major), PHIL 2970 (can only count once in Major), every 3000-Level PHIL course (except for PHIL 3110 and courses in Part 2 above)
[3] The Philosophy Senior Seminar is PHIL 4970, and topics will be determined by the faculty member teaching the course.
[4] Any additional PHIL course at the 3000 or 4000 level.

Philosophy and Religion Minor

Code	Title	Hours
15 semester hours required in minor		
PHIL 1080	Introduction to Philosophy of Religion	3
or PHIL 3300	Philosophy of Religion	
12 additional hours from:		12
ANTH 2700	Peoples and Cultures of Asia	
ENGL 3360	The Bible for Students of Literature	
ENGL 4600	Chaucer	
HIST 3040	American Religious History	
HIST 5640	History of Islam	
PHIL 1080	Introduction to Philosophy of Religion	
PHIL 3300	Philosophy of Religion	
PHIL 3330	History of Ancient Philosophy	
PHIL 3340	History of Early Modern Philosophy	
PHIL 3400	Medieval Philosophy	
PHIL 3500	Epistemology	
PHIL 3700	Metaphysics	
PHIL 3740	Existentialism	
POLI 3390	Religion and Politics	
POLI 3560	The Arab Spring	
RELG (any course)		
Any course approved by the Philosophy Department Chair. Examples of acceptable courses: Religion and Gender (Women's Studies), Islam and Politics (Political Science), Early Islamic History (History), and Religion and British Literature (English)		
Total Hours		**15**

Philosophy Minor

15 hours of PHIL (excluding PHIL 4920) beyond courses taken in the University Core Curriculum, including at least 12 hours above the 1000 level and 9 hours at the 3000-level or higher.

Department of Political Science

Graduates from the Department of Political Science have found employment in government, the legal profession, nonprofit organizations, and the private sector and have pursued graduate or professional education in political science and public administration. The Department of Political Science is committed to the goal of helping students become well-rounded, effective, and successful members of the global community. Political Science is a vast academic discipline that focuses on the processes and outcomes of collective public decision making. It endeavors to create a stimulating intellectual environment that challenges students to broaden their capacity for a reasoned analysis of political life.

The department offers four undergraduate majors: Political Science, Public Administration, Health Services Administration, and Law & Justice. Students who wish to choose to major in a different academic discipline yet still develop a secondary expertise in government and politics can minor in Political Science or Public Administration. The Department of Political Science is also home to the Pre-Law Scholars program.

Health Services Administration

Health Services Administration is an application major. Students seeking a degree in this area must comply with these requirements to be considered for admission into the Health Services Administration major:

- Submit the Health Services Administration Application with all required documents.
- Complete 30 credit hours of course work, including the university core courses or equivalents.
- Earn a 2.3 or higher GPA in ACCT 2110, MATH 1680 or MATH 1610, and HADM 3000.
- Submit a statement of purpose of no more than 500 words.
- Potential students are encouraged to check with the program coordinator or department advisor for further information about entry requirements and application deadlines.

Majors

- Health Services Administration (p. 1086)
- Law and Justice (p. 1088)
- Political Science (p. 1089)
- Public Administration (p. 1090)

Minors

- Latin American Studies (p. 1087)
- Political Science (p. 1090)
- Public Administration (p. 1091)

Undergraduate Certificates

- National Security and Intelligence (p. 1085)

Community Planning Courses

CPLN 5000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 5010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 5020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course teaches about connections that climate has with urban processes; how cities are affected by climate change, impact of local land use and transportation decisions, and Climate Action Planning at local level including GHG inventory, adaptation and mitigation strategies.

CPLN 5040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 5050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 5060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. This topical seminar addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester.

CPLN 5070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 5080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. This topical seminar addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080/6080.

CPLN 5090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 5100 URBAN DESIGN METHODS (3) LEC. 3. Departmental approval. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 5110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 5400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation, adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 5460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 5970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 6010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 6020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course focuses on connections that climate has with urban processes, climate action planning at local level, compiling greenhouse gas inventory, climate adaptation and mitigation strategies, and building sustainable and resilient cities.

CPLN 6040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 6050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 6060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. Addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester. May count either CPLN 5060 or CPLN 6060.

CPLN 6070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 6080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. Addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080 or CPLN 6080.

CPLN 6090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development. Content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 6100 URBAN DESIGN METHODS (3) LEC. 3. Techniques and methodologies in urban design problem- solving and strategies for implementation.

CPLN 6110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 6400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation and adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 6460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 6930 DIRECTED STUDIES IN COMMUNITY PLANNING (3) IND. Departmental approval. Through this directed studies course, students explore a community planning related topic or issue of interest in greater detail through independent work. Students work with an MCP faculty member, who will supervise their studies. Course topics and assignments will vary, but the course will result in enhancing the student's knowledge and skills within the community planning discipline. Course may be repeated for a maximum of 6 credit hours.

CPLN 6970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6AA0 MCP COMPREHENSIVE EXAMINATION (0) PR1. SU. A comprehensive examination is required of all students who have successfully completed 24 credit hours of the MCP program and/or before registration for the Synthesis Studio courses. Students are notified of their eligibility for the comprehensive exam by the MCP program director. Course may be repeated for a maximum of 10 credit hours.

CPLN 7200 URBAN DESIGN STUDIO (3) STU. 3. Basic principles of urban design are explored, with an emphasis on the planner's role in shaping the built environment. Exercises and projects provide hands-on experience in making good urban places.

CPLN 7240 QUANTITATIVE METHODS FOR PLANNING (3) LEC. 3. Development of working knowledge of planning techniques such as data collection, basic statistics, demographic analysis, economic analysis, social research, transportation, and evaluation.

CPLN 7300 COMMUNITY-BASED QUALITATIVE METHODS (3) LEC. 3. Introduces graduate students to the foundational principles of qualitative inquiry and community-based/community-engaged research.

CPLN 7350 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to be effective in the planning field.

CPLN 7430 LAND USE LAW (3) LEC. 3. This course covers three key elements of the planning profession: ethics, law and plan implementation.

CPLN 7600 SYNTHESIS STUDIO I (3) STU. 3. Pr. CPLN 7400. Serves as the primary opportunity for the student to demonstrate their competency in community design and planning by translating knowledge into action through the development of a practical plan.

CPLN 7610 SYNTHESIS STUDIO 2 (3) STU. 3. This class is the second required plan-making studio in the Master of Community Planning Program. Synthesis Studio 2 is the second in a two-semester series of classes that will critically consider a real-world planning project involving a city. Course may be repeated for a maximum of 6 credit hours.

CPLN 7920 PLANNING INTERNSHIP (1-6) AAB/INT. Departmental approval. Professional experience in public, private or non-profit planning or planning-related agency. Course may be repeated for a maximum of 6 credit hours.

Health Administration Courses

HADM 2100 MEDICAL TERMINOLOGY (3) LEC. 3. Prefixes, suffixes, and word roots used in the language of medicine; medical vocabulary and terms related to the health care field.

HADM 3000 GATEWAY TO HEALTH CARE ADMINISTRATION (3) LEC. 3. Basic concepts and principles of health care administration.

HADM 3300 HEALTH CARE POLICY (3) LEC. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (P/C HADM 2100 or P/C HADM 2103). Political policies that affect health care services.

HADM 3700 HEALTH LAW (3) LEC. 3. Legal issues that arise between patients and health care providers.

HADM 3800 HEALTH CARE ANALYTICS (3) LEC. 3. Pr. (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610) and (MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683) and (ACCT 2110 or ACCT 2117). Majors only. This course focuses on using big data to drive decision making and improve health care quality through data aggregation and validation, strategic management data manipulation and technical reporting implementation.

HADM 4000 HEALTHCARE MANAGEMENT & LEADERSHIP (3) LEC. 3. Pr. HADM 3300 and HADM 3800. Health Services Administration major only. Organizational strategies for effective interfacing of medical, nursing, allied health and administrative staff with patient needs.

HADM 4200 HEALTH CARE INSURANCE AND REIMBURSEMENT (3) LEC. 3. Pr. HADM 3000 and HADM 3700 and HADM 3800. Health Services Administration major only. Health insurance operations, principles, payment methods and contracts.

HADM 4810 CHANGE IN HEALTH ADMINISTRATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Changes in modern technology, cultural diversity, and governmental policies on the administration of health services organizations.

HADM 4820 LONG-TERM CARE ADMINISTRATION (3) LEC. 3. Pr. P/C HADM 4000. Health Services Administration major only. Analysis of the components (e.g. nursing homes, home health care) of the long-term care system for the elderly.

HADM 4830 COMPARATIVE HEALTH CARE SYSTEMS (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Comparative Study and analysis of health care systems around the world.

HADM 4840 DATA-DRIVEN DECISION MAKING IN HEALTH CARE (3) LEC. 3. LAB. 0. Pr. P/C HADM 4200 and HADM 3800. An evaluation of current healthcare quality reporting requirements and how quality reporting relates to improving patient outcomes across all healthcare venues.

HADM 4850 LONG-TERM CARE POLICY (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Policy issues surrounding the provision of long-term care to the elderly.

HADM 4880 HEALTH INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HADM 4000 and HADM 4200. Health Services Admiistration major only. Overview and utilization of health care information technology in health care administration.

HADM 4890 ELECTRONIC HEALTH RECORD APPLICATIONS (3) LEC. 3. Pr. HADM 4000 and HADM 3300 and HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. This course covers the definition, benefits, regulations, standards, functionality, and impact of Electronic Health Records (EHR) in the healthcare environment. The course provides the student with a thorough understanding of the terminology of EHR systems as well as practical experience with the clinical and administrative use of EHRs in a medical settings.

HADM 4920 INTERNSHIP (6) AAB/INT. 6. SU. Pr. HADM 4000 and HADM 4200 and FINC 3810 or (FINC 3610 or FINC 3613 or FINC 3617) and (HRMN 3420 or HRMN 3423) or (MNGT 3423 or MNGT 3420). Health Services Administration major only. Internship in selected areas of Health Administration.

HADM 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. HADM 3000 and ACCT 2100 and (MATH 1680 or MATH 1683) and (MATH 1610 or MATH 1613 or MATH 1617) and (STAT 2010 or STAT 2017) or (STAT 2510 or STAT 2513) or STAT 2610. Health Services Administration major only. This course is designed to facilitate an independent study in an area of special interest of the student and a sponsoring faculty member. Course may be repeated for a maximum of 3 credit hours.

HADM 4950 CAPSTONE SEMINAR (3) LEC. 3. Pr. HADM 4000 and HADM 4200 and (FINC 3810 or FINC 3610 or FINC 3613 or FINC 3617). Health Services Administratrion major only. Integrates knowledge from courses and internship; applies managerial and research skills to the completion of a research project and the organization of a research symposium.

HADM 4960 SPECIAL PROBLEMS IN HEALTH ADMINISTRATION (1-6) IND. Pr. HADM 3300. Directed readings in Health Administration. Course may be repeated for a maximum of 6 credit hours.

HADM 4970 SPECIAL TOPICS (3) ST1. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683) or (MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. Special Topics courses are used to inform and educate students about new and emerging changes within the health care field. The Topics addressed change to coincide with changes in the health care environment. Course may be repeated for a maximum of 6 credit hours.

Political Science Courses

POLI 1050 GLOBAL POLITICS AND ISSUES (3) LEC. 3. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1057 HONORS GLOBAL POLITICS AND ISSUES (3) LEC. 3. Pr. Honors College. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1090 AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the the United States has impacted its politics.

POLI 1097 HONORS AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Pr. Honors College. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the United States has impacted its politics.

POLI 2100 STATE GOVERNMENT AND POLICY (3) LEC. 3. Organization and operation of American state governments, including their relationship to the United States federal system and their role in public policy issues.

POLI 2120 URBANIZATION AND THE CITY (3) LEC. 3. This course introduces students to main themes and problems in the interdisciplinary field of urban studies.

POLI 2300 INTRODUCTION TO THE LEGAL PROFESSION (3) LEC. 3. This course introduces students to various aspects of the legal profession, including its procedural elements, practice areas, and practitioners.

POLI 2310 INTRODUCTION TO LEGAL RESEARCH AND WRITING (3) LEC. 3. Introduction to legal research and writing, including legal databases, legal citation, and basic components of effective legal writing.

POLI 3000 POLITICAL SCIENCE RESEARCH METHODS I (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Introduction to the basic concepts and methodology used in contemporary political analysis.

POLI 3020 INTRODUCTION TO POLITICAL THEORY (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1020 or PHIL 1023 or PHIL 1027. Selected major themes in political thought from ancient to modern times.

POLI 3080 MODEL UNITED NATIONS (3) LEC. 3. This course offers an in-depth analysis of the workings of the United Nations. It involves thorough studies of countries, the veto-power of the Security Council, and prepares students to participate in a Model United Nations exercise.

POLI 3090 INTRODUCTION TO INTERNATIONAL RELATIONS (3) LEC. 3. International relations, including a consideration of the bases of national power and the rudiments of international politics.

POLI 3100 INTRODUCTION TO WORLD AFFAIRS (3) LEC. 3. Contemporary international politics and an evaluation of foreign policy objectives and strategies of seven major countries and how their stability as sovereign states are affected.

POLI 3110 NATIONAL SECURITY LAW (3) LEC. 3. This course provides an overview of the law and historic use of U.S. national security power, with emphasis on constitutional issues, federal statutes, regulations, executive orders, and court decisions.

POLI 3120 INTRODUCTION TO COMPARATIVE POLITICS (3) LEC. 3. Methods of classifying governments by institutional and developmental characteristics.

POLI 3130 INTERNATIONAL AND COMPARATIVE LAW (3) LEC. 3. Examination of international law and different legal systems from around the world.

POLI 3140 AMERICAN FOREIGN POLICY (3) LEC. 3. Analysis of the decision-making process of American foreign policy and/or of selected current issues of American foreign policy.

POLI 3160 NATIONAL SECURITY POLICY (3) LEC. 3. Introduction to national security aspects of United States foreign policy.

POLI 3170 RUSSIAN FOREIGN POLICY (3) LEC. 3. Analysis of the decision-making process of Russian foreign policy and/or of selected current issues of Russian foreign policy.

POLI 3180 LATIN AMERICA AND THE UNITED STATES (3) LEC. 3. Analysis of the political, social, and economics aspects of Latin American-United States relations.

POLI 3190 INTERNATIONAL RELATIONS OF THE MIDDLE EAST (3) LEC. 3. Survey of contemporary issues in international relations, focusing on the Middle East.

POLI 3240 ADMINISTRATION OF JUSTICE (3) LEC. 3. Components of the American legal system responsible for administration of public justice.

POLI 3250 INTRODUCTION TO PUBLIC ADMINISTRATION (3) LEC. 3. Pr. P/C POLI 1090 or P/C POLI 1093 or P/C POLI 1097. Administration in the public sector with particular emphasis on public administration as it exists in modern American government. May count either POLI 3250 or POLI 3253.

POLI 3260 ORGANIZATION THEORY (3) LEC. 3. Pr. POLI 3250. Structure and function of governmental organizations with an emphasis on theories of administrative hierarchies and evaluation of bureaucracy.

POLI 3270 POLICY PROCESS (3) LEC. 3. Formulation and implementation of public policy; the roles of the major governmental institutions in policy-making.

POLI 3290 AMERICAN EXECUTIVE POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Examination of institutions and processes that impact the elections, decisions, and other outcomes of political actors within state and federal executive offices.

POLI 3300 LAW AND SOCIETY (3) LEC. 3. Introduction to how law and legal actors influence and mediate some of the basic conflicts in society.

POLI 3310 THE LEGISLATIVE PROCESS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Principles, procedures, and problems of lawmaking in the United States; special attention to Congress and state legislatures.

POLI 3320 JUDICIAL PROCESS (3) LEC. 3. Basic information about the structure and function of courts and the role of judges in all societies, with a special focus on American.

POLI 3330 MOCK TRIAL COMPETITION COURSE (2) LLB. Departmental approval. Preparation for and competition in national mock trial program, including practical study of rules of evidence and trial procedure used in the American judicial system. The course is restricted to students selected for the Auburn University Mock Trial Team. Students should consult with their academic advisors regarding how course credit is applied toward curriculum requirements in their major. Course may be repeated for a maximum of 12 credit hours.

POLI 3340 INTRODUCTION TO CONFLICT RESOLUTION (3) LEC. 3. Methods of conflict resolution at various levels, from the interpersonal to international.

POLI 3350 CONTROVERSIES IN CONSTITUTIONAL LAW (3) LEC. 3. Origins and influence of controversial Supreme Court decisions, in such areas as religion, free speech, privacy, abortion, and criminal justice.

POLI 3360 FEDERAL JURISDICTION (3) LEC. 3. Introduction to the federal court system and Federal Jurisdiction under Article III.

POLI 3370 FEDERAL INDIAN LAW (3) LEC. 3. Introduction to the federal laws governing and regulating the relationship between tribal nations, on the one hand, and the states and federal governments, on the other.

POLI 3380 EVIDENCE AND LEGAL REASONING (3) LEC. 3. Introduction to the rules governing the presentation of evidence at trial.

POLI 3390 RELIGION AND POLITICS (3) LEC. 3. Interaction of religion with governmental institutions, elections, and public policies.

POLI 3400 POLITICAL PARTIES AND INTEREST GROUPS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Nature, organization and operation of political parties in the United States; suffrage; nominating and electoral processes; importance and nature of interest groups.

POLI 3410 POLITICAL PARTICIPATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Political participation in the traditional and unconventional forms and the developing trends in citizen participation in recent years.

POLI 3430 JUSTICE AND SOCIETY (3) LEC. 3. Historical overview of issues affecting legal policy.

POLI 3450 INTERNATIONAL SECURITY (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. An overview of the most pressing international security problems today through a lens of how states and other international actors respond to and manage such problems.

POLI 3460 INTERNATIONAL CONFLICT RESOLUTION (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Theories and practice on the management and resolution of international and civil conflict.

POLI 3470 INTERNATIONAL ORGANIZATIONS (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Exploration of various theories of international cooperation and of a wide-range of specific international organizations at the global level (the United Nations system, the World Trade Organization) and at the regional level (like the European Union), with an eye toward insight into the benefits and limitations of international organizations in global politics.

POLI 3510 THE EUROPEAN UNION (3) LEC. 3. Analysis of the complex mixture of historical, economic, and cultural phenomena that comprise the European Union.

POLI 3520 COMPARATIVE POLITICS OF THE MIDDLE EAST (3) LEC. 3. Domestic politics in the states of the Middle East.

POLI 3540 EAST EUROPEAN POLITICS (3) LEC. 3. Survey and analysis of evolving political institutions and policies in eastern and central Europe under Communism and in the post-Communism period.

POLI 3550 GOVERNMENT AND POLITICS OF LATIN AMERICA (3) LEC. 3. Political environment, institutions and processes of Latin America, emphasizing factors that influence the degree of democracy and authoritarianism, stability and instability, and political development.

POLI 3560 THE ARAB SPRING (3) LEC. 3. Examination of the Arab Uprising that began in Tunisia in 2010 and spread to the rest of the region.

POLI 3570 WOMEN AND GLOBAL POLITICS (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Exploration of women and political representation, including why political representation matters, theories of substantive and descriptive representation, political institutions that facilitate or hinder the electoral success of women and other marginalized groups, and the unique strengths and obstacles to women participating in the political process as candidates, constituents, and office holders.

POLI 3580 POLITICS AND CULTURE (3) LEC. 3. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Analyzes the relationship between politics and culture, both historically and contemporarily. Specific attention is paid to how culture is defined, the politicization of culture, how political activity and behavior are shaped by culturally-specific symbols and meaning, and how culture shapes our understanding of concepts such as the economy, states, class, political participation and social movements.

POLI 3590 THE POLITICS OF NATO (3) AAB. This course is designed to familiarize students with the basic theoretical and practical approaches to understanding the national security and foreign policy components of the relationship between the United States and its allies along the Atlantic Ocean.

POLI 3610 ASIAN POLITICS (3) LEC. 3. Politics of the leading nations in East Asia with major attention being devoted to China, Japan, North and South Korea, and Taiwan.

POLI 3670 POLITICAL ECONOMY (3) LEC. 3. Pr. POLI 1090. Examination of normative issues in political-economic systems. Fulfills political theory requirement.

POLI 3680 ENVIRONMENTAL POLICY (3) SEM. 3. This course covers federal, state, and local environmental policy-making and governance. It discusses how planners, policy-makers, and government officials implement existing environmental policies, how environmental policies are created, theories of environmental policy, and new and emerging methods of environmental policy.

POLI 3710 ISSUES IN AMERICAN POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Topics in American politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3720 ISSUES IN COMPARATIVE POLITICS (3) LEC. 3. Topics in comparative politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3730 ISSUES IN INTERNATIONAL RELATIONS (3) LEC. 3. Topics in international relations. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3750 ISSUES IN PUBLIC ADMINISTRATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Topics in public administration. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3760 ISSUES IN PUBLIC POLICY (3) LEC. 3. Topics in public policy. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3770 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (3) LEC. 3. Topics in public law and conflict resolution. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours

POLI 3800 PROFESSIONAL LEGAL ETHICS (3) LEC. 3. This course focuses on legal ethics as prescribed within the American professional legal community.

POLI 3810 INTRODUCTION TO TORTS (3) LEC. 3. This course surveys legal doctrines governing responsibility and compensation for civil wrongs that people do to each other (car accidents, medical malpractice, etc.).

POLI 3980 UNDERGRADUATE RESEARCH (1-3) LAB. Pr. POLI 3000. Supplementary learning concurrent with experience political science research. May be repeated twice, with change of topic. Course may be repeated for a maximum of 6 credit hours.

POLI 4000 TRIAL ADVOCACY (3) LEC. 3. This course focuses on trial advocacy in the United States and the constitutional, statutory, and procedural rules that govern it. The course also helps students develop the oral, written, and organizational skills needed to conduct a trial.

POLI 4010 CONSTITUTIONAL LAW: GOVERNMENT POWERS (3) LEC. 3. Constitutional law cases dealing with separation of powers, federalism, and elections.

POLI 4020 CONSTITUTIONAL LAW: CIVIL LIBERTIES (3) LEC. 3. Constitutional law cases dealing with First Amendment freedoms of religion, speech, press, assembly, and association.

POLI 4030 CONSTITUTIONAL LAW: CIVIL RIGHTS (3) LEC. 3. Supreme Court opinions defining gender discrimination, race discrimination, age discrimination, affirmative action, and such right to privacy issues as abortion, marriage, and physician-assisted suicide.

POLI 4040 CONSTITUTIONAL LAW: CRIMINAL JUSTICE (3) LEC. 3. Supreme Court rulings of Fourth, Fifth, Sixth, and Eighth Amendments to the United States Constitution.

POLI 4050 AMERICAN LOCAL GOVERNMENT (3) LEC. 3. Pr. POLI 2100. Structure of local government, the roles and incentives of key elected and appointed officials, and the policy issues faced by those officials.

POLI 4060 ADVANCED LEGAL RESEARCH AND WRITING (3) LEC. 3. Pr. POLI 2310. An advanced approach to case law and statutes, legal research and bibliography, legal analysis, writing legal memoranda, and writing for readability.

POLI 4140 PUBLIC FINANCE (3) LEC. 3. Pr. POLI 3250. Theory and practice of public finance, with an emphasis on applications in state and local government.

POLI 4160 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Pr. POLI 3250. Responsibilities, challenges, and opportunities that confront modern public administration in the management of human resources.

POLI 4200 CAMPAIGNS AND ELECTIONS (3) LEC. 3. Pr. POLI 1090 or POLI 1093. Examination of the theory and methods of studying elections and general election campaigns, as well as corresponding structural rules, in the United States.

POLI 4340 CONTEMPORARY POLITICAL THEORY (3) LEC. 3. Pr. POLI 3020 or PHIL 1050 or PHIL 1053. Survey of late 20th- and early 21st- century political philosophies, including neo-classicist, post-modernist, communitarian, and critical theories.

POLI 4710 NATIONALISM AND ETHNIC CONFLICT (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. This course surveys the politics of ethnicity and nationalism and their effect on conflicts around the globe.

POLI 4720 STRATEGIC INTELLIGENCE (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Examination of the US Intelligence Community and its role in the collection and analysis of intelligence, how this intelligence is used by policymakers in pursuit of national security, and oversight of these powers to prevent abuses.

POLI 4730 ADVANCED POLITICAL SIMULATIONS (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1057 or POLI 1090 or POLI 1093 or POLI 1097. Exploration of core international relations concepts and processes through the team-based design and execution of a variety of advanced political simulations, games, and/or role-playing activities.

POLI 4740 COMPARATIVE CIVIL-MILITARY RELATIONS (3) LEC. Pr. POLI 1050 or POLI 1057. In-depth examination of the role of the military in different political systems and how governments control and manage relations with their militaries. Topics include the military in democracy, comparative military effectiveness, the military and regime transitions, and in-depth examinations of militaries and their roles in politics in historical great powers.

POLI 4890 LAWJ INTERNSHIP PREPARATION (1) LEC. 1. Pr. POLI 2300. This course prepares students for their Law and Justice internship. Students will learn how to bring the skills they have developed in the classroom into their internship. Pre-requisite for all LAWJ students taking POLI 4920.

POLI 4920 INTERNSHIP (1-6) AAB/INT. SU. Internship in selected areas of political science. Course may be repeated for a maximum of 6 credit hours.

POLI 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. POLI 1090 or POLI 1093 or POLI 1097. Directed study course in political science that allows students to explore concepts not covered in other courses. Course may be repeated with a change in topic. Course may be repeated with change in topics.

POLI 4940 LAW & JUSTICE INTERNSHIP (3-6) INT. SU. Pr. POLI 2300 and POLI 2310. Departmental approval. Law & Justice (LAWJ-BA) major only. Internship in a law-related setting. 3.0 major GPA required. Course may be repeated for a maximum of 6 credit hours.

POLI 4960 SPECIAL PROBLEMS (1-3) IND. Examination of a specific problem in political science, including topics such as American policies, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topic.

POLI 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 4997 HONORS THESIS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Course may be repeated for a maximum of 6 credit hours.

POLI 5150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 5160 RESILIENCY FOR PUBLIC AND NONPROFIT INSTITUTIONS: CONCEPTS AND METHODS (3) LEC. 3. This course is an introduction to theories, concepts, and methods of improving resiliency in nonprofit and public institutions. The course first covers the underlying vulnerabilities to which we apply resiliency and the broad theories and frameworks of resiliency from multiple perspectives. Next, the class covers methods of analyzing the resiliency of nonprofit and public institutions. Finally, the course covers how to apply the outcomes of resiliency analysis in public and nonprofit settings.

POLI 5170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not given for both POLI 5170 and POLI 6170.

POLI 5180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule-making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 5210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 5210 and POLI 6210.

POLI 5270 ELECTION ADMINISTRATION (3) LEC. 3. Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.

POLI 5280 ELECTION ADMINISTRATION REFORM POLICY (3) LEC. 3. Pr. POLI 1090 or POLI 1093. This course provides an advanced undergraduate-level introduction to current election administration reforms through policy and regulation at the national, state and local levels. Credit will not be given for both POLI 5280 and POLI 6280.

POLI 5340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Theoretical and comparative perspectives on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 5340 and POLI 6340.

POLI 5350 NONPROFIT LAW AND GOVERNANCE (3) LEC. 3. Introduction to the legal principles that apply to the governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 5360 NONPROFIT RESOURCE DEVELOPMENT (3) LEC. 3. Examination of important aspects of the fundraising process as carried out by nonprofit organizations.

POLI 5370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370, POLI 5373, and POLI 6370.

POLI 5380 INGOS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 3. Examines the size, scope, and role of global civil society, emphasizing organizations active in international development: grassroots NGOs, international nonprofits, and transnational aid agencies. Covers innovations in global philanthropy, and opportunities and challenges faced by global civil society.

POLI 5390 NGOS AND INTERNATIONAL DEVELOPMENT (3) LEC. 3. Examination of theories of development and practical strategies and approaches that NGO development practitioners take to improve the likelihood of development in the future.

POLI 5410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and government of the southern region of the United States. Credit will not be given for both POLI 5410 and POLI 6410.

POLI 5470 COMPARATIVE ELECTION ADMINISTRATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093. This course focuses on comparative election administration systems and electoral structures in western democracies and other countries that use elections in the selection of leaders and policy determinations. Credit will not be given for both POLI 5470 and POLI 6470.

POLI 5480 INFORMATION SECURITY AND RISK MANAGEMENT (3) LEC. 3. Pr. POLI 1090 or POLI 1093. Exploration of the concepts of information in public administration including the idea of public information, risk management and security. Credit will not be given for both POLI 5480 and POLI 6480.

POLI 5490 SURVEY RESEARCH METHODS (3) LEC. 3. Pr. POLI 3000. Examination of theoretical models of survey responses, as well as common approaches and best practices to survey design, recruitment, and analysis.

POLI 5510 ISSUES IN AMERICAN POLITICS (1-3) DSL/LEC. Pr. POLI 1090 or POLI 1093 or POLI 1097. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 5530 ISSUES IN INTERNATIONAL RELATIONS (1-3) AAB/LEC. Topics in international relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and POLI 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 5540 ISSUES IN POLITICAL THEORY (1-3) DSL/LEC. Topics in political theory. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and POLI 6540. Course may be repeated for a maximum of 6 credit hours.

POLI 5550 ISSUES IN PUBLIC ADMINISTRATION (1-3) DSL/LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 5560 ISSUES IN PUBLIC POLICY (1-3) DSL/LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 5570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) DSL/LEC. Topics in public law and conflict resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 5580 ISSUES IN POLITICAL METHODOLOGY (3) LEC. 3. Pr. POLI 3000. Topics in political methodology. Focus will vary according to the instructor. Credit will not be given for both POLI 5580 and POLI 6580. Course may be repeated for a maximum of 6 credit hours.

POLI 5610 WOMEN IN POLITICS (3) LEC. 3. Examination of the political role of women in American society. Credit will not be given for both POLI 5610 and POLI 6610.

POLI 5710 PERSIAN GULF POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Examination of the politics of the Persian Gulf. Credit will not be given for both POLI 5710 and POLI 6710.

POLI 6150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Graduate level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes, and emerging issues.

POLI 6160 RESILIENCY FOR PUBLIC AND NONPROFIT INSTITUTIONS: CONCEPTS AND METHODS (3) LEC. 3. This course is an introduction to theories, concepts, and methods of improving resiliency in nonprofit and public institutions.

POLI 6170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.

POLI 6180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 6210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 6210 and POLI 5210.

POLI 6270 SEMINAR IN ELECTION ADMINISTRATION (3) LEC. 3. This course provides a graduate-level introduction to election administration and the roles of, and relationships between American local, state, and federal governments.

POLI 6280 ELECTION ADMINISTRATION REFORM POLICY (3) LEC. 3. This course provides a graduate-level introduction to current election administration reforms through policy and regulation at the national, state and local levels.

POLI 6340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Theoretical and comparative perspective on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 6340 and POLI 5340.

POLI 6350 NONPROFIT LAW AND GOVERNANCE (3) LEC. 3. Introduction to the legal principles that apply to the formation, governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 6360 NONPROFIT RESOURCE DEVELOPMENT (3) LEC. 3. This course examines the important aspects of the fundraising process as carried out by nonprofit organizations—its value base, preparation of the case, implementation of relevant strategies and techniques, assessment of potential sources of support, utilization of human resources, and overall process management. The course will include theory to undergird practice, examination and analysis of current practice, proposal of practice standards, and discussion of ethical problems.

POLI 6370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370 and POLI 6370.

POLI 6380 INGOS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 3. Examines the size, scope, and role of global civil society outside of the US, with an emphasis on organizations active in international development, including international nonprofits, transnational aid agencies, and unilateral aid.

POLI 6390 NGOS AND INTERNATIONAL DEVELOPMENT (3) LEC. 3. This course combines theories of development, and academic and practitioner research on development, with practical strategies and approaches that NGO development practitioners have, can or should take to improve the likelihood of development in the future. It is intended to provide an overview of past and current approaches to development, which will help students develop knowledge and skills needed for a career in international development. The following questions form the basis of inquiry for this course: When we say “development” in the international context, what do we mean? How can we measure development? How have countries developed in the past, and what strategies can under-developed countries take to increase their level of political and economic development? How have our collective views on “how development happens” changed over time, and where do they stand currently? What role do donors, aid, and NGOs play in development? What do NGO development practitioners need to know in order to do their jobs well? Graduate students only, unless student is enrolled in the MPA's ABM program.

POLI 6410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and to a lesser extent government of the southern region of the United States. Credit will not be given for POLI 5410 and POLI 6410.

POLI 6470 COMPARATIVE ELECTION ADMINISTRATION (3) LEC. 3. This course focuses on comparative election administration systems and electoral structures in western democracies and other countries that use elections in the selection of leaders and policy determinations.

POLI 6480 INFORMATION SECURITY AND RISK MANAGEMENT (3) LEC. 3. Exploration of the concepts of information in public administration including the idea of public information, risk management and security. Credit will not be given for both POLI 5480 and POLI 6480.

POLI 6490 SURVEY RESEARCH METHODS (3) LEC. 3. Pr. POLI 7000. Examination of theoretical models of survey responses, as well as common approaches and best practices to survey design, recruitment, and analysis.

POLI 6510 ISSUES IN AMERICAN POLITICS (1-3) DSL/LEC. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 6520 ISSUES IN COMPARATIVE POLITICS (1-3) DSL/LEC. Topics in comparative politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and POLI 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 6550 ISSUES IN PUBLIC ADMINISTRATION (1-3) DSL/LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 6560 ISSUES IN PUBLIC POLICY (1-3) DSL/LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 6580 ISSUES IN POLITICAL METHODOLOGY (3) LEC. 3. Pr. POLI 7000. Topics in political methodology. Focus will vary according to the instructor. Credit will not be given for both POLI 5580 and POLI 6580. Course may be repeated for a maximum of 6 credit hours.

POLI 6610 WOMEN IN POLITICS (3) LEC. 3. A theoretical, historical, social, and political examination of the role of women in American society. Credit will not be given for both POLI 6610 and POLI 5610.

POLI 7000 RESEARCH METHODS FOR PUBLIC AND NONPROFIT ORGANIZATIONS (3) LEC. 3. Statistics and other quantitative techniques for the analysis of policy and for administrative decision making.

POLI 7050 STATE POLITICS (3) LEC. 3. Current and classical research on state government, politics, and policy. Students critique others' research and design their own for submission to a professional journal.

POLI 7140 FINANCIAL MANAGEMENT FOR PUBLIC AND NONPROFIT ORGANIZATIONS (3) LEC. 3. This course is designed to introduce both practical and theoretical principles utilized in public financial management.

POLI 7150 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Personnel policies, processes, and politics in American governments, including history, theory, and practice.

POLI 7160 FINANCIAL ADMINISTRATION (3) LEC. 3. Application of macroeconomic theory to public finance, with emphasis on capital budgeting, taxation, user charges, debt administration, cash management, and investment for small governments.

POLI 7260 ORGANIZATIONAL THEORY AND ADMINISTRATIVE BEHAVIOR (3) LEC. 3. Structure and functioning of government organizations, with an emphasis on applied management and on leadership techniques.

POLI 7330 SEMINAR IN ADMINISTRATIVE LEADERSHIP, RESPONSIBILITY, AND DEMOCRATIC GOVERNMENT (3) SEM. 3. Problems and ethics, democratic theory and leadership as they relate to public administration.

POLI 7350 FOUNDATIONS OF PUBLIC ADMINISTRATION AND PUBLIC SERVICE (3) SEM. 3. Introduction to public administration as practiced in the United States.

POLI 7360 FOUNDATIONS OF PUBLIC POLICY (3) DSL/SEM. 3. Formation, execution, and evaluation of public policy and an in-depth analysis of selected policy areas.

POLI 7520 PROGRAM EVALUATION (3) LEC. 3. This course provides a graduate-level focus on the theory and practice of program evaluation in the public sector with attention to program planning, process assessment, and impact assessment.

POLI 7630 DIVERSITY IN PUBLIC LIFE (3) LEC. 3. Developing and institutionalizing diversity in complex public organizations as a major part of organizational culture.

POLI 7700 ECONOMIC DEVELOPMENT AND COMPETITION (3) LEC. 3. Politics of economic development at the local, state, and national levels, especially the infrastructure offered by communities and the types of plans that might attract outside investment.

POLI 7920 MPA INTERNSHIP (3-6) DSL/INT. SU. Administrative experience in a governmental agency or nonprofit organization or participation in an approved public sector research or applied project. Course may be repeated for a maximum of 6 credit hours.

POLI 7930 MPA RESEARCH PROJECT (3-6) DSL/IND. SU. Completion and approval of a paper related to a policy or administrative issue or problem. Course may be repeated for a maximum of 6 credit hours.

POLI 7960 SPECIAL PROBLEMS (1-3) DSL/IND. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 7970 SPECIAL TOPICS (1-3) LEC. Selected topics in Political Science: 1) American Politics;2) Comparative Politics; 3) International Relations; 4)Political Theory; 5)Public Administration; 6) Public Policy; 7) Public Law; 8) Methodology. Credit will not be given for both POLI 7970 and POLI 4970. Course may be repeated with change in topics.

POLI 7AA0 MPA EPORTFOLIO (0) PR1. SU. The completion of an ePortfolio is required for all students in the Master of Public Administration (MPA) program. The ePortfolio is completed during the final semester of the MPA program. Course may be repeated for a maximum of 10 credit hours.

POLI 7AA1 INTENSIVE ECONOMIC DEVELOPMENT TRAINING COURSE (0) PR1. SU. The completion of week one of the Government and Economic Development Institute (GEDI) Intensive Economic Development Training Course is required for the completion of the Graduate Certificate in Economic Development. The intensive introduces students to all phases of economic development and provides an overview of economic development tools and principles. Course may be repeated with change in topics.

POLI 8000 DOCTORAL SEMINAR IN PUBLIC ADMINISTRATION (3) LEC. 3. Nature of public administration as a field of study and different theoretical perspectives as reflected in current research.

POLI 8010 RESEARCH DESIGN AND ANALYSIS (3) LEC. 3. Development and testing of causal models in political and social science. Students will develop a complex research design under the close supervision of the instructor.

POLI 8020 DOCTORAL SEMINAR IN PUBLIC POLICY (3) SEM. 3. Advanced study of the nature of public policy development and implementation.

POLI 8120 QUALITATIVE RESEARCH METHODS (3) SEM. 3. In-depth analysis of the use of qualitative methods in political science research.

POLI 8130 QUANTITATIVE METHODS (3) LEC. 3. Pr. POLI 8110. In-depth analysis of the use of quantitative methods in political science research.

POLI 8210 SEMINAR IN PROFESSIONAL DEVELOPMENT PART 1 (1) LEC. 1. Departmental approval. This course is the first of a two-part series of classes designed to introduce doctoral students to the academic profession and to provide them with experiences that reflect the types of tasks they will be required to carry out in a research position.

POLI 8220 SEMINAR IN PROFESSIONAL DEVELOPMENT PART 2 (2) LEC. 2. Pr. POLI 8210. Departmental approval. This course is the second in a two-part series of classes designed to introduce doctoral students to the academic profession and to provide them with experiences that reflect the types of tasks they will be required to carry out in a research position.

POLI 8450 COMPARATIVE POLITICS AND PUBLIC POLICY (3) LEC. 3. Theoretical approaches and important sub-field literatures. Applies insights and approaches to solving practical contemporary problems in public policy.

POLI 8650 POLITICAL THEORY AND PUBLIC POLICY (3) LEC. 3. Study of political theory in relation to issues of public policy.

POLI 8970 SPECIAL TOPICS (3) LEC. 3. Directed study of topics of interest. Course may be repeated for a maximum of 9 credit hours.

POLI 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Research related to writing the dissertation. Course may be repeated with change in topics.

Certificate in National Security and Intelligence

The Undergraduate Certificate in National Security and Intelligence (NSIN) is a 15-credit hour program within the Auburn University Department of Political Science. It provides a specialization in the theories and practice of national security, both in the United States and the world at large. The program is open to students from any undergraduate field of study and is administered by the Department of Political Science. The Undergraduate Certificate in National Security and Intelligence is designed for students pursuing a baccalaureate degree that are looking to specialize in national security in order to enter or advance in a national security related career. The certificate will prepare students to pursue public and private sector national security careers through studies of national security and of analytical skills important to a career in such fields.

See Certificate Director for additional course approvals

Code	Title	Hours
Required courses		**9**
POLI 3090	Introduction to International Relations	
POLI 3160	National Security Policy	
POLI 4720	Strategic Intelligence	

Choose 6 hours from the list below:		**6**
POLI 3080	Model United Nations	
POLI 3110	National Security Law	
POLI 3140	American Foreign Policy	
POLI 3170	Russian Foreign Policy	
POLI 3180	Latin America and the United States	
POLI 3190	International Relations of the Middle East	
POLI 3450	International Security	
POLI 3460	International Conflict Resolution	
POLI 3510	The European Union	
POLI 3520	Comparative Politics of the Middle East	
POLI 3540	East European Politics	
POLI 3550	Government and Politics of Latin America	
POLI 3590	The Politics of NATO	
POLI 3610	Asian Politics	
POLI 3720	Issues in Comparative Politics (Up to 3 hours as approved by certificate director)	
POLI 3730	Issues in International Relations (Up to 3 hours, as approved by certificate director)	
POLI 4710	Nationalism and Ethnic Conflict	
POLI 4920	Internship (Up to 3 hours, as approved by certificate director)	
POLI 4740	Comparative Civil-Military Relations	

Health Services Administration (HADM)

Visit the prospective student page on the program website or contact the program director or academic advisor for further information.

Students are admitted into Health Services Administration by application only. For admission into the HADM major, students must have completed 30 semester hours of course work, have earned a minimum 2.3 GPA in a list of specified courses, and submit a statement of purpose of no more than 500 words.

Freshman

Fall	**Hours**	**Spring**	**Hours**
ENGL 1100 English Composition I	3	HADM 2100 Medical Terminology	3
Foreign Language I (College Core)	4	Select One:	3
COMM 1000 Public Speaking	3	PHIL 1010 Introduction to Logic (Select One:)	
MATH 1680 Calculus with Business Applications I ***or*** 1610 Calculus I	4	PHIL 1020 Introduction to Ethics	
Free Electives[1]	1	PHIL 1030 Ethics and the Health Sciences	
		PHIL 1040 Business Ethics	
		ENGL 1120 English Composition II	3
		Foreign Language II (College Core)	4
	15		**13**

Sophomore

Fall	**Hours**	**Spring**	**Hours**
Core History	3	Core History to complete sequence	3
Core Literature	3	Core Science II	4

ACCT 2110 Principles of Financial Accounting	3	**HADM 3000 Gateway to Health Care Administration**	**3**
Core Science I	4	choose one:	3
ECON 2020 Principles of Microeconomics	3	STAT 2510 Statistics for Biological and Health Sciences	
		STAT 2610 Statistics for Business and Economics	
	16		**13**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
HADM 3300 Health Care Policy	**3**	**HADM 4000 Healthcare Management & Leadership**	**3**	**HADM 4920 Internship**[2]	**6**
HADM 3700 Health Law	**3**	**HADM 4200 Health Care Insurance and Reimbursement**	**3**		
HADM 3800 Health Care Analytics	**3**	FINC 3610 Principles of Business Finance ***or*** 3810 Foundations of Business Finance	3		
MNGT 3100 Principles of Management ***or*** 3810 Management Foundations	3	ECON 2030 Principles of Macroeconomics	3		
ACCT 2210 Principles of Managerial Accounting	3	HRMN 3420 Human Resource Management	3		
	15		**15**		**6**

Senior

Fall	Hours	Spring	Hours
HADM 4880 Health Information Technology	**3**	**Health Administration Seminar class**[3]	**3**
Health Administration Seminar class[3]	**3**	**HADM 4950 Capstone Seminar**	**3**
Fine Arts Core	3	MKTG 3310 Principles of Marketing	3
PSYC 2010 Introduction to Psychology ***or*** SOCY 1000 Sociology: Global Perspective	3	Elective[1]	3
Elective [1]	3	UNIV 4AA0 Achieve the Creed	0
	15		**12**

Total Hours: 120

1 Students should meet with their advisers to determine appropriate electives.
2 Students must complete all prerequisites before being approved to enroll in an internship. Students should meet with the departmental adviser for more information.
3 Students should see the departmental adviser for a list of approved classes.

Latin American Studies Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above). Student must test at the equivalent of FLFR 2010 or FLSP 2010 in either French, Spanish, or Portuguese, and complete a minimum of five courses in at least three different disciplines (see advisor for approved course listing). Students must earn a C and maintain a 2.5 GPA for all courses that count toward the minor.

Courses taken in fulfillment of the College Core or other majors and minors may not be counted toward the Latin American Studies minor.

Law and Justice (LAWJ)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
POLI 1090 American Government in Multicultural World	3	Foreign Language II (College Core)	4
Foreign Language I (College Core)	4	Core Social Science	3
Core Math	3	Core Science I	4
Core History	3		
	16		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core History to complete sequence	3
Core Science II	4	COMM 1000 Public Speaking	3
Core Philosophy Choice[1]	3	**Major Elective[2]**	**3**
LBAR 2010 Liberal Arts Careers Preparation	2	Core Fine Arts	3
POLI 2300 Introduction to the Legal Profession	**3**	**POLI 2310 Introduction to Legal Research and Writing**	**3**
	15		**15**

Junior

Fall	Hours	Spring	Hours
POLI 3360 Federal Jurisdiction	**3**	**Course from Group 2 [2]**	**3**
PHIL 3640 Philosophy of Law	**3**	**POLI 3810 Introduction to Torts**	**3**
Course from Group 1 [2]	**3**	**Course from Group 3[2]**	**3**
Major Elective[2]	**3**	**PHIL 3110 Symbolic Logic**	**3**
General Elective	3	General Elective	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
Course from Group 1[2]	**3**	**Course from Group 2 [2]**	**3**
Major Elective [2]	**6**	**Course from Group 3[2]**	**3**
General Elective	6	**Major Elective [2]**	**3**
		General Elective	6
		UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

1 Students will choose one of the following for a Philosophy core course: PHIL 1010, PHIL 1020, PHIL 1050, or PHIL 1090.

[2] Students must see their adviser for listings of Group One, Two, and Three courses and for recommended electives.

Political Science (POLI)

POLI 1090 American Government with a C or better is a prerequisite for some higher-level political science courses. A score of 4 or higher on the AP American Government test satisfies the prerequisite requirement. Contact the department chair or program coordinator for further information.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
POLI 1090/1097 American Government in Multicultural World[1]	**3**	Foreign Language II (College Core)	4
Foreign Language I (College Core)	4	POLI 1050/1057 Global Politics and Issues	3
Core Math	3	Core Science I	4
Core History[2]	3		
	16		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[2]	3	**Courses from Major Core[4]**	**9**
Core Science II	4	Core Humanities or Core Literature to complete sequence[2]	3
Core Fine Arts	3	COMM 1000 Public Speaking	3
Core Social Sciences or Core History to complete sequence[2]	3		
LBAR 2010 Liberal Arts Careers Preparation (new course from CLA)	2		
	15		**15**

Junior

Fall	Hours	Spring	Hours
Course from Major Core[3]	**3**	**Course from Specialty Core[4]**	**3**
Courses from Specialty Core[4]	**6**	**Course from Specialty Electives[5]**	**3**
Electives	6	Electives	9
	15		**15**

Senior

Fall	Hours	Spring	Hours
Course from Specialty Electives[5]	**3**	**Course from Specialty Electives[5]**	**3**
Course from POLI Electives[6]	**3**	**Course from POLI Electives[6]**	**3**
Electives	9	Electives	9
		UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

[1] The Major Core requires enrolling in the majors-only section of POLI 1090. See adviser for details.

[2] Students are required to complete a two-course history sequence *or* a two-course literature sequence. They are also required to complete at least one Core History *or* one Core Literature course in the area not selected as the sequence.
[3] The Major Core is the majors-only section of POLI 1090, POLI 3000, POLI 3020, POLI 3250, and *one* of POLI 3090 *or* POLI 3120.
[4] Majors select a Specialty within POLI; each Specialty has a 9-hour required Specialty Core. See adviser for the core for each Specialty.
[5] Majors select a Specialty within POLI; each Specialty has a list of accepted Specialty Electives. See adviser for the electives for each Specialty.
[6] Most POLI courses count as a POLI Elective. See adviser for a full list of POLI Electives.

Political Science Minor

The Political Science Minor requires 15 semester hours of Political Science courses above the 1000-level, with a minimum of 9 hours at the 3000-level or above. Students must earn a cumulative 2.00 GPA in the courses that count toward the minor. Courses taken in fulfillment of the College Core or other majors and minors may not be counted toward the Political Science minor.

POLI 1090 American Government does not count toward the minor, but it is the prerequisite for some higher level Political Science courses.

See the Political Science Department for the approved course listing.

Public Administration (PUBA)

POLI 1090 American Government with a C or better is a prerequisite for some higher-level political science courses. A score of 4 or higher on the AP American Government test satisfies the prerequisite requirement. Contact the department chair or program coordinator for further information.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Humanities (PHIL 1020 preferred)	3	COMM 1000 Public Speaking	3
Core Science I	4	Core Science II	4
POLI 1090 American Government in Multicultural World	3	POLI 1050 Global Politics and Issues ***or*** ECON 2020 Principles of Microeconomics	3
GEEL 1000 General Elective	1	GEEL 1000 General Elective	3
	14		**16**

Sophomore

Fall	Hours	Spring	Hours
Foreign Language I	4	Foreign Language II (to complete sequence)	4
Core History	3	Core History to complete sequence	3
Core Mathematics	3	Core Fine Arts	3
Core Literature	3	LBAR 2010 Liberal Arts Careers Preparation	2
GEEL 1000 General Elective	2	**POLI 2100 State Government and Policy**	**3**
	15		**15**

Junior

Fall	Hours	Spring	Hours
POLI 3000 Political Science Research Methods I	**3**	**POLI 3270 Policy Process**	**3**
POLI 3250 Introduction to Public Administration	**3**	**Course from Group 2- Nonprofit Organizations and Community Governance[1]**	**3**

GEEL 1000 General Elective	3	**Course from Group 3- Elections and Democractic Practice[1]**	**3**
Course from Group 1- Democratic, Political, and Administrative Systems[1]	**3**	GEEL 1000 General Elective	6
Course from Group 4- State and Local Governance[1]	**3**		
	15		**15**

Senior

Fall	Hours	Spring	Hours
POLI 3260 Organization Theory	**3**	**POLI 4140 Public Finance**	**3**
POLI 4160 Public Personnel Administration	**3**	GEEL 1000 General Elective	6
Course from Group 7- Public Law[1]	**3**	**Course from Group 5- Community Planning[1]**	**3**
GEEL 1000 General Elective	6	**Course from Group 6- Global Public Service and Cultural Competency[1]**	**3**
		UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 120

[1] Students must meet with their advisers to determine approved courses for Groups 1 through 7.

Public Administration Minor

The Public Administration minor requires 6 hours of foundations course work and 9 hours of emphasis in one of two tracks or Non-Profit Organizations and Community Governance. Students must meet prerequisites for all courses.

Code	Title	Hours
POLI 3250	Introduction to Public Administration	3
POLI 3270	Policy Process	3
Track A-Public Management. Select 9 additional hours from the following courses:		9
POLI 2100	State Government and Policy	
POLI 3260	Organization Theory	
POLI 3750	Issues in Public Administration	
POLI 3760	Issues in Public Policy	
POLI 4050	American Local Government	
POLI 4140	Public Finance	
POLI 4160	Public Personnel Administration	
POLI 5170	Election Law	
POLI 5270	Election Administration	
POLI 5550	Issues in Public Administration [1]	
POLI 5560	Issues in Public Policy	
Track B: Non-Profit Organizations and Community Governance		9
POLI 5370	Nonprofit Management	3
POLI 5550	Issues in Public Administration (Non-Profit Law) [1]	1-3
Select three additional hours from the following:		3
POLI 3340	Introduction to Conflict Resolution	
POLI 4140	Public Finance	
POLI 5150	Intergovernmental Relations and Federalism	
POLI 5180	Administrative Law	

POLI 5340	Theory and Practice of Mediation
POLI 5550	Issues in Public Administration (Field Research) [1]
POLI 5550	Issues in Public Administration (Non-Profit Fund Raising) [1]

Department of Psychological Sciences

We offer two undergraduate degrees: B.A. in Psychology and B.S. in Neuroscience. Our curriculum is designed to provide undergraduates with the best possible education.

The student learning outcomes for psychology are established by the American Psychological Association, and the department aligns with these learning outcomes:

- ***Knowledge in Psychology****:* Students will be able to identify basic psychological concepts.
- ***Scientific Inquiry and Critical Thinking****:* Students will be able to critically evaluate and apply basic psychological concepts by means of scientific reasoning acquired from training in statistics and research methods.
- ***Ethical and Social Responsibility in a Diverse World***: Students will be able to apply ethical standards to evaluate psychological science and practice.
- ***Communication:*** Students will be able to interact effectively with others.
- ***Professional Development****:* Students should be involved in research and outreach opportunities as preparation for pursuing post-baccalaureate education to become future scientists and/or practitioners in a psychological discipline, and to develop necessary skills to be successful in employment after earning their degree.

Majors

- Psychology (p. 1099)
- Neuroscience (p. 1098)

Minors

- Psychology (p. 1100)

Courses

PSYC 1010 NEUROSCIENCE SUCCESS STRATEGIES (2) LEC. 2. Introduction to the neuroscience major for new majors. Required of all majors and must be taken in the first year as a neuroscience major. Topics covered will be an overview of the neuroscience curriculum, course selection, faculty introduction, faculty expectations, student assessment, research opportunities, career planning and professional development, critical thinking, diversity, and ethics.

PSYC 2010 INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology. May count either PSYC 2010 or PSYC 2013.

PSYC 2017 HONORS INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Pr. Honors College. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology.

PSYC 2020 ORIENTATION TO PSYCHOLOGY MAJOR (1) LEC. 1. SU. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Orientation to the psychology major. Overview and design of psychology curriculum, faculty introduction, faculty expectations, student assessment, career development, study skills, diversity, and ethics.

PSYC 2130 ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. (MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH CORE). Introduces students to the cycle of collecting (using surveys and experiments), analyzing (using Excel) and reporting conclusions about psychological and other social and behavioral sciences data. The course provides a critical thinking approach for quantitative argumentation with data.

PSYC 2140 RESEARCH METHODS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2130 or PSYC 2133 or STAT 2510 or STAT 2513) and (PSYC 2017 or PSYC 2013 or PSYC 2010). Investigation of descriptive and experimental methods used in psychological research.

PSYC 2147 HONORS RESEARCH METHODS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2130 or PSYC 2133 or STAT 2510 or STAT 2513) and (PSYC 2017 or PSYC 2013 or PSYC 2010). Investigation of descriptive and experimental methods used in psychological research.

PSYC 2510 PSYCHOLOGY OF SEXUAL BEHAVIOR (3) LEC. 3. Biological, social, and psychological dimensions of human sexuality.

PSYC 3120 DEVELOPMENTAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 2010 or PSYC 2013 or PSYC 2017. Introduction to physical, cognitive, social and emotional development across the lifespan.

PSYC 3500 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Principles and procedures for management of human behavior. Fall, Spring.

PSYC 3510 BEHAVIORAL NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Exploration of the relationships between the brain and behavior.

PSYC 3520 PSYCHOLOGY OF LEARNING (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Phenomena involved in the acquisition of knowledge, skills, and patterns of action.

PSYC 3530 SENSATION AND PERCEPTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Study of perceptual phenomena and the structure and function of sensory systems.

PSYC 3540 COGNITIVE PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Phenomena involved with thinking and remembering.

PSYC 3550 PSYCHOLOGY AND CULTURE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Survey of the ways culture shapes, modifies and adds distinctiveness to human behaviors.

PSYC 3560 INTRODUCTION TO PSYCHOPATHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Exploration of our attempts to understand, explain, and classify abnormal behavior patterns.

PSYC 3570 THEORIES OF PERSONALITY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Survey of selected classical and contemporary theories of personality.

PSYC 3580 SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Scientific study of how people think about, influence, and relate to one another.

PSYC 3590 PSYCHOLOGY IN THE WORKPLACE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Application of basic psychological principles and theories in the workplace. May count either PSYC 3590 or PSYC 3593.

PSYC 3610 SPORTS PSYCHOLOGY (3) SEM. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Inquiry into how motivation, emotion, personality, and other mind-body variables influence physiology and athletic performance. Seminar class includes applied exercises in emotional expression, stress and pain management, hypnosis, and diet and exercise challenges.

PSYC 3620 COGNITIVE NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Exploration of how mental functions are linked to neural processes to enable the mind.

PSYC 3640 MOTIVATION AND EMOTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Overview of historical and contemporary perspectives on human motivation and emotion.

PSYC 3650 DRUGS AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Introduction to the behavioral effects of drugs, including drug abuse and its treatment.

PSYC 3660 PSYCHOLOGY OF GOOD AND EVIL (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). This class looks at the reasons why humans can act negatively against other people while maintaining a sense of their personal "normalcy".

PSYC 3670 PSYCHOLOGY OF SLEEP (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). This course will cover several topics pertaining to the psychology and physiology of sleep including circadian rhythms, the neuroscience of sleep, how sleep differs across the lifespan and across cultures, sleep quality, and sleep disorders. Students will also gain a deeper understanding of research methods in the field of sleep science and various theories that address why we sleep.

PSYC 3680 PSYCHOLOGY AND LAW (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). How psychological theories and research can inform civil and criminal legal practice, including psychological evaluations, jury selection, and predictions of violent behavior among other possible topics.

PSYC 3690 PSYCHOLOGICAL TRAUMA AND RESILIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). This course will provide an introduction to the field of trauma psychology, specifically focusing on definition, epidemiology, and consequences of psychological trauma, risk and protective factors for trauma exposure and outcomes, evidence-based trauma prevention and intervention strategies.

PSYC 3710 INTERGROUP PROCESSES: STEREOTYPING, PREJUDICE AND STIGMA (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). In this course, we will examine stereotyping, prejudice and stigma from a Social Psychological perspective. We will cover a wide variety of topics related to intergroup cognition and behavior (e.g., social cognitive approaches to stereotyping, stereotype threat, intergroup prejudice, and avenues to reduce intergroup biases).

PSYC 3910 SUPERVISED RESEARCH EXPERIENCE (3) LEC. 3. SU. Pr., Departmental approval. Supervised experience in research settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 3940 EXPERIENTIAL LEARNING (3) PRA. 3. SU. Pr., Departmental approval. Supplementary instruction concurrent with job or volunteer experience involving the application of psychological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

PSYC 3970 SPECIAL TOPICS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Theories, research and issues in contemporary psychology on selected topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 4010 CLINICAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Introduction to clinical psychology focusing on techniques of assessment and intervention.

PSYC 4080 HEALTH PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Psychological principles in health maintenance and health problems.

PSYC 4220 CHILD PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Child psychology from a life-span developmental perspective, emphasizing social-emotional development in infancy.

PSYC 4260 PSYCHOLOGY OF ADDICTIVE BEHAVIORS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Overview of various psychological features of addictive behaviors including alcohol and drug abuse, eating disorders, gambling and excessive sexual behavior.

PSYC 4910 HUMAN SERVICE PRACTICUM (3) PRA. 3. SU. Pr., Departmental approval. Supervised experience in service-delivery settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. In-depth study of a psychological topic under the direction of a faculty member. Only 6 credit hours may be applied to the psychology major. Course may be repeated for a maximum of 9 credit hours.

PSYC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. 2.30 GPA. STAT 2010. Course may be repeated for a maximum of 3 credit hours.

PSYC 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. STAT 2010. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 5020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Description, etiology, and treatment of psychological disturbances in children and adolescents.

PSYC 5610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Laboratory, occupational and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 5620 NEUROPHARMACOLOGY AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and PSYC 3510. Formerly Drugs, Brain, and Behavior. A review of drugs affecting nervous system function and behavioral or neural mechanisms that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Course meets APA criteria for Level 1. May count either PSYC 5620 or PSYC 6620.

PSYC 5690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. PSYC 2130. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count PSYC 5960 or PSYC 6960.

PSYC 5960 SEMINAR IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Seminar in research and theory on psychological topics. Course may be repeated with changes in topic. Course may be repeated for a maximum of 6 credit hours.

PSYC 6610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Laboratory, occupational, and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental exposures; and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 6620 NEUROPHARMACOLOGY AND BEHAVIOR (3) LEC. 3. Formerly Drugs, Brain, and Behavior. Review of drugs affecting nervous system function and behavioral or neural mechanisms that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Course meets APA criteria for Level 1 training in psychopharmacology.

PSYC 6690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count either PSYC 5690, PSYC 6690 or PSYC 6696.

PSYC 6960 SPECIAL PROBLEMS (3) LEC. 3. Pr., Departmental approval. Seminar in research and theory on psychological topics. Course may be repeated for a maximum of 18 credit hours.

PSYC 7100 HISTORY OF IDEAS IN PSYCHOLOGY (3) LEC. 3. Historical developments in psychology with emphasis on the major theories and systems.

PSYC 7110 ETHICS AND PROBLEMS OF SCIENTIFIC AND PROFESSIONAL PSYCHOLOGY (1) LEC. 1. Survey of ethical issues and current problems in psychology.

PSYC 7120 TEACHING OF PSYCHOLOGY (3) LEC. 3. Problems and practices of teaching psychology at the college level. In addition to seminar meetings, students work with faculty in appropriate courses.

PSYC 7140 LEARNING AND CONDITIONING (3) LEC. 3. Respondent conditioning and operant behavior, including acquisition of language and other forms of individual and environmental interactions.

PSYC 7150 BIOLOGICAL PSYCHOLOGY (3) LEC. 3. Behavior from a biological perspective, including theory and research from the neurosciences and biopsychology.

PSYC 7160 HUMAN DEVELOPMENT (3) LEC. 3. Introduction to conceptual and substantive issues of developmental psychology from a life-span developmental perspective.

PSYC 7170 THEORIES OF PERSONALITY (3) LEC. 3. Analysis of current issues in personality theory.

PSYC 7180 SOCIAL PSYCHOLOGY (3) LEC. 3. Topics and literature on the social foundations of behavior.

PSYC 7190 COGNITIVE PSYCHOLOGY (3) LEC. 3. Survey of the nature of human intellectual functioning, including pattern recognition, memory, problem solving, reasoning, and language comprehension and generation.

PSYC 7200 ANIMAL COGNITION (3) SEM. 3. Experimental analysis of the mechanisms that underlie animal cognition, including attention, concept formation, counting, language, memory, perception, timing, and problem solving.

PSYC 7220 BEHAVIORAL PRINCIPLES (3) LEC. 3. Concepts and principles of operant and respondent conditioning and their relevance to changing and interpreting human behavior.

PSYC 7230 PSYCHOMETRIC THEORY (3) LEC. 3. Pr. P/C PSYC 7270 and P/C PSYC 7280. Introduction to basic quantitative theory behind the construction and interpretation of test scores and scales.

PSYC 7240 METHODS FOR STUDYING INDIVIDUAL BEHAVIOR (3) LEC. 3. Examination of strategies for measuring individual and environment interaction, using environmental interventions and identifying behavior change and its causes.

PSYC 7250 CLINICAL RESEARCH METHODS AND ETHICS (3) LEC. 3. Introduction to research methods and ethics in clinical psychology, with an emphasis on critical analysis of the scientific literature.

PSYC 7260 ETHICAL AND PROFESSIONAL ISSUES IN BEHAVIOR ANALYSIS (3) LEC. 3. Ethical and professional issues relevant to the practice of applied behavior analysis.

PSYC 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Introduction to the analysis of data collected under various different experimental designs. Credit will not be given for both PSYC 7270 and STAT 7270.

PSYC 7280 EXPERIMENTAL DESIGN IN PSYCHOLOGY II (4) LEC. 3. LAB. 2. Pr. PSYC 7270. and Enrollment in Psychology PhD program. Correlational and regression models. Matrix based multiple and logistic regression, moderation and mediation, and introduction to path models.

PSYC 7310 AUTISM AND INTELLECTUAL DISABILITIES (3) LEC. 3. Survey of the definitions, terms, epidemiology, etiologies, and current issues in autism and intellectual disabilities.

PSYC 7320 CLINICAL PSYCHOPHARMACOLOGY (3) LEC. 3. The basic principles of psychopharmacology with special attention given to drugs used in applied or therapeutic settings, their effects, and their potential interactions with behavioral interventions.

PSYC 7400 COGNITIVE NEUROSCIENCE (3) LEC. 3. Exploring how mental functions are linked to neural processes to enable the mind.

PSYC 7700 FOUNDATIONS IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (3) DSL/SEM. 3. This course is designed to be an advanced survey of the Industrial and Organizational Psychology field.

PSYC 7710 TRAINING AND DEVELOPMENT IN ORGANIZATIONS (3) DSL/SEM. 3. A graduate seminar that focuses on critical conceptual and empirical issues facing training and development in the workplace.

PSYC 7720 PERSONNEL SELECTION (3) DSL/SEM. 3. Analysis of classical, contemporary, theoretical, and practical issues related to personnel selection. May count either PSYC 7720, PSYC 7726, PSYC 8720 or PSYC 8726.

PSYC 7730 RESEARCH METHODS IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) DSL/SEM. 3. An overview of basic research methodology applicable to the investigation of organizational phenomena.

PSYC 7740 ORGANIZATIONAL CULTURE (3) SEM. 3. Gain an understanding of organizational culture and provides the context in which organizational behavior may be understood.

PSYC 7750 ETHICS AND PROFESSIONAL ISSUES IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) DSL/SEM. 3. An introduction to issues faced in professional practice and importance of ethical behavior in the practice of Industrial/Organizational Psychology.

PSYC 7760 OCCUPATIONAL HEALTH PSYCHOLOGY (3) DSL/SEM. 3. Occupational health psychology (OHP) is an emerging interdisciplinary field concerned with psychological factors in employee health, safety, and well-being.

PSYC 7780 WORK MOTIVATION (3) SEM. 3. Analysis of historical and contemporary theories of work motivation and related research.

PSYC 7790 WORKFORCE MANAGEMENT (3) SEM. 3. A comprehensive course that explores the principles and practices of human resource management within organizational settings, emphasizing the application of psychological theories to enhance employee well-being and organizational effectiveness. Students will learn about talent acquisition, development, compensation, and strategic HR planning through a psychological lens.

PSYC 7800 LEADERSHIP (3) SEM. 3. Analysis of historical and contemporary theories of leadership and related research.

PSYC 7910 PRACTICUM IN APPLIED PSYCHOLOGY (1-10) DSL/PRA. Supervised practicum in applied psychology. A maximum of 12 hours will apply toward degree. Department approval. Course may be repeated for a maximum of 30 credit hours.

PSYC 7930 DIRECTED STUDIES (1-3) DSL/IND. Pr., Departmental approval. Work under the direction of a faculty member on a psychological topic of mutual interest. No more than 3 hours count toward major. Course may be repeated for a maximum of 9 credit hours.

PSYC 7970 RESEARCH IN SPECIAL TOPICS (3) IND. 3. Pr., Departmental approval. Supervised scholarly activity related to student's field of study. Course may be repeated with change in topics.

PSYC 7980 APPLIED BEHAVIOR ANALYSIS CAPSTONE PROJECT (1-10) DSL/PRA. Pr., Departmental approval. Supervised practicum in applied psychology behavior analysis project involving delivery of services to a consumer. Maximum of 6 credit hours will count toward degree. Course may be repeated for a maximum of 30 credit hours.

PSYC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Pr., Course may be repeated with change in topics.

PSYC 8180 ADVANCED SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 7180. Departmental approval. Theories, research and issues in contemporary social psychology.

PSYC 8240 STRUCTURAL EQUATION MODELING FOR APPLIED RESEARCHERS (3) LEC. 3. This course is to provide an overview and introduction to the use of structural equation modeling in applied research, utilizing Mplus software. This course will be taught from an applied and pragmatic perspective. There will be a particular focus on data analytic issues that are especially relevant to clinical researchers.

PSYC 8250 MULTIVARIATE METHODS (4) LEC. 3. LAB. 2. Pr. PSYC 7270 and PSYC 7280. Introduction to the theory behind multivariate analyses and the statistical programs that support them.

PSYC 8270 FACTOR ANALYSIS (3) SEM. 3. Theoretical and statistical applications of exploratory and confirmatory factor analysis.

PSYC 8280 META-ANALYSIS (3) DSL/SEM. 3. Meta-analysis is a quantitative analysis using techniques to analyze and integrate effect sizes that accrue from research studies.

PSYC 8300 DEVELOPMENTAL PSYCHOPATHOLOGY (3) LEC. 3. Introduction to contemporary concepts, constructs, and controversies in developmental psychopathology.

PSYC 8310 INTRODUCTION TO CLINICAL METHODS AND ETHICS (3) LEC. 3. Enrollment in Clinical Psychology Program. Interviewing introduction to interviewing skills, behavioral assessment, crisis intervention, professional and ethical issues in providing clinical services.

PSYC 8330 COGNITIVE BEHAVIOR THERAPY (3) LEC. 3. Conceptual and applied issues related to behavioral principles of assessment and treatment.

PSYC 8350 APPLIED PSYCHOMETRIC PRINCIPLES (3) LEC. 3. Analysis of classical and modern test theory, with an emphasis on applied psychometric principles.

PSYC 8360 ASSESSMENT OF COGNITIVE ABILITIES AND ACHIEVEMENT (3) LEC. 2. LAB. 2. Theories and techniques for the assessment of cognitive abilities and academic achievement.

PSYC 8370 FOUNDATIONS OF PSYCHOLOGICAL ASSESSMENT (3) LEC. 3. Enrollment in Clinical Psychology program. Measurement theory and introduction to widely used objective personality and behavioral checklists with attention to ethics and diversity.

PSYC 8460 ASSESSMENT AND TREATMENT OF ALCOHOL AND DRUG PROBLEMS (3) LEC. 3. Pr., Departmental approval. Conceptual and empirical bases of clinical assessment and intervention for alcohol and drug problems.

PSYC 8500 COGNITIVE AND BEHAVIORAL SCIENCES SEMINAR (1) SEM. 1. SU. Pr., Enrollment in Cognitive and Behavioral Sciences PhD program. Examination of professional preparation issues and recent scientific developments relevant to careers in the cognitive and behavioral sciences. Course may be repeated for a maximum of 3 credit hours.

PSYC 8510 CONTEXT AND CONSEQUENCES OF BEHAVIOR (3) LEC. 3. Pr. PSYC 7140. Advanced survey of the role that consequences play in acquisition, maintenance, and structure of behavior, and the methods by which this role is studied.

PSYC 8540 BEHAVIORISM (3) LEC. 3. Exploration of the philosophical and theoretical underpinnings of behavior analysis.

PSYC 8550 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. PSYC 7140. and Departmental approval. Scientific and conceptual foundations of applied behavior analysis and its strategies of intervention and evaluation.

PSYC 8570 APPLIED BEHAVIOR ANALYSIS 2 (3) LEC. 3. Applications of behavioral principles to the assessment and treatment of problem behavior.

PSYC 8700 ADVANCED INDUSTRIAL PSYCHOLOGY (3) LEC. 3. Analysis of methods and content of industrial psychology.

PSYC 8710 ADVANCED ORGANIZATIONAL PSYCHOLOGY (3) LEC. 3. Departmental approval. Analysis of major issues in organizational psychology.

PSYC 8730 PERFORMANCE APPRAISAL (3) LEC. 3. Analysis of classical, contemporary, theoretical, and practical issues related to the appraisal of employee work performance.

PSYC 8760 DECISION MAKING IN THE WORKPLACE AND ORGANIZATIONS (3) SEM. 3. The application of behavioral decision theory and research to problems in Industrial/Organizational Psychology.

PSYC 8770 ORGANIZATIONAL CHANGE (3) DSL/SEM. 3. A conceptual overview of organizational change and organizational transformation and related specific topics.

PSYC 8780 WORK AND FAMILY (3) SEM. 3. A survey of research and theory in work and family, a content area of organizational psychology.

PSYC 8790 SEMINAR IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (1) SEM. 1. SU. Examination of professional preparation issues and recent scientific developments relevant to careers in Industrial and Organizational Psychology. Enrollment in the Industrial and Organizational Psychology PhD program. Course may be repeated for a maximum of 3 credit hours.

PSYC 8910 CLINICAL PRACTICUM (1-4) DSL/PRA. Supervised practicum experience in clinical assessment and intervention techniques. Course may be repeated for a maximum of 30 credit hours, with 24 counting toward the degree.

PSYC 8920 INTERNSHIP (0) INT. Pr., PhD candidacy. Enrollment in full-time APA-approved 1-year pre-doctoral internship required for the PhD in Clinical Psychology. Student may not enroll in other course work.

PSYC 8930 DIRECTED STUDIES IN PSYCHOLOGY (3) IND. Pr., Approved PhD plan of study. Review of literature leading to the writing and defense of the Major Area Paper (written portion of the general PhD examination). Course may be repeated for a maximum of 9 credit hours.

PSYC 8970 SPECIAL TOPICS (1-3) DSL. Departmental approval. In-depth study of issues related to selected specializations in psychology. Course may be repeated for a maximum of 18 credit hours.

PSYC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Pr., Course may be repeated for a maximum of 98 credit hours.

Neuroscience (NSCI)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	PSYC 1010 Neuroscience Success Strategies	2
MATH 1610 Calculus I	4	ENGL 1120 English Composition II	3
CHEM 1030 Fundamentals Chemistry I[1]	3	**PSYC 2010 Introduction to Psychology**	**3**
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1040 Fundamental Chemistry II[2]	3
BIOL 1020 Principles of Biology	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1030 Organismal Biology	3
		BIOL 1031 Organismal Biology Laboratory	1
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
PSYC 3530 Sensation and Perception	**3**	**PSYC 3510 Behavioral Neuroscience**	**3**
PSYC 2130 Analytics for Social and Behavioral Sciences	**3**	LBAR 2010 Liberal Arts Careers Preparation	2
Core History I	3	Core History II	3
	17		**16**

Junior

Fall	Hours	Spring	Hours
PSYC 3520 Psychology of Learning	**3**	COMM 1000 Public Speaking	3
BIOL 3000 Genetics	3	**PSYC 3540 Cognitive Psychology**	**3**
BIOL 3001 General Genetics Laboratory	1	**PSYC 3620 Cognitive Neuroscience**	**3**
Core Literature	3	PHIL 1030 Ethics and the Health Sciences	3
Core Social Science	3	Core Social Science	3
	13		**15**

Senior

Fall	Hours	Spring	Hours
PSYC 5620 Neuropharmacology and Behavior	**3**	Core Foreign Language	4
BIOL 4100 Cell Biology	3	Core Fine Arts	3
BIOL 4101 Cell Biology Laboratory	2	**Major Elective**[3]	**6**
Core Foreign Language	4		
Major Electives[3]	**3**		
	15		**13**

Total Hours: 120

1 The Chemistry CHEM 1110/CHEM 1111–CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031–CHEM 1040/CHEM 1041. See advisor for details.

2 The Chemistry CHEM 1110/CHEM 1111–CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031–CHEM 1040/CHEM 1041. See advisor for details.

3 See advisor for the list of Major Elective Courses.

Psychology (PSYC)

Students must earn a grade of C or higher in all major courses.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
Elective[1]	3	Core History[2]	3
Core Mathematics	3	**PSYC 2010/2017 Introduction to Psychology**	**3**
	13		**13**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[2]	3	Core Social Science or Core History to complete sequence[2]	3
PSYC 2020 Orientation to Psychology Major	**1**	Core Social Science	3
PSYC 2130 Analytics for Social and Behavioral Sciences	**3**	Core Science II	4
Select one of the following:	3	**PSYC 2140 Research Methods in Psychology**	**3**
SOCY 1000 Sociology: Global Perspective		LBAR 2010 Liberal Arts Careers Preparation	2

ANTH 1000 Anthropology: Culture and Adaptation			
GEOG 1010 Global Geography			
Core Science I	4		
	14		**15**

Junior

Fall	Hours	Spring	Hours
Core Humanities or Core Literature to complete sequence[2]	3	Core Fine Arts	3
Groups A and B Psychology Electives[1]	**6**	**Groups A and B Psychology Electives[1]**	**6**
Electives[1]	8	Electives[1]	8
	17		**17**

Senior

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking[3]	3	**Group C Psychology Electives[1]**	**6**
Psychology Electives[3]	**9**	Electives[1]	10
Electives[1]	3	UNIV 4AA0 Achieve the Creed	0
	15		**16**

Total Hours: 120

1 Students should meet with the psychology adviser to determine approved course listings for psychology electives and other electives. It is recommended that students take foundational courses (those listed in Groups A and B) in their junior year and advanced electives (those in Group C) in their senior year.

2 Students are required to complete a two-course history sequence *or* a two-course literature sequence. They are also required to complete at least one Core History *or* one Core Literature course in the area not selected as the sequence.

3 Work with your advisor to select appropriate courses from Groups A, B, and C or other courses as approved by your advisor.

Psychology Minor

Code	Title	Hours
PSYC 2010/2017	Introduction to Psychology	3
Select Minor Curriculum Track A or Track B:		9
Track A		
Select 3 of the following courses (9 hours):		
PSYC 3120	Developmental Psychology	
PSYC 3560	Introduction to Psychopathology	
PSYC 3570	Theories of Personality	
PSYC 3580	Social Psychology	
PSYC 3590	Psychology in the Workplace	
Track B		
Select 3 of the following courses (9 hours):		
PSYC 3510	Behavioral Neuroscience	
PSYC 3520	Psychology of Learning	
PSYC 3530	Sensation and Perception	
PSYC 3540	Cognitive Psychology	
PSYC 3620	Cognitive Neuroscience	

Take 1 additional 3000 level or above Psychology Course	3
Total Hours	**15**

Calculated GPA in the Minor (2.0 minimum). Students must earn a "C" grade or better in each course taken toward the minor.

* If PSYC 2010 or PSYC 2017 was used to fulfill the Social Science core requirement, an additional psychology course is required to complete the minor.

** Students who wish to purse a specialized minor should consult and obtain approval for minor coursework changes from the undergraduate program director before starting minor curriculum.

Department of Sociology, Anthropology, and Social Work

The Department of Sociology, Anthropology, and Social Work offers three Bachelor of Arts degrees. The **Sociology** major offers two concentration areas: criminology and sociology. Graduates have found positions in social service agencies, law enforcement agencies, non-profit organizations, social science research, and marketing. Some pursue graduate education in sociology, social work, criminology, elementary education, and library sciences, among others. The sociology major provides students a solid foundation within the discipline, particularly in theory, research methods, statistics, and social inequalities. **Anthropology,** the study of human diversity and adaptation, prepares students for domestic or international careers as archaeologists, cultural resource manger, educators, environmental and forensic scientists, museum curators, policy analysts, and researchers. Anthropology graduates have found positions in archaeology, business, communications, education, government, healthcare, museums and archives, and nonprofit foundations. The anthropology major emphasizes foundational knowledge in disciplinary research methods and theory, and provides practical skills training and lab and field experiences. **Social work** graduates are trained to become beginning-level generalist practitioners eligible for licensure and to apply for advanced-standing social work graduate programs. Social work graduates have found positions in family service agencies, child protective services, mental health facilities, hospitals, hospices, nursing homes, addiction treatment and rehabilitation, and criminal justice agencies. The BA in social work is fully accredited by the Council on Social Work Education.

Anthropology

To earn a BA in Anthropology, students must meet these requirements:

- Students must maintain a minimum 2.0 GPA in each of these courses: ANTH 2000, ANTH 3100, ANTH 3300, ANTH 3500, ANTH 4310.

Sociology

To earn a BA in sociology, students must meet these requirements:

- Students must earn a C or better in SOCY 1000, SOCY 3500, SOCY 4400 or SOCY 4700, SOCY 3700 or ANTH 2000, and PSYC 2130 in order to graduate. If they choose to take ANTH 2000 rather than SOCY 3700, they must earn a C in that course.

Social Work

Students must comply with these requirements to be admitted to the BA in social work:

- Students are required to apply for admission to the social work major.
- Their applications must include two letters of recommendation and a personal-statement essay not longer than four double-spaced pages.
- Students must earn a C or better in SOCY 1000, SOWO 2000, and SOWO 3910 and a combined social work GPA of 2.5 before applying to the program.

Once they are admitted, students have to meet these requirements to move through the social work major and graduate:

- Admission to the social work major is required before students can take SOWO 4060.
- Students must maintain a 2.5 GPA in all social work courses.
- Students must have a social work GPA of 2.5 to take SOWO 4920, which is required for graduation.

Majors

- Anthropology (p. 1110)
- Social Work (p. 1111)
- Sociology (p. 1112)

Minors

- Anthropology (p. 1111)
- Social Work (p. 1112)
- Sociology (p. 1113)

Anthropology Courses

ANTH 1000 ANTHROPOLOGY: CULTURE AND ADAPTATION (3) LEC. 3. Social Science core. Anthropology is the exploration of human evolution and cultures. This course surveys the four subfields of Archaeology, Biological Anthropology, Cultural Anthropology and Linguistic Anthropology. We will see how anthropology provides a broad framework for understanding and solving pressing social problems in the world today.

ANTH 1007 HONORS INTRODUCTION TO ANTHROPOLOGY (3) LEC. 3. LAB. 0. Pr. Honors College. Social Science core. Anthropology is the exploration of human evolution and cultures. This course surveys the four subfields of Archaeology, Biological Anthropology, Cultural Anthropology and Linguistic Anthropology. We will see how anthropology provides a broad framework for understanding and solving pressing social problems in the world today. Credit will not be given for both ANTH 1000 and ANTH 1007.

ANTH 2000 ETHNOGRAPHIC METHODS (3) LEC. 3, AAB/LEC. 0. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007) or (SOCY 1000 or SOCY 1007) or GEOG 1100. Approaches, techniques, and strategies for carrying out ethnographic research and analyzing qualitative data in the social sciences.

ANTH 2500 ANTHROPOLOGY OF GLOBAL STUDIES (3) LEC. 3. Any Social Science Core course. Broad-based study of processes and problems that transcend national boundaries, including global historical processes, politics, migrations, trade, disease, environmental change, and sustainability.

ANTH 2600 MUSEUM STUDIES IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003. Students will consider the history of museum anthropology and reflect on contemporary anthropological engagement in/of museums and other cultural institutions.

ANTH 2610 FORENSIC ANTHROPOLOGY (3) LEC. 3. Explores standards of practice in forensic anthropology and analysis of case studies.

ANTH 2700 PEOPLES AND CULTURES OF ASIA (3) LEC. 3. Any Social Science Core course. Introduction to the traditions, religions, histories, and nation-states of the people of Asia, using a cultural approach.

ANTH 2800 ANTHROPOLOGY OF THE AFRICAN DIASPORA (3) LEC. 3. Any Social Science Core course. Anthropological perspectives on African Diasporas. Diaspora. Archaeological, ethnohistorical, and contemporary research exploring identity, symbols, power, and social relations in the lives of enslaved Africans and descendants in the Caribbean, Latin America and North America.

ANTH 2900 WORLD PREHISTORY (3) LEC. 3. Explore broad patterns in human prehistory over the past 10,000 years, including the origins of culture, religion, domestication and agriculture, writing, cities, and states.

ANTH 3000 CULTURE, MARRIAGE, AND THE FAMILY (3) LEC. 3. Role and meaning of kinship and its universal and particularistic features in human society.

ANTH 3010 MAGIC, MYTH, AND RITUAL: ANTHROPOLOGY OF RELIGION (3) LEC. Pr. P/C ANTH 1000. This course explores religious beliefs and practices around the world from an anthropological perspective. Our focus will be on how anthropologists study religion and how religious beliefs, practices, and practitioners are understood in their historical and cultural contexts.

ANTH 3100 LANGUAGE AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Contemporary perspectives on cultural and linguistic anthropology, emphasizing language acquisition and culture change; language as socially charged; performance; status and inequality; and the study of globally diverse linguistic communities of practice.

ANTH 3110 ANTHROPOLOGY AND FICTION (3) LEC. Inter-disciplinary study of fiction from an anthropological perspective.

ANTH 3200 ANTHROPOLOGY OF GENDER (3) LEC. 3. Pr. P/C ANTH 1000 or P/C ANTH 1003 or P/C ANTH 1007 or P/C WMST 2100 or P/C WMST 2103. Gender relations and representations in different cultures, historical periods, and discourses.

ANTH 3300 BIOLOGICAL ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007 or BIOL 1000 or BIOL 1010. Overview of biological anthropology, including evolutionary theory and genetics, primatology, human origins, and biological variation of contemporary human populations. Concepts will be applied during in-class exercises and discussions.

ANTH 3410 APPLIED & PRACTICING ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores application and practice of anthropology in settings such as cultural resource management, museums, social and environmental policy, and healthcare. This course emphasizes how careers in anthropology contribute to resolving contemporary social problems.

ANTH 3500 ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Archaeology is the study of human societies based on the material remains they left behind. This course explores the history, theories, methods, and applications of archaeology.

ANTH 3600 MEDICAL ANTHROPOLOGY (3) LEC. 3. Any Social Science Core course. Explores biological and cultural dimensions of global health from an anthropological perspective. Topics include the political economy of health, gendered health disparities, cross-cultural healing traditions, pluralistic medical systems, and evolutionary medicine.

ANTH 3620 FORENSIC ANTHROPOLOGY II: ADVANCED METHODS, THEORY, AND CASE STUDIES (3) LAB. Pr. ANTH 2610. Forensic Anthropology II is a hybrid seminar and lab course that teaches practical applications and methods in forensic anthropology through the exploration of case studies and laboratory exercises.

ANTH 3700 ENVIRONMENTAL ANTHROPOLOGY (3) LEC. 3. Problems in environmental anthropology including ethnoecology, cultural ecology, political ecology and environmentalism.

ANTH 3810 ARCHAEOLOGY OF NORTH AMERICA (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores archaeological evidence for the history of indigenous peoples in North America during the past 10,000 years.

ANTH 3850 ARCHAEOLOGY OF THE SOUTHEASTERN AND MIDWESTERN U.S. (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Diversity and complexity of late prehistoric cultures of the Southeastern and Midwestern United States.

ANTH 3900 BIOARCHAEOLOGY (3) LEC. 3. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007). Archaeologically-derived skeletal remains provide essential information for reconstructing broad patterns of human health and behavior over time. Students will learn to apply methods and theory in social bioarchaeology to understand demography, diet, disease, and physical activity in past populations.

ANTH 3950 CURATION (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. History, legislation, and ethical concerns associated with the accumulation and curation of archaeological collections.

ANTH 4310 THEORIES OF CULTURE IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Major thinkers in anthropology and their theoretical models considered in historical perspective.

ANTH 4400 ARCHAEOLOGICAL FIELD SCHOOL (3) LEC. 1. LAB. 2. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Field methods, including archaeological surveying and excavation procedures at selected locations. Course may be repeated for a maximum of 6 credit hours.

ANTH 4910 BIOLOGICAL ANTHROPOLOGY LABORATORY PRACTICUM (3) LEC. 1. LAB. 2. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007). Investigation of specific biological anthropology problem or problems, involving students in laboratory techniques and research.

ANTH 4920 INTERNSHIP IN ANTHROPOLOGY (1-3) AAB/INT. 1-3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Internship for practical work with anthropological/archaeological collections or anthropological research in a professional setting, including federal or state agencies, NGOs, NPOs, community and voluntary organizations, and industry (e.g., healthcare and medicine, advertising/media, architecture/design, high technology, Cultural Resource Management and historic preservation, etc.). Course must be approved by the faculty advisor and department. Internship must be a supervised, closely monitored work experience, appropriate to the major. Course may be repeated for a maximum of 6 credit hours.

ANTH 4930 CULTURAL ANTHROPOLOGY FIELD SCHOOL (3) FLD. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. This practice anthropology course examines the relationship between culture, community, and environment in a particular field setting, in the United States or abroad.

ANTH 4940 ARCHAEOLOGY LABORATORY PRACTICUM (3) LEC. 1. LAB. 2. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Analysis, preservation, cataloging, and restoration of archaeological materials. May count either ANTH 4940 or ANTH 3910.

ANTH 4960 SPECIAL PROBLEMS (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College. ANTH 1000. Departmental approval. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 3 credit hours.

ANTH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ANTH 1000. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

ANTH 5200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Role of gender and culture in Third World development from an anthropological perspective.

ANTH 5600 CULTURE, MEDICINE, AND POWER (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Power in the context of illness and healing at local, national, and international levels.

ANTH 5700 CRITIQUE OF DEVELOPMENT (3) LEC. 3. Pr. ANTH 3700. Meanings and structures of national and international development.

ANTH 5930 DIRECTED STUDIES (1-3) IND. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 5970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

ANTH 6200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Role of gender and culture in Third World economic development from an anthropological perspective.

ANTH 6600 CULTURE MEDICINE AND POWER (3) LEC. 3. Power in the context of illness and healing at local, national, and international levels.

ANTH 6930 DIRECTED STUDY (1-3) IND. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 6970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

Social Work Courses

SOWO 2000 INTRODUCTION TO SOCIAL WORK (3) LEC. 3. Introduction to social work practice, examining career opportunities, history of the profession, practice settings, values, ethics, and types of clientele.

SOWO 2650 HISTORY OF SOCIAL WELFARE (3) LEC. 3. Development of social welfare policies and programs in the United States, analysis of political, economic, and social factors involved.

SOWO 3500 CHILD WELFARE (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007 or SOWO 2000 or SOWO 2003. Social work practice in settings dealing with child abuse and neglect, foster care, child care, and adoption.

SOWO 3600 AGING ISSUES AND SERVICES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Introduction to social services and social work with the elderly, considering socio-cultural issues and impact on the elderly.

SOWO 3700 ADDICTIONS (3) LEC. 3. Pr. PSYC 2010 or PSYC 2017 or PSYC 2013. Addictions, theories of causality, social impact, and treatment approaches in today's society. Experiential component included.

SOWO 3800 HUMAN BEHAVIOR IN SOCIAL ENVIRONMENT I (3) LEC. 3. Pr. SOWO 2000 or SOWO 2003. Lifespan developmental approach to biopsychosocial examination of human behavior and development, emphasizing the diversity of human experience related to gender, social class, race, ethnicity, sexual orientation, and disability. Experiential component included.

SOWO 3850 HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT II (3) LEC. 3. Pr. SOWO 3800. Social systems approach to examination of human behavior and development as influenced by groups, organizations, and communities, emphasizing the forms and mechanisms of oppression and discrimination as well as strategies to advance social and economic justice. Experiential component included.

SOWO 3910 FIELD PRACTICUM SEMINAR (3) PRA. Pr. SOWO 2000 or SOWO 2003. Introduction to fields and settings of social work practice via placement in a selected social service agency. Includes a concurrent integrative seminar to analyze the experience.

SOWO 4060 SOCIAL WORK PRACTICE METHODS I (3) LEC. 3. Pr. (SOWO 2000 or SOWO 2003) and SOWO 3800 and SOWO 3910 and (SOCY 1000 or SOCY 1003 or SOCY 1007). Introduction to generalist practice methods and skills in engagement, assessment, and goal setting with individual clients. Experiential component included.

SOWO 4070 SOCIAL WORK PRACTICE METHODS II (3) LEC. 3. Pr. SOWO 4060. Practice skills and perspectives required for work with families and groups. Experiential component included.

SOWO 4080 SOCIAL WORK PRACTICE METHODS III (3) LEC. 3. Pr. SOWO 4060. Generalist practice theory and skills as applied to communities, organizations, and oppressed populations, emphasizing issues of social justice and social action. Experiential component included.

SOWO 4090 SOCIAL WELFARE POLICY (3) LEC. 3. Pr. SOWO 2650 or SOWO 2653. Critical analysis of policy issues and proposals in selected social welfare programs and their impact upon current social problems and social work values and ethics.

SOWO 4920 INTERNSHIP IN SOCIAL WORK (9) FLD. 9. SU. Pr. SOWO 4080. 480-hour field experience under joint supervision of agency and university. Application of generalist practice skills and research project required.

SOWO 4950 SENIOR INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 4080. Coreq. SOWO 4920. and Enrollment in SOWO 4920. Integrating theory with practice through analysis of behavior and evaluation of practice skills.

SOWO 4970 SOCIAL WORK SPECIAL TOPICS (3) LEC. 3. Timely and/or controversial topics related to social work. Course content will depend upon the designated topic.

SOWO 7000 INTRODUCTION TO SOCIAL WORK AND SOCIAL WELFARE (3) LEC. 3. This course provides a review of the social work profession, history, and values and ethics. An overview of theory, practice, policy, and research are integrated in exploring the knowledge, values, and skills base of the social work profession.

SOWO 7010 ADVANCED CLINICAL PRACTICE (3) LEC. 3. Pr. SOWO 7020. This course provides intensive study on clinical interventions with individuals, families, and small groups across various fields of practice.

SOWO 7020 PSYCHOPATHOLOGY (3) LEC. 3. This advanced practice course teaches students to recognize selected major mental health disorders in adults, children, and youth and to become familiar with social work practice approaches used in the treatment of these disorders.

SOWO 7030 EVALUATION IN SOCIAL WORK PRACTICE (3) LEC. 3. This course examines quantitative and qualitative evaluation of agency programs and individual practice. Students will engage in hands-on individual and/or small-group research projects to experience all phases of the research process.

SOWO 7040 SOCIAL WORK PRACTICE IN THE HEALTH CARE FIELD (3) LEC. 3. This course will focus on the development of social work practice skills relevant to health care settings, including assessment of the impact of illness, disability, treatment, and hospitalization on patients and families.

SOWO 7050 MENTAL HEALTH (3) LEC. 3. Pr. SOWO 7020. This course focuses on mental health social work practice with children, adolescents and adults, covering assessment and several theoretically based interventions with an emphasis on gaining practice skills. Special attention is given to strengths-based, evidence-based, and recovery-oriented practice models.

SOWO 7060 SOCIAL WORK PRACTICE WITH INDIVIDUALS AND FAMILIES (3) LEC. 3. This foundation course prepares students to apply a generalist perspective and systems framework to social work practice with individuals and families. It emphasizes the basics of communication, interviewing, relationship building, and practice skills essential to effective assessment, intervention, and evaluation.

SOWO 7070 SOCIAL WORK WITH GROUPS AND COMMUNITIES (3) LEC. 3. Pr. SOWO 7060. This macro social work course provides an advanced examination of social work practice in groups and larger systems. Students will develop knowledge, values, and skills in areas of: group practice, community assessment, social planning, community organization, and political strategies.

SOWO 7080 POLICY PRACTICE AND SOCIAL JUSTICE (3) LEC. 3. This course will critically apply conceptual frameworks and empirical research in the examination of social issues, policies, and services, focusing on how policies affect marginalized, oppressed and disadvantaged populations.

SOWO 7090 ADVANCED SOCIAL WELFARE POLICY (3) LEC. 3. The course will review the historical development of social welfare and social policies in the United States and explore their context and underlying values. This course builds knowledge and skills to analyze and make changes in social welfare policy.

SOWO 7100 GERONTOLOGY (3) LEC. 3. The course provides a clinical foundation for clinical work practice with older adults and their families. Primary focus will be on understanding how diversity factors into the physiological, psychological, and social aspects of later life.

SOWO 7110 TRAUMA INFORMED PRACTICE (3) LEC. 3. This course examines social work practice theories and intervention approaches as they apply to practice with survivors of crisis and trauma. The course will focus on engagement, assessment, planning, intervention, evaluation and follow up on all social work practice levels.

SOWO 7120 PSYCHOSOCIAL CONTEXT OF DISABILITY (3) LEC. 3. Prepares the social worker to be an effective practitioner for persons with disabilities by exploring the psychosocial context of the lives and experiences of persons with disabilities and their families from various perspectives.

SOWO 7130 SOCIAL WORK PRACTICE WITH CHILDREN AND ADOLESCENTS (3) LEC. 3. This course develops advanced clinical social work practice knowledge and skills to engage and intervene with children and adolescents with health and mental health risk and provides knowledge for community social workers serving children who are exposed to stress.

SOWO 7140 DIVERSITY AND DIFFERENCE IN PRACTICE (3) LEC. 3. Students must be admitted to the Masters of SocialWork Program to enroll in this course.

SOWO 7600 VETERINARY SOCIAL WORK PRACTICE (3) DSL. This course reviews research, practice settings, and policy needs in the four areas of veterinary social work: the link between human and animal violence, animal assisted interventions, animal related grief and bereavement, and compassion fatigue. Students will be expected to become knowledgeable about research findings and apply them to social work practice skills and policy advocacy.

SOWO 7700 FOUNDATIONS OF SOCIAL WORK RESEARCH (3) LEC. 3. This course provides a study of quantitative and qualitative research methods in order to build knowledge for social work practice. Students will be prepared to develop, implement and communicate ethical, empirically-based scientific knowledge.

SOWO 7800 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT (3) LEC. 3. This graduate-level foundation course covers theories, themes, and issues that influence individual and group and development across the life span- in interaction with the environment- as it underlies social work practice and research.

SOWO 7920 GENERALIST FIELD (10) INT. 10. SU. This course prepares students for responsible, competent entry into the profession by providing opportunities to practice social work with a generalist perspective in agency settings under educational supervision. This course requires completion of 432 total hours in an agency setting.

SOWO 7930 ADVANCED FIELD (12) INT. 12. SU. Pr. SOWO 7920. Coreq. SOWO 7950. This course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students complete 512 hours in an approved agency during this field experience. Course may be repeated for a maximum of 18 credit hours.

SOWO 7940 ADVANCED FIELD PLACEMENT I (6) INT. SU. This is the first course in a sequence of two field placement courses that are taken successively. The course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students complete 256 hours in an approved agency in one semester during this field experience.

SOWO 7950 INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 7020 and P/C SOWO 7930. This seminar course assists students in integrating and applying classroom learning with the advanced field placement. Opportunities are provided for case presentation, discussion and peer consultation.

SOWO 7960 ADVANCED FIELD PLACEMENT II (6) INT. SU. This is the second course in a sequence of two field placement courses that are taken successively. The course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students must successfully complete SOWO 7940 Advanced Field I to enter this course. Students complete 256 hours in an approved agency in one semester during this field experience.

SOWO 7970 SPECIAL TOPICS IN SOCIAL WORK (3) LEC. 3. Study of a topic of special interest in professional social work practice beyond current departmental course offerings. Course may be repeated for a maximum of 6 credit hours.

Sociology Courses

SOCY 1000 SOCIOLOGY: GLOBAL PERSPECTIVE (3) LEC. 3. Social Science I Core. Introduction to the study of social and cultural patterns of society.

SOCY 1007 HONORS SOCIOLOGY (3) LEC. 3. Pr. Honors College. Social Science I Core. Introduction to the study of social and cultural patterns in society.

SOCY 1050 AUBURN IN THE WORLD: SOCIETY AND CULTURE (4) LEC. 4. Auburn Global students. Part of the Auburn Global International Accelerator Program. The course will introduce students to American society and culture through core sociological concepts. May count either SOCY 1050 or HIST 1000.

SOCY 1100 CURRENT ISSUES IN RACE AND ETHNICITY (3) LEC. 3. An exploration of how race and ethnicity shape our daily lives and the world around us.

SOCY 2000 SOCIAL ISSUES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Exploration of the claims and conflicts of public issues and moral apprehensions, including crime, the environment, gender and racial inequality, various syndromes.

SOCY 2050 CRIME AND JUSTICE IN AMERICA (3) LEC. 3. Distribution and measurement of crime, different variations in criminal behavior, and handling crime in the American criminal justice system.

SOCY 2100 POPULATION AND SOCIETY (3) LEC. 3. Survey of theories and research of demographic processes and their interaction with the economy, education, family, medicine, science, and technology.

SOCY 2200 SOCIAL PSYCHOLOGY: SOCIOLOGICAL PERSPECTIVES (3) LEC. 3. Examination of collective influences on the person and the role the person plays in sustaining collective conditions.

SOCY 3000 CRIMINOLOGY (3) LEC. 3. Examination of etiological issues related to crime; major theories of crime causation from a wide variety of perspectives.

SOCY 3100 POLICE AND SOCIETY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007 or Departmental approval. Sociological overview of policing and current issues that relate to the police.

SOCY 3200 SPORTS IN AMERICA (3) LEC. 3. Sociological perspectives on sports in the social system; organization and culture of sports in relationship to social class, race, and gender; and the interconnections between sports and society.

SOCY 3250 SENTENCING AND CORRECTIONS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007 or Departmental approval. In-depth analysis of sentencing policies and the correction system.

SOCY 3300 SOCIOLOGY OF THE FAMILY (3) LEC. 3. Family as a major social institution, with emphasis on the American family; cross-cultural comparisons for perspective.

SOCY 3500 SOCIAL INEQUALITIES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Exploration of the sources and uses of minority representations in the United States addressing inequalities such as race, ethnicity, gender, and sexual orientation.

SOCY 3550 DELINQUENCY AND JUVENILE JUSTICE (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Nature and distribution of delinquency in the United States, as well as the various components of the juvenile justice system.

SOCY 3600 UNDERSTANDING NATURE, SELF, AND SOCIETY (3) LEC. 3. The course examines the intersection between nature, self, and society, and draws on sociological scholarship and nature writing. Through readings, class conversations, imaginative writing reflections, and short field trips, students will be able to critically interrogate our social relationship with nature and study the social dynamics that shape the meanings we attach to nature. Credit will not be given to both SOCY 3600 and SUST 3600.

SOCY 3700 METHODS OF SOCIAL RESEARCH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Methodological approaches to data collection used by social scientists including logic of science, hypothesis formation, and research design.

SOCY 4000 SOCIALIZATION (3) LEC. 3. Examination of mind, self, society, and interaction as symbolic phenomena grounded in social process; covers major intellectual influences, concepts, and figures.

SOCY 4100 DEVIANCE (3) LEC. 3. Analysis of creation and reaction to deviance through theoretical approaches; examines several deviant groups.

SOCY 4200 HEALTH AND SOCIETY (3) LEC. 3. Nature and organization of medical practice and health delivery systems with special attention to the role of physicians, patients, and disease and to the relationship between culture, politics, and health.

SOCY 4300 FIELD INSTRUCTION (3) LEC. 3. Pr., Departmental approval. Supplementary instruction concurrent with experience in some field of work involving application of sociological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

SOCY 4400 CONTEMPORARY THEORY (3) LEC. 3. Survey of theorists from Comte to the present, emphasizing theory construction, theoretical analysis, and differences in theoretical approaches.

SOCY 4700 THEORIES OF CRIME AND CRIMINALITY (3) LEC. 3. Theories of crime causation with emphasis on theory construction, theory analysis, and differences in theoretical approaches.

SOCY 4920 APPLIED SOCIOLOGY: INTERNSHIP (3) INT/LEC. Pr. SOCY 3500 or SOCY 3700 or ANTH 2000. Departmental approval. Internship in an organization or agency with the goal of learning how to use sociological knowledge in an applied setting. Course may be repeated for a maximum of 6 credit hours.

SOCY 4960 SPECIAL PROBLEMS IN SOCIOLOGY (3) AAB/IND. 3. Pr., Departmental approval. Independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 6 credit hours.

SOCY 4970 SPECIAL TOPICS IN SOCIOLOGY (3) LEC. 3. Junior standing. Advanced topics in population and ecology, social structure, social institutions, socialization, religion, or other timely topics related to sociology. Course may be repeated for a maximum of 6 credit hours.

SOCY 5120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis.

SOCY 5200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective.

SOCY 5300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors.

SOCY 5310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Application of methods and techniques of information analysis and related report writing.

SOCY 5400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit with not be given for both SOCY 5400 and SOCY 6400.

SOCY 5500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit will not be given for both SOCY 5500 and SOCY 6500.

SOCY 5600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit will not be given for both SOCY 5600 and SOCY 6600.

SOCY 5650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit will not be given for both SOCY 5650 and SOCY 6650.

SOCY 5670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit will not be given for both SOCY 5670 and SOCY 6670.

SOCY 5680 SOCIAL MOVEMENTS (3) LEC. Pr. P/C SOCY 1000 or P/C SOCY 1007. Exploration of social movements as collective action leading to different forms of social change. Topics covered include the origins, dynamics and consequences of major social movements, including movements for civil rights, women's rights, disability access, sustainability, etc.

SOCY 5690 SOCIOLOGY OF EMOTIONS (3) LEC. 3. Pr. P/C SOCY 1000 or P/C SOCY 1007. Examination of the social dimensions of emotions. The emotional phenomena covered include love, empathy, anger, sadness, shame, fear, joy, happiness, and gratitude.

SOCY 5970 SPECIAL TOPICS IN SOCIOLOGY (3) LEC. 3. Pr., Departmental approval. Study of substantive areas sociology. Credit will not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 6120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis. Credit will not be given for both SOCY 5120 and SOCY 6120.

SOCY 6200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective. Credit will not be given for both SOCY 5200 and SOCY 6200.

SOCY 6300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors. Credit will not be given for both SOCY 5300 and SOCY 6300.

SOCY 6310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Application of methods and techniques of information analysis and related report writing. Credit will not be given for SOCY 5310 and SOCY 6310.

SOCY 6400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit will not be given credit for both SOCY 5400 and SOCY 6400.

SOCY 6500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit will not be given for both SOCY 5500 and SOCY 6500.

SOCY 6600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit will not be given for both SOCY 5600 and SOCY 6600.

SOCY 6650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit will not be given for both SOCY 5650 and SOCY 6650.

SOCY 6670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit will not be given for both SOCY 5670 and SOCY 6670.

SOCY 6680 SOCIAL MOVEMENTS (3) LEC. Exploration of social movements as collective action leading to different forms of social change. Topics covered include the origins, dynamics and consequences of major social movements, including movements for civil rights, women's rights, disability access, sustainability, etc.

SOCY 6690 SOCIOLOGY OF EMOTIONS (3) LEC. Examination of the social dimensions of emotions. The emotional phenomena covered include love, empathy, anger, sadness, shame, fear, joy, happiness, and gratitude.

SOCY 6970 SOCIOLOGY SPECIAL TOPICS (3) LEC. 3. Study of substantive areas of sociology. Credit will not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 7000 ADVANCED SOCIOLOGICAL THEORY (3) LEC. 3. Pr. SOCY 4400 or Departmental approval. Review of major types of sociological theory within the context of theoretical paradigms and significant theoretical issues that face the discipline.

SOCY 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE, AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017 or Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for both SOCY 7100 and STAT 7100.

SOCY 7200 SEMINAR IN SOCIAL BEHAVIOR (3) SEM. 3. Research and theory concerning social and group influences on behavior.

SOCY 7250 SOCIOLOGY OF VIOLENCE (3) LEC. 3. In-depth coverage of various forms of violence from the sociological perspective.

SOCY 7850 TECHNOLOGY AND TEACHING IN SOCIOLOGY (1) LEC. 1. SU. Pr., Departmental approval. Technology as a teaching tool sociology classes.

SOCY 7930 DIRECTED STUDIES (3) IND. 3. Pr., Departmental approval. Independent reading course under the supervision of a department faculty member. Course may be repeated for a maximum of 6 credit hours.

SOCY 7990 RESEARCH AND THESIS (1-10) MST. Preparation of a thesis. Course may be repeated with change in topics.

Anthropology (ANTH)

The anthropology program takes a four-field approach to the study of the human condition, offering courses in archaeology, biological anthropology, cultural anthropology, and linguistic anthropology.

Freshman

Fall	Hours	Spring	Hours
ANTH 1000 Anthropology: Culture and Adaptation	3	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Foreign Language II (College Core)	4
Foreign Language I (College Core)	4	Core Fine Arts	3
Core History[1]	3	Core Mathematics	3
Elective	2	Elective	3
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
ANTH 2000 Ethnographic Methods	**3**	**ANTH 3500 Archaeology**	**3**
Core Literature[1]	3	Core Science II	4
COMM 1000	3	LBAR 2010 Liberal Arts Careers Preparation	2
Core Science I	4	Core Social Science	3
Core History to complete sequence or Core Social Science[1]	3	**ANTH Directed Electives[3]**	**3**
	16		**15**

Junior

Fall	Hours	Spring	Hours
ANTH 3100 Language and Culture	**3**	**ANTH 3300 Biological Anthropology**	**3**
Core Humanities (except COMM 1000) or Core Literature to complete sequence[1]	3	PSYC 2130 Analytics for Social and Behavioral Sciences	3
Electives	6	Electives	4
ANTH Directed Electives[2]	**3**	**ANTH Directed Electives[2]**	**6**
	15		**16**

Senior

Fall	Hours	Spring	Hours
ANTH 4310 Theories of Culture in Anthropology[3]	**3**	Electives	9
Electives	9	**ANTH Directed Electives[2]**	**3**
ANTH Directed Electives[2]	**3**	UNIV 4AA0 Achieve the Creed	0
	15		**12**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.
2 Students must meet with their ANTH Program advisors to identify approved courses for electives and ANTH Directed electives.
3 ANTH 4310 is recommended for all juniors and seniors.

Anthropology Minor

Code	Title	Hours
Courses required: NONE		
Elective Courses - See advisor for approved course listing.		15
Total Hours		**15**

1 Minimum 9 hours at 3000-level or above

Social Work (SOWO)

The Bachelor of Arts in Social Work is fully accredited by the Council on Social Work Education. Graduates are trained to become beginning-level generalist practitioners eligible for licensure and to apply for advanced standing social work graduate programs. Admission to the program is required before enrolling in SOWO 4060. SOCY 1000, SOWO 2000 and SOWO 3910 must be completed with a C or better prior to application. Students must earn a C and maintain a 2.5 GPA in all major courses. Students must submit two letters of recommendation and a personal statement essay not longer than four double-spaced pages.

Freshman

Fall	Hours	Spring	Hours
SOCY 1000 Sociology: Global Perspective	3	BIOL 1010 A Survey of Life & BIOL 1011 A Survey of Life Laboratory	4
BIOL 1000 Introduction to Biology & BIOL 1001 Introduction to Biology Laboratory	4	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Fine Arts	3
PSYC 2010 Introduction to Psychology	3	Core Math	3
Elective	3	Core History[1]	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Humanities or Core Literature to complete sequence[1]	3
Foreign Language I (College Core)	4	COMM 1000 Public Speaking	3
Core Social Science or Core History to complete sequence[1]	3	Foreign Language II (College Core)	4
SOWO 2000 Introduction to Social Work	**3**	**SOWO 3910 Field Practicum Seminar**	**3**
SOWO 2650 History of Social Welfare	**3**	**SOWO 3800 Human Behavior in Social Environment I**	**3**
	16		**16**

Junior

Fall	Hours	Spring	Hours
SOCY 3500 Social Inequalities	3	**SOWO 4090 Social Welfare Policy**	**3**
ECON 2020 Principles of Microeconomics	3	PHIL 1030 Ethics and the Health Sciences	3

SOWO 3850 Human Behavior in the Social Environment II	**3**	Social Science Elective[2]	3
SOWO 4060 Social Work Practice Methods I	**3**	SOWO Elective[2]	3
Elective	3	**SOWO 4070 Social Work Practice Methods II**	**3**
	15		**15**

Senior

Fall	Hours	Spring	Hours
Elective	2	**SOWO 4920 Internship in Social Work**	**9**
SOWO 4080 Social Work Practice Methods III	**3**	**SOWO 4950 Senior Integrative Seminar**	**3**
Social Science Elective[2]	3	UNIV 4AA0 Achieve the Creed	0
PSYC 2130 Analytics for Social and Behavioral Sciences	3		
SOCY 3700 Methods of Social Research	**3**		
	14		**12**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

2 Students must meet with their advisers to identify approved courses for SOWO electives and social science electives.

Social Work Minor

Code	Title	Hours
SOWO 2000	Introduction to Social Work	3
SOWO 2650	History of Social Welfare	3
SOWO 3910	Field Practicum Seminar	3
Elective Courses - See advisor for approved course listing.		6
Total Hours		**15**

1 Minimum 9 hours at 3000-level or above

Sociology (SOCY)

A primary goal of the Sociology program is to provide undergraduate and graduate majors a solid foundation within the discipline, particularly in the area of theory, research methods and statistics, and human diversity.

Freshman

Fall	Hours	Spring	Hours
SOCY 1000 Sociology: Global Perspective[1]	3	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Social Science or Core History to complete sequence[2]	3
Core History[2]	3	Core Fine Arts	3
Core Math	3	Electives[3]	6
COMM 1000 Public Speaking	3		
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[2]	3	Core Humanities or Core Literature to complete sequence[2]	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
Core Social Science	3	Core Science II	4
Core Science I	4	**SOCY 3500 Social Inequalities[1]**	**3**
		LBAR 2010 Liberal Arts Careers Preparation	2
	14		**16**

Junior

Fall	Hours	Spring	Hours
PSYC 2130 Analytics for Social and Behavioral Sciences	**3**	**SOCY Concentration[3]**	**3**
SOCY Concentration[3]	**3**	**ANTH 2000 Ethnographic Methods *or* SOCY 3700 Methods of Social Research**	**3**
SOCY Directed Elective[3]	**3**	**SOCY Directed Elective[3]**	**3**
Electives[3]	6	Electives[3]	6
	15		**15**

Senior

Fall	Hours	Spring	Hours
SOCY Concentration[3]	**6**	**SOCY Concentration[3]**	**3**
Select one of the following:	3	**SOCY Concentration[3]**	**3**
SOCY 4400 Contemporary Theory[1]		Electives[3]	9
SOCY 4700 Theories of Crime and Criminality[1]		UNIV 4AA0 Achieve the Creed	0
Electives[3]	6		
	15		**15**

Total Hours: 120

1 Students must earn a C or better in the following courses: SOCY 1000, SOCY 3500, and theory, methods, and statistics.

2 Students are required to complete a two-course history sequence *or* a two-course literature sequence. They are also required to complete at least one Core History *or* one Core Literature course in the area not selected as the sequence.

3 Students must meet with their advisers to identify approved courses for SOCY Directed Electives (6 hrs) and the SOCY Major Concentration (18 hrs).

Sociology Minor

Code	Title	Hours
Courses required: NONE		
Elective Courses - See advisor for approved course listing.		15
Total Hours		**15**

1 Minimum 12 hours at 3000-level or above

Department of Speech, Language, and Hearing Sciences

Students wishing to obtain a degree in Speech, Language, and Hearing Sciences may declare the major without formal admission to the program. Students must earn a C or higher in all major courses. A minimum of a B in SLHS 3400 is required for admission into

many graduate programs in Speech, Language, and Hearing Sciences. SLHS courses with grades below C must be repeated to count in major which may cause graduation to be delayed.

Majors

- Speech, Language, and Hearing Sciences (p. 1118)

Undergraduate Certificates

- Speech, Language, and Hearing Sciences (http://bulletin.auburn.edu/undergraduate/collegeofliberalarts/slhs_ucrt/)

Courses

SLHS 1110 EAGLES SOCIAL SKILLS INSTRUCTION I (1) LEC. 1. Departmental approval. This course offers social skills instruction and introduces topics including basic conversational requirements, electronic communication, non-verbal communication, and miscellaneous social skills.

SLHS 1120 EAGLES SOCIAL SKILLS INSTRUCTION II (1) LEC. 1. Pr. SLHS 1110. Departmental approval. This course offers social skills instruction to EAGLES students and introduces topics including basic conversational requirements, electronic communication, non-verbal communication, and good sportsmanship.

SLHS 1130 EAGLES SOCIAL SKILLS INSTRUCTION III (1) LEC. 1. Pr. SLHS 1120. Departmental approval. This course offers social skills instruction to EAGLES students and introduces topics including get-togethers, handling arguments, and miscellaneous social skills.

SLHS 1140 EAGLES SOCIAL SKILLS INSTRUCTION IV (1) LEC. 1. Pr. SLHS 1130. Departmental approval. This course offers social skills instruction to EAGLES students and introduces topics including basic conversational requirements, handling bullying, minimizing rumors and gossip, and miscellaneous social skills.

SLHS 2500 COMMUNICATION DISORDERS IN SOCIETY (2) LEC. 2. Information on stuttering, speech, language, voice disorders and hearing impairment and how to interact with individuals with communication disorders.

SLHS 3000 INTRODUCTION TO SPEECH, LANGUAGE, AND HEARING SCIENCES (3) LEC. 3. Survey of the field of speech pathology-audiology. Includes history of the profession, the inter-relatedness of the various pathologies, general principles of evaluation and therapy and the profession itself.

SLHS 3100 LINGUISTICS IN SLHS (2) LEC. 2. Pr. SLHS 4520. This course will use a basic linguistic framework of typical development of language from which to study developmental and acquired disorders of language.

SLHS 3400 ANATOMY AND PHYSIOLOGY OF SPEECH (3) LEC. 3. The study of anatomy and physiology of speech production including respiratory, laryngeal and articulatory-resonance systems and the process swallowing. Speech acoustics will be introduced.

SLHS 3410 ARTICULATORY PHONETICS AND PHONOLOGICAL DEVELOPMENT (3) LEC. 3. Pr. SLHS 3400 and P/C SLHS 4520. Principles of phonetics and their application to speech.

SLHS 3550 SPEECH AND HEARING SCIENCE (3) LEC. 3. Pr. SLHS 3400 and SLHS 4600 and SLHS 3410. The acoustic properties of speech, their relationship to perceptual and physiological phonetics, and instrumentation used in speech science.

SLHS 3560 NEUROANATOMY FOR COMMUNICATION DISORDERS (3) LEC. 3. Pr. SLHS 3400 and SLHS 4600. Anatomy and physiology of the central nervous system as it relates to speech, language, hearing and swallowing function and disorders.

SLHS 4100 LANGUAGE DISORDERS ACROSS THE LIFESPAN (3) LEC. 3. Pr. SLHS 4520. Introduction to developmental language impairment from infancy through adolescence as well as acquired language impairment in adulthood with focus on the nature of language impairment, assessment of language disorders, and treatment of language disorders.

SLHS 4200 SPEECH DISORDERS ACROSS THE LIFESPAN (3) LEC. 3. Pr. SLHS 3400 and SLHS 4600 and SLHS 3410. This is one of two courses offered in the area of speech and language disorders. This course reviews the typical acquisition of the speech sound system and reviews basic articulation, phonological, fluency, voice, and motor speech disorders.

SLHS 4300 CRITICAL THINKING AND EVIDENCE-BASED PRACTICE: AN INTRODUCTION (2) LEC. 2. Pr. SLHS 3000 and P/C SLHS 4520. Explores the decision making process in assessment and treatment of individuals with communication disorders. Emphasis on a scientific framework integrating research evidence and critical thinking.

SLHS 4500 SPECIAL OBSERVATION (1) DSL. Pr. (SLHS 4520 or CMDS 4520) and (SLHS 4100) and (SLHS 3410 or CMDS 3410). This course will provide foundational knowledge in treatment methods and guided observation of 25 hours in speech, language, and cognitive-communication evaluation and treatment.

SLHS 4520 LANGUAGE ACQUISITION (3) LEC. 3. First language acquisition in childhood and its change throughout the life span.

SLHS 4580 INTRODUCTION TO CLINICAL PROCEDURES IN SPEECH-LANGUAGE PATHOLOGY (3) LEC. 3, CLN/LEC. 30. Pr. SLHS 4520. Orientation to clinical activities, management methods and preparation of professional reports.

SLHS 4600 AUDIOLOGY AND HEARING SCIENCE (3) LEC. 3. Principles of auditory reception and the problems involved in measuring, evaluating and conserving hearing.

SLHS 4620 HEARING REHABILITATION (3) LEC. 3. Pr. SLHS 4600. Rehabilitation problems of children and adults in the area of auditory training, speech reading and speech conservation; includes clinical practice.

SLHS 4650 INTRODUCTION TO CLINICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Pr. SLHS 4600. Audiological instrumentation and test procedures.

SLHS 4930 DIRECTED STUDY IN SPEECH, LANGUAGE & HEARING SCIENCES (1-3) IND. Pr. SLHS 3000 and SLHS 3400 and SLHS 4600. Departmental approval. Directed learning experience in speech, language, or hearing sciences involving literature review and writing related to a topic specific to the student. Course may be repeated for a maximum of 6 credit hours.

SLHS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Credit hours that apply towards fulfilling Honors requirement. Course may be repeated for a maximum of 3 credit hours.

SLHS 4980 UNDERGRADUATE RESEARCH (1-3) LAB. 2-9. Pr. P/C SLHS 3000. Departmental approval. This course is designed for active research engagement within a mentor's laboratory or the research implementation phase of an undergraduate research fellowship. Course may be repeated for a maximum of 3 credit hours.

SLHS 4997 HONORS THESIS (1-3) RES. Pr. Honors College. Departmental approval. Credit hours that apply towards Honor thesis requirements, the topic of which determined by the Honor's thesis faculty advisor and the student advisee. Course may be repeated for a maximum of 6 credit hours.

SLHS 5000 STUDY ABROAD IN SPEECH-LANGUAGE PATHOLOGY (3) AAB. Pr. CMDS 3000 or SLHS 3000. Survey of current international research and educational/clinical practices in the field of speech-language pathology. Course may be repeated for a maximum of 6 credit hours.

SLHS 5100 MOTOR LEARNING, GENERALIZATION, AND ADHERENCE FOR SPEECH LANGUAGE PATHOLOGY (2) LEC. 2. Pr. SLHS 3400 and SLHS 4200. Motor learning, generalization, and adherence knowledge and skills required for speech-language therapist assistants and speech-language pathologists use in therapy.

SLHS 5200 CULTURAL ASPECTS IN APPLIED HEALTH SCIENCES (2) LEC. 2. Pr. SLHS 3000. This course is designed to provide undergraduate students in speech, language, and hearing sciences, and other applied health disciplines the opportunity to broaden their knowledge of and implementation of culturally responsive practices when working with patients/clients and team members.

SLHS 5300 COGNITIVE AND LINGUISTIC ASPECTS OF AGING (2) LEC. 2. Pr. SLHS 3560. Explores the age-related changes in cognitive-linguistic decline including the mechanisms of this decline; external factors such as physical exercise, pharmacology, and cognitive rehabilitation; and suggestions for prevention of cognitive decline and dementia.

SLHS 5400 ISSUES IN SPEECH (2) LEC. 2. Pr. SLHS 3400 and SLHS 4200. Current issues related to aspects of development, habilitation, and/or rehabilitation of articulation, voice, or fluency disorders will be explored. Course may be repeated for a maximum of 4 credit hours.

SLHS 5500 ISSUES IN AUDIOLOGY (2) LEC. 2. Pr. SLHS 3400 and SLHS 4600. Current issues related to research methodologies and clinical care of auditory and vestibular development, psychoacoustics, and pathologies of the auditory system will be explored.

SLHS 5960 SPECIAL PROBLEMS IN LANGUAGE (2) LEC. 2. Pr. SLHS 4520. This Special Problems Seminar is a two hour per week meeting for study of topics in language. Topics will include aspects of language acquisition , including autism spectrum disorder and literacy, that are clinically relevant for speech language pathologists. Course may be repeated for a maximum of 8 credit hours.

SLHS 7500 CLINICAL PRACTICUM IN SLP (1-2) PRA. 1-2. Clinical practicum in evaluation and treatment of individuals with speech-language disorders. Course may be repeated for a maximum of 7 credit hours.

SLHS 7510 ADVANCED SPEECH SOUND DISORDERS (3) LEC. 3. Empirical and theoretical bases for speech sound disorders.

SLHS 7520 LANGUAGE DISORDERS: BIRTH TO FIVE (3) LEC. 3. Empirical and theoretical bases for evaluation and treatment of language disorders for the birth to five population.

SLHS 7530 STUTTERING (3) LEC. 3. Empirical and theoretical bases for stuttering, including assessment and intervention.

SLHS 7540 VOICE & UPPER AIRWAY DISORDERS (3) DSL/LEC. Empirical and theoretical bases for voice pathologies, diagnoses and therapies.

SLHS 7550 ADULT APHASIA (3) LEC. 3. Empirical and theoretical bases for adult language disorders associated with CNS pathologies, diagnoses and therapies.

SLHS 7560 CRANIOFACIAL ANOMALIES (3) LEC. 3. A review of syndromic and non-syndromic craniofacial disorders including cleft lip/palate. Assessment and treatment of speech and language problems associated with these anomalies is emphasized.

SLHS 7570 RESEARCH METHODS IN SPEECH-LANGUAGE PATHOLOGY (2) LEC. 2. Survey of experimental designs and statistical procedures used in the speech-language pathology literature for consumers of research.

SLHS 7580 COGNITION ACROSS THE LIFESPAN (3) LEC. 3. Advanced review of concepts and trends associated with cognitive functions. The assessment and intervention of cognitive communication disorders will be discussed.

SLHS 7590 LANGUAGE DISORDERS: SCHOOL-AGE (3) LEC. Empirical and theoretical bases for evaluation and treatment of language disorders for school-age children through adolescence.

SLHS 7600 CLINICAL PROBLEMS IN HEARING (2) LEC. 2. Pr. (CMDS 4650 or SLHS 4650) and (CMDS 4600 or SLHS 4600) and (CMDS 4620 or SLHS 4620). Topics chosen to address topics and problems in hearing. Course may be repeated for a maximum of 12 credit hours.

SLHS 7700 CLINICAL PROBLEM SOLVING I (2) LEC. 2. This course will help students develop problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

SLHS 7720 CLINICAL PROBLEM SOLVING II (2) LEC. 2. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

SLHS 7740 CLINICAL PROBLEM SOLVING III (2) LEC. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

SLHS 7800 PROFESSIONAL PRACTICE IN SLP (1) LEC. 1, PRA. 1-3. This course provides specific opportunities and experiences to build and demonstrate clinical knowledge and skills outside the traditional clinical practicum experience. Experiences cross settings and modalities and may include interprofessional team members. Course may be repeated for a maximum of 3 credit hours.

SLHS 7810 MOTOR SPEECH DISORDERS (3) LEC. 3. Empirical and theoretical bases for motor speech disorders, diagnoses and therapies.

SLHS 7820 DYSPHAGIA (3) LEC. 3. The role of speech-language pathology in diagnosing and treating swallowing disorders in children and adults. Emphasis will be placed upon clinical and instrumental assessment and treatment strategies.

SLHS 7840 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (3) LEC. Process and specific equipment involved in assessment, prescription and intervention with adults and children who are unable to use traditional communication modes.

SLHS 7880 SPECIAL POPULATIONS IN SLHS (2) LEC. 2. This course is intended to engage students in developing practical and clinically applicable knowledge about special populations that are not directly addressed in other courses in the SLHS SLP master's program.

SLHS 7890 COUNSELING IN SPEECH-LANGUAGE PATHOLOGY (2) LEC. 2. This course is designed to provide students with an overview of counseling skills that they can apply to clinical practice with people with communication disorders.

SLHS 7920 INTERNSHIP IN SPEECH-LANGUAGE PATHOLOGY (5) LEC. 5. SU. Completion of all academic course work. Successful completion of comprehensive exams or enrollment in graduate thesis. Course may be repeated for a maximum of 10 credit hours.

SLHS 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research or reports in a specialized area of communication disorders. Course may be repeated for a maximum of 3 credit hours.

SLHS 7970 SPECIAL TOPICS SEMINAR (2) SEM. Advanced treatment of contemporary topics and trends, as well as current research aspects of audiology and speech-language pathology. Course may be repeated for a maximum of 4 credit hours.

SLHS 7990 RESEARCH AND THESIS (1-5) MST. Credit hours to fulfill thesis requirements. Course may be repeated with change in topics.

SLHS 8000 PROFESSIONAL DEVELOPMENT FOR RESEARCH CAREERS IN HEALTH SCIENCES (1-2) LEC. 1-2. SU. In-depth survey of professional aspects relevant to research careers in health sciences fields (e.g., ethical research practices, professional communication of scholarly work, employment readiness). Course may be repeated for a maximum of 5 credit hours.

SLHS 8100 HEARING SCIENCE (3) LEC. 3. Introduction to instrumentation and calibration of audiometric equipment. Auditory perception in normal-hearing and hearing impaired listeners.

SLHS 8110 AUDITORY PHYSIOLOGY (3) LEC. 3. Detailed study of the anatomy and physiology of the human auditory, and vestibular system over the lifespan.

SLHS 8120 AUDIOLOGY CLINICAL METHODS (3) LEC. 3. Use of audiometric equipment, administering audiological tests, recording test results, and interpreting test findings, including otoscopy, and cerumen management.

SLHS 8200 DIAGNOSTIC AUDIOLOGY (3) LEC. 3. Basic and advanced audiometric techniques to assess auditory system's site of lesion, including otoscopy, cerumen management, otoacoustic emissions and immittance.

SLHS 8210 MEDICAL ASPECTS OF HEARING DISORDERS (3) LEC. 3. Study of the disorders of hearing including their medical diagnosis, evaluation, and treatment.

SLHS 8220 AMPLIFICATION I (3) LEC. 3. Background and development of hearing aids and other amplification systems; performance standards and measurement techniques; selection, fitting and dispensing procedures

SLHS 8300 CENTRAL AUDITIORY PROCESSING (3) LEC. Selected clinical procedures in audiology, including electrophysiologic and behavioral tests of central auditory functioning.

SLHS 8310 AURAL REHABILITATION (3) LEC. Psychosocial aspects on hearing loss; clinical and therapeutic management of older persons with hearing disorders including counseling of the hearing-impaired and their families.

SLHS 8320 CLINICAL APPLICATIONS OF AMPLIFICATION (2) LEC. Didactic and practical training in use of instrumentation for testing, programming, fitting and verifying amplification.

SLHS 8400 PEDIATRIC AUDIOLOGY (3) LEC. 3. Normal development of speech, language and hearing losses' effect on communication, etiologic factors, screening, audiologic assessment, differential diagnosis and clinical management.

SLHS 8410 AURAL HABILITATION (3) LEC. 3. The parameters involved in the management of hearing-impaired school-aged children.

SLHS 8420 AMPLIFICATION II (3) LEC. 3. Pr. CMDS 8220 or SLHS 8220. Review of recent trends in hearing aid technology including digital and Programmable instruments.

SLHS 8430 CLINICAL APPLICATION OF DIAGNOSTIC AUDIOLOGY (2) LEC. Pr. CMDS 8320 or SLHS 8320. Didactic and practical training for selection, administration, and interpretation of behavioral and electrophysiologic tests, including auditory processing disorders.

SLHS 8500 ELECTROPHYSIOLOGICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Selected neurophysiological clinical procedures in audiology, including electronystagmography and auditory evoked potentials.

SLHS 8510 CLINICAL APPLICATION OF BALANCE ASSESSMENT (2) LEC. Pr. (CMDS 8230 and CMDS 8320 and CMDS 8430) or (SLHS 8230 and SLHS 8320 and SLHS 8430). Didactic and practical training for selecting, conducting, and interpreting tests to identify disorders of balance and other auditory related systems.

SLHS 8520 HEARING CONSERVATION (3) LEC. Pr. CMDS 8310 or SLHS 8310. Studies the effects of noise on auditory system and implementation of hearing conservation programs in industry, schools and the military.

SLHS 8570 EVALUATION OF RESEARCH IN AUDIOLOGY (3) LEC. Survey of experimental designs and statistical procedures used in audiology research.

SLHS 8600 BALANCE DISORDERS (3) LEC. 3. Detailed coverage of the assessment and treatment of patients with balance disorders using nystagmography and other techniques.

SLHS 8610 IMPLANT TECHNOLOGY (3) LEC. Detailed study of the assessment and treatment of patients with cochlear implants.

SLHS 8620 OUTCOME MEASURES IN AUDIOLOGY (3) LEC. Application of research methodology to demonstrate efficacy in clinical service delivery in all areas of audiologic practice.

SLHS 8630 COUNSELING IN AUDIOLOGY (3) LEC. 3. Advanced course in the counseling component of rehabilitative audiology.

SLHS 8650 ADVANCED AUDIOMETRY (2) LEC. 2. Pr. (CMDS 8120 and CMDS 8320 and CMDS 8430 and CMDS 8510) or (SLHS 8120 and SLHS 8320 and SLHS 8430 and SLHS 8510). Didactic and practical training for selection, administration, scoring, and interpretation of behavioral audiometric tests and electrophysiologic procedures.

SLHS 8700 PROFESSIONAL ISSUES (3) LEC. 3. Legal and ethical issues in clinical audiology.

SLHS 8800 THE NEUROLOGICAL BASES OF COMMUNICATION DISORDERS (3) LEC. 3. Anatomy and physiology of the central nervous system as it relates to speech, language and hearing function and disorders.

SLHS 8810 PRIVATE PRACTICE (3) LEC. 3. Concepts and strategies for private practice in the areas of clinical and industrial audiology.

SLHS 8850 GRANT PROPOSAL PREPARATION IN HEALTH SCIENCES (3) LEC. 3. Overview of the grant proposal preparation process, from identifying an appropriate funding mechanism to developing the materials for a grant proposal (e.g., specific aims, research plan, budget).

SLHS 8910 CLINICAL PRACTICE IN AUDIOLOGY (2) DSL/LEC. Clinical practicum involving evaluation and management of patients of all ages with disorders of auditory, vestibular, and other auditory related systems.

SLHS 8920 CLINICAL INTERNSHIP (5) INT. SU. Pr. CMDS 8910 or CMDS 8916 or SLHS 8910 or SLHS 8916. Intensive clinical experience at off-campus setting up to 20 hours per week of supervised practicum. Course may be repeated for a maximum of 15 credit hours.

SLHS 8940 CLINICAL RESIDENCY (6) INT. SU. Pr. CMDS 8920 or SLHS 8920. A full time, supervised, nine month residency at an off-campus facility that provides audiological services. Fall, Spring.

SLHS 8950 AUDIOLOGY GRAND ROUNDS (3) LEC. Discussion/Seminar in timely clinical issues in audiology, clinical problem solving and case studies in contemporary audiologic service delivery.

SLHS 8980 CAPSTONE PROJECT (1) IND. A project involving applied clinical research or development of an innovative clinical procedure.

Speech, Language, and Hearing Sciences (SLHS)

Students desiring a degree in Speech, Language, and Hearing Sciences may declare the major without formal admission to the program. Students must earn a C or higher in all major courses. SLHS courses with grades below C must be repeated to count in major which may cause graduation to be delayed.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Foreign Language I (College Core)	4	Foreign Language II (College Core)	4
Core History[1]	3	Core Fine Arts	3
Select one of the following:	3	Core Social Science or Core History to complete sequence[1]	3

PSYC 2010/2017 Introduction to Psychology		**SLHS 3000 Introduction to Speech, Language, and Hearing Sciences[3]**	**3**
ANTH 1000 Anthropology: Culture and Adaptation			
SOCY 1000 Sociology: Global Perspective			
Elective/Supporting course[2]	3		
	16		**16**

Sophomore

Fall	**Hours**	**Spring**	**Hours**
BIOL 1000 Introduction to Biology & BIOL 1001 Introduction to Biology Laboratory	4	BIOL 1010 A Survey of Life & BIOL 1011 A Survey of Life Laboratory	4
SLHS 4600 Audiology and Hearing Science	**3**	Core Literature[1]	3
SLHS 3400 Anatomy and Physiology of Speech[4]	**3**	Core Social Science	3
COMM 1000 Public Speaking	3	**SLHS 4520 Language Acquisition**	**3**
Core Math	3	**SLHS 3410 Articulatory Phonetics and Phonological Development**	**3**
	16		**16**

Junior

Fall	**Hours**	**Spring**	**Hours**
Elective/Supporting courses[2]	6	Elective/Supporting course[2]	6
Core Humanities or Core Literature to complete sequence[1]	3	**SLHS 4100 Language Disorders Across the Lifespan**	**3**
SLHS 4200 Speech Disorders Across the Lifespan	**3**	**SLHS 3100 Linguistics in SLHS**	**2**
SLHS 3550 Speech and Hearing Science	**3**	PSYC 2130 Analytics for Social and Behavioral Sciences	3
	15		**14**

Senior

Fall	**Hours**	**Spring**	**Hours**
Elective/Supporting courses[2]	6	**SLHS 4620 Hearing Rehabilitation**	**3**
SLHS 3560 Neuroanatomy for Communication Disorders	**3**	**SLHS 4580 Introduction to Clinical Procedures in Speech-Language Pathology**	**3**
Physical Science[6]	4	**SLHS 5100 Motor Learning, Generalization, and Adherence for Speech Language Pathology**	**2**
CHEM 1010 Survey of Chemistry I		**SLHS 5200 Cultural Aspects in Applied Health Sciences**	**2**
CHEM 1011 Survey of Chemistry I Laboratory		Elective/Supporting course[2]	4
PHYS 1000 Foundations of Physics		UNIV 4AA0 Achieve the Creed	0
	13		**14**

Total Hours: 120

1 Students are required to complete a two-course history sequence *or* a two-course literature sequence. They are also required to complete at least one Core History *or* one Core Literature course in the area not selected as the sequence.

2 Students should meet with their advisors for the listing of approved courses. SLHS majors are required to select a minimum of 3 electives (total of 6–8 credit hours) from the SLHS elective course offerings.

3 This course can be taken during the summer or fall terms.

4 Minimum of a B in SLHS 3400 is required for admission into many graduate speech language pathology programs.

[5] This course may be taken in person or online before the term in which it is listed in order to be eligible for registration for other major courses.

[6] Students should choose a chemistry or physics course with a corresponding lab to complete this requirement.

Department of Theatre and Dance

Theatre has the potential to foster dialogue, alter perceptions, and inspire social change. The Auburn University Department of Theatre and Dance is dedicated to the education and professional training of theatre artists, scholars, and audiences within a liberal arts environment. The Department champions the interaction between theory and practice and produces citizen artists who advocate for the arts through their own work in local, national, and international communities. Auburn University theatre students think critically, creatively, and collaboratively and carry their knowledge from rehearsal spaces and classrooms to stages, campuses, and communities worldwide.

Students graduating with degrees from the Department of Theatre and Dance find employment in a wide variety of fields including as actors, theatre technicians, administrators, community leaders, and/or educators. The Department of Theatre and Dance provides instruction and production experience for students interested in developing their talents in the theatre arts, whether as majors or non-majors. Consequently, a broad range of classroom, laboratory, and performance experiences is provided in acting, directing, devising, music theatre, dance, scenic and lighting design, costume design, theatre technology, construction and crafts, theatre history, dramatic literature, music theatre, theatre criticism, theatre administration, and management.

The Department of Theatre and Dance offers a Bachelor of Arts in Theatre and a Bachelor of Fine Arts in Theatre. The BA in Theatre is designed for students seeking to study theatre within the liberal arts curriculum. This degree is for students who choose to study theatre as a humanistic discipline or who wish to concentrate in theatre history, criticism, education, dramatic literature, dramaturgy, directing, and multiple other creative disciplines. It is excellent preparation for more specialized training in graduate school or a conservatory program or for careers in a wide variety of creative fields. The BFA in Theatre is designed for students who have specific professional goals in mind. It is for students seeking professional training in an intensive program in a single concentration—performance, music theatre, design/technology, or management. The Department of Theatre and Dance also offers three different minors in theatre, dance, and arts administration.

BA in Theatre

To graduate with a BA in Theatre, students must earn a grade of C or higher in all theatre courses. Any course with a grade below a C must be repeated.

BFA in Theatre

Students must comply with these requirements to be admitted to the BFA in Theatre:

- Students must formally apply for admission to the BFA in Theatre.
- Students entering the BFA options in Design/Technology, Management, and Performance typically apply for admission in the spring of their sophomore year.
- Students entering the BFA option in Music Theatre audition in the fall semester prior to their freshman year.
- Application is through portfolio review (Design/Technology and Management options) or audition (Performance and Music Theatre options).

Once they are admitted to the BFA, students must meet these requirements in order to graduate:

- Students must earn a grade of C or higher in all theatre courses. Any course with a grade below a C must be repeated.
- Continuance in the BFA degree tracks is subject to review each semester by faculty.
- Final recommendation for graduation is made after the successful presentation of a performance recital or the successful execution of a design or major production project during the student's final year. The success of a performance recital, design, or production model is determined by the Department of Theatre faculty.

In all Fine Arts curricula, electives may include six hours Basic ROTC or Advanced ROTC. In curricula that do not allow for six hours of electives, ROTC may be taken in lieu of required courses with approval of the departmental adviser. University core courses may not be replaced by Basic or Advanced ROTC.

Majors

- Theatre (p. 1127)
- Theatre/Fine Arts — Design/Technology Track (p. 1129)
- Theatre/Fine Arts — Management Track (p. 1130)
- Theatre/Fine Arts — Music Theatre Track (p. 1131)
- Theatre/Fine Arts — Performance Track (p. 1133)

Minors

- Arts Administration (p. 1126)
- Dance (p. 1134)
- Theatre (p. 1134)

Courses

THEA 1010 INTRODUCTION TO THEATRE FOR MAJORS I (3) LEC. 2, LLB. 2. Overview of all areas of theatrical collaboration intended specifically for the incoming theatre majors. Introduces theatre majors to academic skills they will need to pursue the theatre major at Auburn University. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 1110 INTRODUCTION TO THEATRE FOR MAJORS II (3) LEC. 2, LLB. 2. Pr. THEA 1010. Introduction to a variety of perspectives regarding theatrical practices, theories, and texts. Focus on productive working relationships and collaborative skills necessary for a successful life in the theatre. Course culminates in the creation of a new performance piece. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 1190 INTRODUCTION TO READING MUSIC FOR THEATRE ARTISTS (1) LEC. 1. Departmental approval. Instruction in how to read music for theatre artists. Course covers reading vocal music, instrumental music, orchestral music, and lead sheets in a variety of musical styles. One 50-minute class per week.

THEA 1340 PERFORMANCE I (1) STU. 1. Pr., Departmental approval. Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

THEA 1440 PERFORMANCE II (1) STU. 1. Pr. THEA 1340 or MUAP 1530. Departmental approval. Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

THEA 1530 DANCE LAB 1 - TAP (1) LAB. 3. Introduction to traditional tap dance Exploration of technical concepts, rhythm combinations, and improvisations designed to test and develop tap dance skills. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1570 DANCE LAB 1 - BALLET (1) LAB. 4.5. Beginning studio introduction to ballet technique Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1670 DANCE LAB 1 - JAZZ (1) LAB. 3. Studio introduction to and exploration of jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1910 PRODUCTION PRACTICUM I (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2010 INTRODUCTION TO THEATRE (3) LEC. 3. Fine Arts Core. Appreciation of theatre arts including stage, television, and film. Development of sensitive and critical sophistication as articulate, discriminating theatre-goers. Play and film viewing, play-reading, critiques, and term projects. May count either THEA 2010 or THEA 2013.

THEA 2017 HONORS INTRODUCTION TO THE THEATRE (3) LEC. 3. Pr. Honors College. Fine Arts Core. Appreciation of theatre arts. Development of sensitivity and critical skills as theatre-goers. Play attendance, reading, critiques, and term projects.

THEA 2020 AESTHETICS OF ACTING (3) LEC. 3. Fine Arts Core. An orientation to acting aesthetics as a means of understanding and engaging the arte of theatre.

THEA 2080 PERFORMANCE TECHNIQUES FOR THE CAMERA (3) LEC. 1, LST. 3. Theory and practice of specialized performance techniques for television and film. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2110 VOICE AND MOVEMENT FUNDAMENTALS (3) STU. 4. Exploration and study of fundamental issues in vocal production, articulation, and movement. Introduction to vocal anatomy, breathing/relaxation/alignment techniques, and integrated vocal and movement exercises applied in a variety of texts. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2120 ACTING I (3) LEC. 2, LST. 2. Introduction to basic acting techniques, literature, and performance through improvisation, contemporary scene study and attendance at theatre performances. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2210 MUSIC FUNDAMENTALS FOR MUSIC THEATRE (3) LEC. 3. Fundamental study of music structural procedures, form, and style designed for students in the music theatre major.

THEA 2220 MT PERFORMANCE LAB (1) LAB. Departmental approval. Demonstration and exploration of singing and acting techniques through performance of music theatre repertoire. Course may be repeated for a maximum of 6 credit hours.

THEA 2300 STAGE MANAGEMENT (3) LEC. 3. Examination of the theories and techniques of stage management in the producing organization, including management, organization, auditions, rehearsal, safety practices, and production procedures. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2310 THEATRE TECHNOLOGY I (3) LEC. 3. A comprehensive introduction to the study of technical theatre; theoretical and practical applications of equipment, materials, and techniques used in technical theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2330 SCENE PAINTING (3) LEC. 2. LAB. 2. Departmental approval. Studio-oriented course introducing the principles, techniques, and media of the scenic artist. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2340 PERFORMANCE III (1) STU. 1. Pr. THEA 1440 or MUAP 1630. Departmental approval. Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

THEA 2400 DESIGN AESTHETICS (3) LEC. 3. An exploration of the fundamental elements and principles of design, pictorial composition, and design theory, and their relationships and potential for application in scenic, costume, and lighting design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2440 PERFORMANCE IV (1) STU. 1. Pr. THEA 2340 or MUAP 2530. Departmental approval. Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

THEA 2450 DRAFTING FOR THE THEATRE I (3) LEC. 2, LST. 2. Pr. P/C THEA 2310. Departmental approval. A comprehensive study of the techniques and methods used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2570 DANCE LAB 2 - BALLET (1) LAB. 4.5. Pr. THEA 1570. Intermediate studio training in ballet technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2610 COSTUME CONSTRUCTION (3) LEC. 1, LST. 3. Fundamentals of machine sewing techniques, pattern drafting and draping, fabric dyes, and craftwork as they relate to theatrical costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2650 STAGE MAKEUP (3) LEC. 1, LST. 3. Theories and techniques of stage makeup, practical design and execution of basic makeup techniques, special effects, and character makeups. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2670 DANCE LAB 2 - JAZZ (1) LAB. 3. Pr. THEA 1670. Intermediate studio training in jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2700 TEXT ANALYSIS (3) LEC. 3. Script Analysis provides students with the tools to read and interpret scripts from a variety of perspectives with a focus upon implications for production. Students will analyze plays for character, plot, theme, action, given circumstances, and production requirements.

THEA 2840 BEGINNING DANCE TECHNIQUES (3) LEC. 1, LST. 3. Beginning level dance technique and theory, focusing on dance as an art form, including a survey of dance in different cultural and historical contexts. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 2910 PRODUCTION PRACTICUM II (1) STU. 4. Pr. THEA 1910. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 2940 APPLIED THEATRE I: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3110 VOICE FOR THE ACTOR II (3) LEC. 2, LST. 2. Pr. THEA 2110. Continuing study of vocal production and articulation techniques in tests of increasing complexity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3120 ACTING II (3) LEC. 2, LST. 2. Pr. THEA 2120. Exploration of internal and external acting theory and techniques in modern and classical scene study. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3140 MUSIC THEATRE ACTING (3) LEC. 3. LAB. 3. Pr. THEA 1190. Pr., Admission into the (THMU major) or Departmental approval. Students registering for this course should have experience with reading music. Exploration of acting techniques and performance through music theatre scene and song study, analysis, and history of music theatre repertoire culminating in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3150 BFA PERFORMANCE STUDIO I (4) LEC. 3, LST. 5. Pr., Admission into the THPR or THMU majors. Intensive study and practice integrating advanced contemporary scene study, audition technique, and the Fitzmaurice Voicework system. Students who do not earn a grade of "C" or better must re-audition for the BFA program and repeat the course.

THEA 3160 BFA PERFORMANCE STUDIO II (4) LEC. 3, LST. 5. Pr. THEA 3150. Intensive study and practice integrating Shakespeare and scene study of poetic texts with continuing work in Fitzmaurice Voicework system. Must earn a grade of "C" or higher or re-audition for the BFA program and repeat THEA 3150 and THEA 3160.

THEA 3190 SINGING PRACTICUM (1) STU. 1. Group instruction in musical theatre singing. Students will be introduced to the primary principles of posture, breathing, resonance, vocal health, direction, interpretation, and repertoire selection. Theatre majors who do not earn a grade of "C" or higher must repeat. Course may be repeated for a maximum of 2 credit hours.

THEA 3210 THE BUSINESS OF THEATRE (3) LEC. 3. Pr. THEA 1010 and THEA 1110 and THEA 1910 and THEA 2310 and THEA 2910. Discussion, research, and implementation of the practices necessary to be successful as a freelance artist in the current performing arts field.

THEA 3220 ARTS MANAGEMENT (3) LEC. 3. Departmental approval. Exploration of arts organizational structures, budgeting for non-profit and for-profit arts organizations, basic business and marketing practices, historical principles and practices of arts and cultural organizations.

THEA 3320 THEATRE TECHNOLOGY II (3) LEC. 2, LST. 2. Pr. THEA 2310. Theoretical and practical applications of equipment and techniques in technical theatre. Topics include light, sound mechanics, theatre rigging, equipment, special effects, and computer applications. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3340 PERFORMANCE V (1) STU. 1. Pr. THEA 2440 or MUAP 2630. Departmental approval. Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

THEA 3350 PRODUCTION MANAGEMENT (3) LEC. 3. Departmental approval required. Exploration of the role and responsibilities of the production manager in the coordination and execution of production elements for projects in theatre, dance, opera, music, etc. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3400 RENDERING FOR THE THEATRE (3) LEC. 2. LAB. 2. Pr. THEA 2400 or Departmental approval. Traditional drawing and rendering techniques and medias that help the designer to communicate scenic, costume, and lighting designs. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3410 SCENE DESIGN I (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Discussion, research, and execution of theory and practices of designing scenery for the stage. Emphasis on traditional style and methods of design and presentation for the proscenium theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3420 PROPERTY DESIGN AND TECHNOLOGY (3) LEC. 2, LST. 2. Pr. THEA 3320 or Departmental approval. History, design, organization, application of materials, and techniques used in the design and construction of properties for the theatre, film, and television. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3440 PERFORMANCE VI (1) STU. 1. Pr. THEA 3340 or MUAP 3530. Departmental approval. Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

THEA 3460 AUTOCAD FOR PERFORMANCE DESIGN (3) DSL/LEC. Pr. THEA 3450. This course provides students with a broad knowledge of creating 2D drawings and 3D modeling using Computer-Aided Design software (AutoCAD). Students will learn how to use AutoCAD to present their designs, visually and distribute basic, industry-standard drawings.

THEA 3510 LIGHTING DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2310 or Departmental approval. Studio course that explores the theory, research, and practice of stage lighting, practical illumination, and effects lighting. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3520 SOUND DESIGN (3) LEC. 2, LST. 2. Departmental approval. Equipment and techniques used in sound design, as both a design and a technical medium. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3570 DANCE LAB 3 - BALLET (1) LAB. 4.5. Pr. THEA 2570. Intermediate advanced studio in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3610 ADVANCED COSTUME CONSTRUCTION (3) LEC. 2, LST. 2. Pr. THEA 2610 or Departmental approval. Historical pattern making and draping, millinery skills, and craft techniques, and their practical applications in theatre costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3640 COSTUME DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Costume design and rendering as it relates to historical and original design for the theatre. Exploration of design for television, commercials, and rock stars. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3670 DANCE LAB 3 - JAZZ (1) LAB. 3. Pr. THEA 2670. Intermediate advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3710 THEATRE HISTORY, THEORY AND CRITICISM II - BODY (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on the human body as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include such topics as historical and theoretical perceptions of the social status of the actor, the actor's body as a medium of representation, and theatrical representations of gender and ethnicity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3720 THEATRE HISTORY, THEORY AND CRITICISM III - SPACE (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on theatrical space as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include ritual landscapes as they pertain to the origin of drama, the development of the western playhouse, the avant-garde reconceptualization of theatre space, and the development of such spatially oriented American institutions as Broadway and regional theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3730 MUSIC THEATRE HISTORY (3) LEC. 3. Exploration of music theatre literature, performances, historical, analytical and critical trends from the early 20th century to the present day. Areas of exploration include music theatre as a work of art with unique conversations about aesthetics and form, as an entertainment media shaped by its historical and cultural context, and as a viable performance form for the 21st century. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3740 COSTUME HISTORY (3) LEC. 3. History of Western costume and its uses in the theatre from ancient times to the present. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3800 THEATRE EVENTS MANAGEMENT (3) SEM. 3. Pr. THEA 2300. THEA 2300 with a grade of "C" or higher. This course is an introduction to the researching, planning, coordinating, marketing, facilitation/management and assessment of special events, specifically as they relate to the performing arts. Through practical application, each student will gain experience in the basic entrepreneurial skills necessary to plan a public arts event.

THEA 3840 INTERMEDIATE DANCE TECHNIQUES I (3) LEC. 1, LST. 3. Pr. THEA 2840. Intermediate level dance technique and theory, with an emphasis on performance qualities including work on alignment, strength, flexibility, rhythm, musicality, and dynamics, as well as the study of select contemporary choreographers. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3850 INTERMEDIATE DANCE TECHNIQUES II (3) LEC. 1, LST. 3. Pr. THEA 2840. Further exploration into intermediate level dance technique and theory, with emphasis on aesthetics and contemporary topics in dance. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3860 MOVEMENT FOR THE ACTOR (3) STU. 4. Introduction to the basic concepts of movement as it relates to the actor. Integrative ways of connecting the body to text and space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3910 PRODUCTION PRACTICUM III (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 3940 APPLIED THEATRE II: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3950 DIRECTING SEMINAR (3) LEC. 2, LST. 2. Pr. THEA 2120. Study of fundamental skills and collaborative processes needed to direct live theatre, including blocking, script analysis, research methods, approaches to casting, and rehearsal techniques. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3960 DRAMATURGY SEMINAR (3) LEC. 3. Study of fundamental skills and collaborative processes needed to dramaturg a piece of live theatre including both production and new play dramaturgy, critical analysis, research, presentations, and performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4150 BFA PERFORMANCE STUDIO III (4) LEC. 3, LST. 5. Pr. THEA 3160. Professional preparation with particular focus on individual rehearsal and performance techniques covering a broad spectrum of periods and styles geared toward graduate acting program placement and professional employment. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, and THEA 4150.

THEA 4160 BFA PERFORMANCE STUDIO IV (4) LEC. 3, LST. 5. Pr. THEA 4150. Special problems and topics in performance. Intensive work integrating and applying acting, voice, and movement techniques in an ensemble capstone recital of work in an adjudicated public performance. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, THEA 4150 and THEA 4160.

THEA 4340 PERFORMANCE VII (1) STU. 1. Pr. THEA 3440 or MUAP 3630. Departmental approval. Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

THEA 4420 SCENE DESIGN II (3) LEC. 2, LST. 2. Pr. THEA 3410 or Departmental approval. Advanced course in theory and practice of scenic and lighting design for theatre. Emphasis on experimental and non-traditional staging in a variety of space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4440 PERFORMANCE VIII (1) STU. 1. Pr. THEA 4340 or MUAP 4530. Departmental approval. Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

THEA 4450 DRAFTING FOR THE THEATRE II (3) LEC. 2, LST. 2. Pr. THEA 3450. Comprehensive study of computer and digital techniques used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4510 LIGHTING DESIGN II (3) LEC. 3. LAB. 1. Pr. THEA 2400 and THEA 3510. Lighting Design II provides students with in-depth study of advanced stage lighting techniques, including integration of computer graphics and projections with conventional lighting instruments.

THEA 4570 DANCE LAB 4 - BALLET (1) LAB. 4.5. Pr. THEA 3570. Advanced studio training in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4650 ADVANCED STAGE MAKEUP (3) LEC. 1, LST. 3. Pr. THEA 2650 or Departmental approval. Comprehensive study of specialized makeup, including film and television makeup, mask making, prosthesis, facial hair design, and wig making. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4670 DANCE LAB 4 - JAZZ (1) LAB. 3. Pr. THEA 3670. Advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4690 ARTISTS AND COMMUNITIES (3) SEM. 3. An in-depth analysis and exploration of the role and responsibility of the artist and art within communities. We will explore this idea from multiple perspectives: marketing, general management, artistic direction, performance, urban planning/creative placemaking, fundraising, and nonprofit management.

THEA 4750 PLAYWRITING (3) LEC. 3. Discussion of the principles of play construction, playwriting exercises, and completion of a one-act play. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4770 CAPSTONE SENIOR DANCE LAB (1) LAB. 1. Pr. THEA 1530 and THEA 2570 and THEA 2670. Students must be in good standing in BFA Performance Program. Culminating exploration of, and enrichment in musical theatre dance technique ranging from Ballet to Jazz to Hip-hop. Course culminates in a public capstone dance outcome performance.

THEA 4840 ADVANCED DANCE TECHNIQUES (3) LEC. 1, LST. 3. Pr. THEA 3850. Intensive study of advanced dance techniques in theory and practice. Course often serves as a training and preparation for public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 12 credit hours.

THEA 4910 PRODUCTION PRACTICUM IV (1-4) STU. Pr. THEA 3910. Or Admission into the THDT or THMN program and two semesters of THEA 3910 or departmental approval. Leadership experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 4920 PROFESSIONAL INTERNSHIP (1-8) INT. Pr., Departmental approval. Internship with professional or community theatre in the student's field of specialization. Each 10-hour work week equals one hour of credit. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 8 credit hours.

THEA 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. Directed readings, creative and tutorial projects of interest to the advanced student. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4940 THEATRE SPECIAL PROJECTS (3) AAB/STU. 4. Pr., Departmental approval. Selected projects related to realizing a theatrical production in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 9 credit hours.

THEA 4950 THEATRE LITERATURE AND THEORY SEMINAR (3) LEC. 3. Thorough examination of dramatic literature and theory from a narrow perspective (such as genre, style, or era.) Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Subject areas to be determined between student and theatre instructor. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4970 SPECIAL TOPICS (3) LEC. 3. Special Topics in Theatre or Dance. Course may be repeated for a maximum of 9 credit hours.

THEA 4980 SENIOR CAPSTONE PROJECT (3) LEC. 3. Capstone course to aid senior theatre majors in their transition to the professional world and/or graduate studies. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Final projects of varying natures in theatre Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

Arts Administration Minor

Requirements for the Minor in Arts Administration

Code	Title	Hours
Administration		**3**
THEA 3220	Arts Management	
Marketing		**3**
MKTG 3810	Foundations of Business Marketing	
MKTG 3310	Principles of Marketing	
Finances/Accounting		**3**

ACCT 2810	Fundamentals Of Accounting	
Community Engagement / Human Relations		**3**
THEA 4690	Artists and Communities	
Arts Elective [1]		**6**
MUSI 2730	Appreciation of Music	
MUSI 2740	Survey of Popular Music	
MUSI 3830	Music Business I: Survey of the Music Industry	
MUSI 3850	Promotion in the Music Industry: How to Promote An Artist	
MUSI 3860	Legal Aspects of the Music Industry	
MUSI 4660	Commercial Music: Record Company Operations	
MUSI 4670	Commercial Music: Concert Promotion	
Any MUSE ensemble		
ARTS 1510	Looking at Art: Approaches to Interpretation	
ARTS 1610	Introduction to Art History	
ARTS 2100	Foundations of Art History I	
ARTS 2150	Foundations of Art History II	
THEA 2010	Introduction to Theatre	
THEA 2120	Acting I	
THEA 2300	Stage Management	
THEA 2400	Design Aesthetics	
THEA 2700	Text Analysis	
THEA 2840	Beginning Dance Techniques	
THEA 2940	Applied Theatre I: Acting	
THEA 3350	Production Management	
THEA 3520	Sound Design	
THEA 3710	Theatre History, Theory and Criticism II - Body	
THEA 3720	Theatre History, Theory and Criticism III - Space	
THEA 3740	Costume History	
THEA 3800	Theatre Events Management	
THEA 3840	Intermediate Dance Techniques I	
THEA 3860	Movement for the Actor	
THEA 3910	Production Practicum III	
THEA 3940	Applied Theatre II: Acting	
THEA 3960	Dramaturgy Seminar	
THEA 4750	Playwriting	
THEA 4910	Production Practicum IV	
THEA 4920	Professional Internship	
THEA 4950	Theatre Literature and Theory Seminar	
Total Hours		**18**

[1] Only one class selected from options can be at 1000-2000 level. If a course is not on this list, student must seek approval from the minor coordinator.

BA Theatre (THLA)

Theatre majors must earn a grade of C or higher in theatre courses, or they must repeat those courses for credit toward their degree.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
THEA 1010 Introduction to Theatre for Majors I	**3**	**THEA 1110 Introduction to Theatre for Majors II**	**3**
THEA 2310 Theatre Technology I	**3**	**THEA 2400 Design Aesthetics**	**3**
Foreign Language I (College Core)	4	**THEA 2610 Costume Construction**	**3**
		Foreign Language II (College Core)	4
	13		**16**

Sophomore

Fall	Hours	Spring	Hours
Core History[1]	3	Core Science II	4
Core Science I	4	Core Math	3
Core Literature[1]	3	**THEA 2910 Production Practicum II**	**1**
THEA 2910 Production Practicum II	**1**	**Theatre Elective[2]**	**3**
Core Humanities (except COMM 1000)	3	**THEA 2700 Text Analysis**	**3**
THEA 2120 Acting I	**3**		
	17		**14**

Junior

Fall	Hours	Spring	Hours
Core Social Science or Core History to complete sequence[1]	3	Core Social Science	3
THEA 3910 Production Practicum III	**1**	Core Humanities (except COMM 1000) or Core Literature to complete sequence[1]	3
THEA 3710 Theatre History, Theory and Criticism II - Body	**3**	**THEA 3910 Production Practicum III**	**1**
THEA 3950 Directing Seminar *or* 3960 Dramaturgy Seminar	**3**	**THEA 4950 Theatre Literature and Theory Seminar**	**3**
Elective[3]	3	**THEA 3720 Theatre History, Theory and Criticism III - Space**	**3**
THEA 2840 Beginning Dance Techniques	**3**	Elective[3]	3
	16		**16**

Senior

Fall	Hours	Spring	Hours
Core Fine Arts (except THEA 2010/THEA 2017)	3	Core Social Science	3
Theatre Elective[4]	**2**	**THEA 4950 Theatre Literature and Theory Seminar**	**3**
THEA 4980 Senior Capstone Project[5]	**3**	**Theatre Electives[3]**	**6**
Electives[3]	6	Elective[3]	2
		UNIV 4AA0 Achieve the Creed	0
	14		**14**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not chosen as the sequence.
2 This must be a theatre design or technology course.
3 Students must meet with their advisers to determine approved theatre and other electives, unless approved courses are specified in this curriculum model.
4 This course must be in studio, lab, or practicum course.
5 To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.

BFA Theatre — Design/Technology (THEA)

Theatre majors must earn a C or higher in theatre courses, or they must repeat those courses for credit toward their degrees. Students must formally apply for admission to the BFA in Theatre. Students entering the BFA options in Design/Technology typically apply for admission in the spring of their sophomore year. Application is through a portfolio review.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
THEA 1010 Introduction to Theatre for Majors I	**3**	Core History[1]	3
THEA 2310 Theatre Technology I	**3**	Core Math	3
THEA 2400 Design Aesthetics	**3**	**THEA 1110 Introduction to Theatre for Majors II**	**3**
THEA 2120 Acting I	**3**	**THEA 2330 Scene Painting**	**3**
		THEA 1910 Production Practicum I	**1**
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	Core Science II	4
Core Science I	4	Core Social Science	3
THEA 2610 Costume Construction	**3**	**THEA 2700 Theatre History, Theory and Criticism I - Text**	**3**
THEA 2910 Production Practicum II	**1**	**Theatre Design Emphasis[4]**	**3**
Theatre Design Emphasis[4]	**3**	**THEA 2910 Production Practicum II**	**1**
	14		**14**

Junior

Fall	Hours	Spring	Hours
Core Fine Arts (excluding THEA)	3	Core Social Science or History (to complete sequence)	3
THEA 3910 Production Practicum III	**1**	Core Humanities (except COMM 1000) or Literature (to complete sequence)	3
THEA 3400 Rendering for the Theatre	**3**	**THEA 3410 Scene Design I**	**3**
Theatre Design Emphasis[4]	**3**	**THEA 3720 Theatre History, Theory and Criticism III - Space**	**3**
Theatre Design Emphasis[4]	**3**	**Theatre Design Emphasis[4]**	**3**
THEA 3710 Theatre History, Theory and Criticism II - Body	**3**	**THEA 3910 Production Practicum III**	**1**
	16		**16**

Senior

Fall	Hours	Spring	Hours
Core Social Science	3	Core Humanities (except COMM 1000)	3
THEA 3950 Directing Seminar	**3**	**Theatre Design Emphasis**[4]	**3**
THEA 4910 Production Practicum IV	**1**	**Theatre Design Emphasis**[4]	**3**
THEA 4980 Senior Capstone Project[3]	**3**	Free Electives	4
Theatre Design Emphasis[4]	**3**	UNIV 4AA0 Achieve the Creed	0
Free Elective	3		
	16		**13**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the discipline not selected as the sequence.

2 Students must meet with their advisers to determine appropriate theatre electives and other electives.

3 To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.

4 **Theatre Design Track** can be in one of the following three. Students should complete all courses for their emphasis.
Costume: THEA 2650, THEA 3740, THEA 2450, Theatre Electives[2], THEA 3640, THEA 4650, THEA 3610, and THEA 4940.
Lighting: THEA 2450, Theatre Electives[2], THEA 3320, THEA 3510, Theatre Electives[2], THEA 4940, THEA 3520, and THEA 4510.
Scenic:THEA 2450**,** Theatre Electives[2], THEA 3320**,** THEA 3510**,** Theatre Electives[2], THEA 4940, THEA 3420, and THEA 4420.

BFA Theatre — Management (THEA)

Theatre majors must earn a C or higher in theatre courses, or they must repeat those courses for credit toward their degrees. Students must formally apply for admission to the BFA in Theatre. Students entering the BFA options in Management typically apply for admission in the spring of their sophomore year. Application is through a portfolio review

Freshman

Fall	Hours	Spring	Hours
THEA 1010 Introduction to Theatre for Majors I	**3**	**THEA 1110 Introduction to Theatre for Majors II**	**3**
THEA 2310 Theatre Technology I	**3**	**THEA 2910 Production Practicum II (ASM Assignment)**	**1**
THEA 2910 Production Practicum II (Scene Shop)	**1**	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	Core Humanities	3
Core Math	3	Core Social Science[1]	3
Core Social Science [1]	3	Core History[1]	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
THEA 2400 Design Aesthetics	**3**	**THEA 2700 Text Analysis**	**3**
THEA 2120 Acting I	**3**	**THEA 3220 Arts Management**	**3**
THEA 2300 Stage Management	**3**	**THEA 3910 Production Practicum III (Costume Shop)**	**1**
THEA 2910 Production Practicum II (Props Assignment)	**1**	Elective[2]	3
THEA 2610 Costume Construction	**3**	Core Science II	4

Core Science I[1]		4	Core Literature[1]	3
		17		**17**

Junior

Fall	Hours		Spring	Hours
THEA 3710 Theatre History, Theory and Criticism II - Body		**3**	**THEA 3210 The Business of Theatre *or* 4690 Artists and Communities**	**3**
THEA 3950 Directing Seminar		**3**	**THEA 3910 Production Practicum III (SM Assignment)**	**1**
THEA 3800 Theatre Events Management *or* 3350 Production Management		**3**	**THEA 4910 Production Practicum IV (Design or Admin Assignment)**	**1**
THEA 3910 Production Practicum III (Management Assignment)		**1**	**THEA 3720 Theatre History, Theory and Criticism III - Space**	**3**
Core Humanities or Core Literature to complete sequence[1]		3	Core Fine Arts (except Intro to Theatre)	3
Core Social Science or Core History to complete sequence[1]		3	Elective[2]	3
		16		**14**

Senior

Fall	Hours		Spring	Hours
THEA 4980 Senior Capstone Project[3]		**3**	**THEA 4940 Theatre Special Projects (Senior Project)**	**3**
THEA 4920 Professional Internship (Management Assignment)		**3**	**Theatre Elective[2]**	**3**
Theatre Elective[2]		**2**	**Movement Elective[2]**	**3**
THEA 4910 Production Practicum IV (Management Assignment)		**1**	Elective[2]	3
Elective[2]		3	UNIV 4AA0 Achieve the Creed	0
		12		**12**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not chosen as the sequence.

2 Students must meet with their advisers to identify approved theatre electives and other electives.

3 To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.

BFA Theatre — Music Theatre (THEA)

The BFA in Music Theatre is a four-year degree track that offers practical, pre-professional skills in acting, dancing, and singing for the student whose ambition is to be a professional actor and musical theatre artist. In the first two years of the program, students study voice in private sessions, music theory and skills, piano, speech, music theatre acting, ballet, jazz and tap. Both the Performance and Music Theatre degree tracks combine a liberal arts education with applied skills in performance that will serve the undergraduate actor seeking graduate school placement or professional employment

All members of our acting faculty are professional actors with years of experience in the industry as well as terminal degrees in their field.

Theatre majors must earn a grade of C or higher in theatre courses, or they must repeat those courses for credit toward their degrees. Students must formally apply for admission to the BFA in Theatre. Students entering the BFA options in Music Theatre audition in the fall semester prior to their freshman year. Application is through an audition.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
THEA 2120 Acting I	**3**	Core History[1]	3
THEA 1010 Introduction to Theatre for Majors I	**3**	Core Math	3
THEA 1340 Performance I	**1**	**THEA 1110 Introduction to Theatre for Majors II**	**3**
THEA 2210 Music Fundamentals for Music Theatre	**3**	**THEA 1440 Performance II**	**1**
THEA 2220 MT Performance Lab	**1**	**THEA 2110 Voice and Movement Fundamentals**	**3**
		THEA 2220 MT Performance Lab	**1**
	14		**17**

Sophomore

Fall	Hours	Spring	Hours
Core Science I	4	Core Science II	4
Core Literature[1]	3	Core Fine Arts (exclude THEA)	3
THEA 2310 Theatre Technology I	**3**	**THEA 2570 Dance Lab 2 - Ballet**	**1**
THEA 1570 Dance Lab 1 - Ballet	**1**	**THEA 3140 Music Theatre Acting**	**3**
THEA 2340 Performance III	**1**	**THEA 2910 Production Practicum II**	**1**
THEA 2610 Costume Construction	**3**	**THEA 2700 Text Analysis**	**3**
THEA 1910 Production Practicum I	**1**	**THEA 2440 Performance IV**	**1**
THEA 2220 MT Performance Lab	**1**	**THEA 2220 MT Performance Lab**	**1**
	17		**17**

Junior

Fall	Hours	Spring	Hours
Core Social Science or Core History to complete sequence[1]	3	Core Humanities (except COMM 1000) or Core Literature to complete sequence[1]	3
THEA 3910 Production Practicum III	**1**	**THEA 2670 Dance Lab 2 - Jazz**	**1**
THEA 3340 Performance V	**1**	**THEA 3160 BFA Performance Studio II**	**4**
THEA 3150 BFA Performance Studio I	**4**	**THEA 3730 Music Theatre History**	**3**
THEA 1670 Dance Lab 1 - Jazz	**1**	**THEA 3440 Performance VI**	**1**
THEA 3710 Theatre History, Theory and Criticism II - Body	**3**	**THEA 2220 MT Performance Lab**	**1**
THEA 2220 MT Performance Lab	**1**	**THEA 3910 Production Practicum III**	**1**
	14		**14**

Senior

Fall	Hours	Spring	Hours
Core Social Science	3	Core Humanities (except COMM 1000)	3
THEA 1530 Dance Lab 1 - Tap	**1**	Core Social Science	3
THEA 4980 Senior Capstone Project[2]	**3**	**THEA 4160 BFA Performance Studio IV**	**4**

THEA 4150 BFA Performance Studio III	**4**	Electives[3]	3
Electives[3]	3	UNIV 4AA0 Achieve the Creed	0
	14		**13**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not chosen as the sequence.

2 To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.

3 Students must meet with their advisers to identify approved theatre, music, and other electives.

BFA Theatre — Performance (THEA)

Theatre majors must earn a grade of C or higher in theatre courses or they must repeat those courses for credit toward their degrees. Students must formally apply for admission to the BFA in Theatre. Students entering the BFA options in Performance typically apply for admission in the spring of their sophomore year. Application is through a portfolio review.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
THEA 1010 Introduction to Theatre for Majors I	**3**	**THEA 1110 Introduction to Theatre for Majors II**	**3**
THEA 2840 Beginning Dance Techniques	**3**	Core Math	3
THEA 2310 Theatre Technology I	**3**	Core History[1]	3
THEA 2120 Acting I	**3**	**THEA 2110 Voice and Movement Fundamentals**	**3**
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Science I	4	Core Science II	4
Core Literature[1]	3	Core Social Science or Core History to complete sequence[1]	3
THEA 2910 Production Practicum II	**1**	**THEA 2700 Text Analysis**	**3**
Required Dance Elective[2]	**1**	**THEA 2910 Production Practicum II**	**1**
THEA 2610 Costume Construction	**3**	**Performance Elective[5]**	**3**
Performance Elective[5]	**3**	**THEA ELEC (Selected from any THEA course)[3]**	**1**
	15		**15**

Junior

Fall	Hours	Spring	Hours
THEA 3150 BFA Performance Studio I	**4**	**THEA 3160 BFA Performance Studio II**	**4**
THEA 3840 Intermediate Dance Techniques I *or* 3860 Movement for the Actor	**3**	**THEA 3720 Theatre History, Theory and Criticism III - Space**	**3**
THEA 3710 Theatre History, Theory and Criticism II - Body	**3**	**Theatre Elective[3]**	**1**
THEA 3190 Singing Practicum	**1**	Core Social Science	3
THEA 3910 Production Practicum III	**1**	Core Humanities or Core Literature to complete sequence[1]	3

THEA 2650 Stage Makeup	**3**	**THEA 3910 Production Practicum III**	**1**
	15		**15**

Senior

Fall	Hours	Spring	Hours
Electives[3]	3	Core Fine Arts (except THEA 2010)	3
THEA 3950 Directing Seminar	**3**	Electives[3]	3
THEA 4150 BFA Performance Studio III	**4**	**THEA 4160 BFA Performance Studio IV**	**4**
THEA 4980 Senior Capstone Project[4]	**3**	Core Social Science	3
Theatre Electives[3]	**1**	Core Humanities	3
		UNIV 4AA0 Achieve the Creed	0
	14		**16**

Total Hours: 120

1 Students are required complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or one Core Literature in the discipline not selected as the sequence.

2 Dance electives include the following: THEA 1570, THEA 1670, THEA 1530. Acting may be substituted for the dance elective; students then should select either THEA 2940 or THEA 3940.

3 Students must meet with their advisers to identify approved theatre and other elective courses.

4 To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.

5 Performance Electives are selected from THEA 2080, THEA 3110, THEA 3120, THEA 3140, or THEA 3860.

Dance Minor

Code	Title	Hours
THEA 2310	Theatre Technology I	3
or THEA 2610 or Approved Theatre Elective*		
THEA 2840	Beginning Dance Techniques	3
or THEA 1570 (2) and THEA 1670 (1)		
THEA 3840	Intermediate Dance Techniques I	3
THEA 3850	Intermediate Dance Techniques II	3
THEA 4840	Advanced Dance Techniques	3
Total Hours		**15**

Minimum 9 hours at 3000-level or above

* See theatre advisor for list of approved electives

Theatre Minor

Code	Title	Hours
THEA 2010	Introduction to Theatre	3
THEA 2700	Text Analysis	3
or THEA 2400	Design Aesthetics	
or THEA 2120	Acting I	
or THEA 2300	Stage Management	
THEA Electives: 9 hours at the 3000 level or above.		9
Total Hours		**15**

Department of World Languages, Literatures, and Cultures

Graduates from the Department of World Languages, Literatures, and Cultures have cited their language studies and skills as the foundation for pursuing graduate studies or obtaining positions in communications, government, health professions, law, business, primary and secondary education, non-profit organizations, or academe. The Department of World Languages, Literatures, and Cultures offers Bachelor of Arts degrees in French, French-international trade, German, German-international trade, Spanish, and Spanish-international trade.

All students with previous language experience in French, German, or Spanish who wish to advance their studies in the same language must take the placement test prior to Camp War Eagle, Successfully Orienting Students, or enrollment in a course in these three world language areas.

Study abroad is recommended for majors in World Languages, Literatures and Cultures.

Students must earn at least a C and maintain a 2.5 GPA in all major courses in order to graduate.

Majors

- French (p. 1151)
- French — International Trade Option (p. 1153)
- German (p. 1154)
- German — International Trade Option (p. 1156)
- International Studies (p. 1157)
- Spanish (p. 1159)
- Spanish — International Trade Option (p. 1161)

Minors

- Asian Studies (p. 1150)
- Classics (p. 1151)
- French (p. 1153)
- French Linguistics (p. 1152)
- German (p. 1156)
- German Linguistics (p. 1155)
- Global Cultures (p. 1157)
- Italian Studies (p. 1159)
- Spanish (p. 1160)
- Spanish Linguistics (p. 1160)

Undergraduate Certificates

- Translation and Interpreting (http://bulletin.auburn.edu/undergraduate/collegeofliberalarts/translationandinterpreting_ucrt/)
- Workplace Intercultural Competence (p. 1150)

Foreign Languages Courses

FLNG 1000 ELEMENTARY WORLD LANGUAGE ABROAD (1-10) AAB/FLD. Pr., Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 1010 ELEMENTARY WORLD LANGUAGE (4) LEC. 4. Pr., Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures.

FLNG 1020 ELEMENTARY WORLD LANGUAGE (4) LEC. 4. Pr. FLNG 1010 or Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures.

FLNG 2000 INTERMEDIATE WORLD LANGUAGE (1-10) AAB/LEC. Pr., Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 2150 FOUNDATIONS OF TRANSLATION AND INTERPRETING (3) LEC. 3. LAB. 0. Pr. Completed courses from FLNG 1010-1017 or FLNG 1020-1027 or FLCN 1010-1017 or FLCN 1020-1027 or FLFR 1010-1017 or FLFR 1020-1027 or FLGR 1010-1017 or FLGR 1020-1027 or FLGK 1010-1017 or FLGK 1020-1027 or FLIT 1010-1017 or FLIT 1020-1027 or FLJP 1010-1017 or FLJP 1020-1027 or FLKN 1010-1017 or FLKN 1020-1027 or FLLN 1010-1017 or FLLN 1020-1027 or FLRU 1010-1017 or FLRU 1020-1027 or FLSP 1010-1017 or FLSP 1020-1027. Introduction to the theory and skills necessary for written translation and oral interpreting.

FLNG 3110 INTRODUCTION TO LINGUISTICS: A MULTILINGUAL APPROACH (3) LEC. 3. In this course, students will learn about language structure, language history, and language acquisition through a multilingual perspective.

FLNG 4997 HONORS THESIS (1-6) IND. Pr. Honors College or Departmental approval. Directed readings and research culminating in a thesis. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng - Arabic Courses

FLAR 1010 ELEMENTARY ARABIC I (4) LEC. 4. Elementary Arabic I is a course for students who have no prior knowledge of Arabic. The course offers students the opportunity for authentic practice in speaking, listening, reading, writing, grammar, and culture.

FLAR 1020 ELEMENTARY ARABIC II (4) LEC. 4. This course Arabic 1020 is a continuation of Arabic 1010 taken in first semester of the first year of Modern Standard Arabic (MSA). The course aims to develop students' reading, writing, listening and speaking skills.

FLAR 2010 INTERMEDIATE ARABIC I (4) LEC. Pr. FLAR 1020. Intermediate Arabic I is for students who have completed Elementary Arabic II or acceptable score on language placement test. The course emphasizes the development of reading, writing, listening, and speaking skills in Modern Standard Arabic (MSA).

FLAR 2020 INTERMEDIATE ARABIC II (4) LEC. Pr. FLAR 2010. Intermediate Arabic II is for students who have completed Intermediate Arabic I or acceptable score on language placement test. Continued development of Arabic vocabulary and grammar. Increased emphasis on developing practical listening and speaking skills. Exposure to Arab culture through media and literature.

Foreign Lng-Asian Culture Courses

FLAS 2050 ASIAN FILM (3) LEC. 3. Major works of Asian film from China, Japan, and Korea. No knowledge of world language required.

FLAS 2450 SURVEY OF MODERN ASIAN LITERATURE (3) LEC. 3. Major works of modern Asian literature from China, Japan, and Korea in translation.

FLAS 2550 GATEWAY TO ASIA (3) LEC. 3. Introduction to Asia from an interdisciplinary perspective, including scholarship on history, anthropology, political science, philosophy, literature, and film.

FLAS 3450 TOPICS IN ASIAN CULTURE (3) LEC. 3. Study of traditional and/or modern Asian culture with special emphasis on cross-cultural and transnational interactions with in Asia, as well as with the west. Course may be repeated for a maximum of 6 credit hours.

FLAS 3550 TOPICS IN ASIAN AMERICAN CULTURE (3) LEC. 3. Topics of interest in Asian American culture. No knowledge of world language required. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Chinese Courses

FLCN 1000 ELEMENTARY CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Elementary coursework on approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 1010 ELEMENTARY CHINESE I (4) LEC. 4. Exposure to Chinese language and culture for students with little or no knowledge of Chinese.

FLCN 1020 ELEMENTARY CHINESE II (4) LEC. 4. Pr. FLCN 1010 or Departmental approval. Continued exposure to Chinese language and culture. Departmental approval. Fulfills College of Liberal Arts world language core requirement.

FLCN 2000 INTERMEDIATE CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by the department. Intermediate course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 2010 INTERMEDIATE CHINESE I (4) LEC. 4. Pr. FLCN 1020 or Departmental approval. Continued exposure to Chinese culture; introduction to intermediate language skills.

FLCN 2020 INTERMEDIATE CHINESE II (4) LEC. 4. Pr. FLCN 2010 or Departmental approval. Continued exposure to Chinese culture; intermediate language skills with emphasis on grammar.

FLCN 3000 ADVANCED CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by department. Advanced course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 3010 CHINESE COMPOSITION AND CONVERSATION (3-6) AAB/LEC. Pr. FLCN 2010 or Departmental approval. Intense practice in spoken and written Chinese, both text-and situation-based. Course may be repeated for a maximum of 6 credit hours.

FLCN 3020 CHINESE COMPOSITION AND CONVERSATION II (3) LEC. 3. Pr. FLCN 3010. In this course, students will continue to develop integrated Chinese language skills of listening, speaking, reading, and writing. There will be increased focus on reading and writing skills in Chinese and on learning grammar patterns needed to write in Chinese.

FLCN 3050 CHINESE CINEMA (3) LEC. 3. Major works of Chinese cinema from 1920s to present with emphasis on cultural and literary aspects.

FLCN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN CHINESE (1) IND. 1. Pr. FLCN 1020 or Departmental approval. Language component with reading and in-class discussion to complement a lecture course in English and in a discipline other than Chinese. Course may be repeated for a maximum of 3 credit hours.

FLCN 3450 TOPICS IN CHINESE LITERATURE AND CULTURE (3-6) AAB/LEC. Directed study of topics of interest. Course may be repeated for a maximum of 6 credit hours.

FLCN 3510 INTRODUCTION TO CHINESE CULTURE IN ENGLISH (3-6) LEC. Chinese culture as depicted in art, film, literature, history. Course may be repeated for a maximum of 6 credit hours.

FLCN 3650 SURVEY OF MODERN CHINESE LITERATURE (3) LEC. 3. Introduction to major works of modern Chinese literature translated into English.

FLCN 3750 SURVEY OF TRADITIONAL CHINESE LITERATURE (3) LEC. 3. Introduction to major works of traditional Chinese literature translated into English.

FLCN 3930 DIRECTED STUDY IN CHINESE (1-6) IND. Pr. FLCN 2010. Directed study in area of special interest for the superior student in Chinese. Course may be repeated for a maximum of 6 credit hours.

FLCN 5010 TEACHING CHINESE AS A WORLD LANGUAGE (3) LEC. 3. Teaching Chinese as a world language is an introduction course to world language teaching theories with an emphasis on their application to Chinese language teaching. Students who are fluent in speaking Chinese will acquire basic knowledge of teaching Chinese.

FLCN 5020 SYNTACTIC STRUCTURE OF THE CHINESE LANGUAGE (3) LEC. 3. Pr. FLCN 2010. Exploration of the fundamentals of Chinese syntax.

FLCN 6010 TEACHING CHINESE AS A WORLD LANGUAGE (3) LEC. 3. Teaching Chinese as a world language is an introduction course to world language teaching theories with an emphasis on their application to Chinese language teaching. Students who are fluent in speaking Chinese will acquire basic knowledge of teaching Chinese as a world language and practical teaching skills and strategies through the critical reading of course materials, classroom discussion, class observation, and research project.

FLCN 6020 SYNTACTIC STRUCTURE OF THE CHINESE LANGUAGE (3) LEC. 3. Exploration of the fundamentals of Chinese syntax.

Foreign Lng-French Courses

FLFR 1000 ELEMENTARY FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in French. Course may be repeated for a maximum of 10 credit hours.

FLFR 1010 ELEMENTARY FRENCH I (4) LEC. 3. LAB. 2. Basic language skills with emphasis on conversation. Exposure to culture.

FLFR 1020 ELEMENTARY FRENCH II (4) LEC. 3. LAB. 2. Pr. LFRE score of 0241 or FLFR 1010. Basic language skills with emphasis on conversation. Exposure to culture. Fulfills College of Liberal Arts core world language requirement.

FLFR 1030 READING PROFICIENCY IN FRENCH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly materials in French related to their field of study. May not be used to satisfy undergraduate language requirements.

FLFR 2000 INTERMEDIATE FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level, taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLFR 2010 INTERMEDIATE FRENCH I (4) LEC. 3. LAB. 2. Pr. LFRE score of 0325 or FLFR 1020. Language skills, grammar review, readings in French culture, literature, and history.

FLFR 2020 INTERMEDIATE FRENCH II (4) LEC. 3. LAB. 2. Pr. LFRE score of 0372 or FLFR 2010. Systematic review of problems in French grammar for speakers of English. Prepares students for conversation, composition and civilization in the third-year sequence.

FLFR 3000 JUNIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 3010 THE SOUNDS OF FRENCH (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Basic principles of French phonetics through sound recognition discrimination and intensive practice.

FLFR 3030 FRENCH CONVERSATION AND CULTURE I (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Intensive practice in spoken French, based on texts and everyday situations, especially in contemporary French society. Includes review of vocabulary.

FLFR 3040 READING & WRITING IN FRENCH I (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLFR 3050 GLOBAL FRENCH CINEMA (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Sampling of important films from the beginnings of French cinema in 1895 to the present day, including the intellectual, historical, cultural, and literary matrix of each film.

FLFR 3100 INTRO TO LITERATURE, ARTS, & MEDIA (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 3040 or FLFR 3030 or Departmental approval. Grounding in basic analytical approaches, language, and organizational skills needed to discuss French literature effectively and coherently, orally or in writing.

FLFR 3110 CONTEMPORARY CULTURE & POLITICS (3) LEC. 3. Pr. FLFR 2020 or Departmental approval. Cultural heritage of France as reflected in present-day life patterns, traditions, and institutions.

FLFR 3140 LITERATURE, ARTS, & MEDIA I (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. The Middle Ages to the 1800s, emphasizes coherent and effective writing in French.

FLFR 3150 LITERATURE, ARTS, & MEDIA II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Readings in French literature prose, drama, and poetry from the 19th century to the present, centered on a theme or topic.

FLFR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN FRENCH (1) LEC. 1. Pr. FLFR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than French. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLFR 3310 FRENCH BUSINESS COMMUNICATION (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428. Intensive practice in preparing commercial correspondence and reading contracts, agreements, and related documents in French. Emphasis will be placed on the acquisition of a business vocabulary.

FLFR 3510 TOPICS IN FRENCH LITERATURE AND CULTURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Topics drawing from French literature, history, fine arts, or culture of general interest to students with little or no previous study of French.

FLFR 3930 DIRECTED STUDIES (1-3) AAB/IND. Pr., Departmental approval. Directed study in an area of special interest to the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4000 SENIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior or advanced level, taken on an approved Study Abroad program. Students should consult with the undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 4020 APPLIED FRENCH SKILLS (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Practice in writing and analyzing French texts, with emphasis on advanced grammar topics and stylistics.

FLFR 4030 FRENCH CONVERSATION AND CULTURE II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in spoken French to maintain and upgrade proficiency. Major credit will not be given for FLFR or FLFT majors.

FLFR 4040 READING & WRITING IN FRENCH II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in written French to maintain and upgrade proficiency.

FLFR 4310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. A grade of D or higher in FLFR 3000-3999 or Departmental approval. Practical exercises in preparing and translating trade correspondence and documents in French as well as assigned group work and case studies under simulated on-the-job pressures.

FLFR 4410 ADVANCED TOPICS IN FRENCH LITERATURE, CULTURE, OR LANGUAGE (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428 or Departmental approval. Study of a special aspect or theme of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

FLFR 4740 TRANSLATION (3) LEC. 3. Basic techniques and problem areas in translating from French into English and from English into French.

FLFR 4930 ADVANCED DIRECTED STUDY (1-3) IND. Pr. A least 3 courses in FLFR 3000-3999. Directed study in area of special interest for the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4980 FRENCH SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLFR 5310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Practice in managing, preparing, and translating international trade correspondence documents and related legal procedures in French. Development of case studies and other international trade group work in French and in English under simulated real-life pressures.

FLFR 5970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999. Pr., Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 5980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Seminar in advanced languages skills or topics from French literary genres and movements.

FLFR 6310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Departmental approval. Practice in handling, preparing, and translating international trade correspondence documents and related legal procedures in French.

FLFR 6970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 6980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) AAB/SEM. 3. Seminar in advanced languages skills or topics from French literary genres and movements. Course may be repeated for a maximum of 9 credit hours.

FLFR 7000 GRADUATE FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken in an approved Study Abroad program. Students should consult with the French graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 7010 ADVANCED CONTEMPORARY CULTURE & POLITICS (3) LEC. 3. Pr., Departmental approval. In-depth study of French civilization with emphasis on the relationship of history, arts, and literature from prehistoric times to the present.

FLFR 7020 ADVANCED APPLIED FRENCH SKILLS (3) LEC. 3. Pr., Departmental approval. Acquisition of advanced writing skills in French. Techniques and strategies of appropriate stylistic expression through analysis of various sources of texts, including literary, historical, commercial, and popular.

FLFR 7430 FRENCH PRESS (3) LEC. 3. Pr., Departmental approval. Political, intellectual, and cultural events in France, Europe, and the world as reflected in major French daily and weekly publications.

FLFR 7740 ADVANCED TRANSLATION (3) LEC. 3. Pr., Departmental approval Acquisition of skills for translation from French to English and from English to French using a wide variety of texts including historical, literary, commercial, and popular sources.

FLFR 7920 WORLD LANGUAGE CAREER INTERNSHIP (1-6) INT. Pr., Departmental approval. Experiential learning either in the business community or in university-sponsored programs outside the United States. Course may be repeated for a maximum of 6 credit hours.

FLFR 7930 DIRECTED STUDIES IN LANGUAGE SKILLS (3) IND. 3. Departmental approval. Pr., Course may be repeated for a maximum of 6 credit hours.

FLFR 7960 SPECIAL PROBLEMS IN FRENCH LANGUAGE, LITERATURE OR CULTURE (1-3) IND. Pr., Departmental approval. Study in a specialized area under close supervision of an instructor. Course may be repeated for a maximum of 6 credit hours.

FLFR 7970 SPECIAL TOPICS (1-3) AAB. Pr., Departmental approval. Study of a specific aspect of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

Foreign Lng-German Courses

FLGR 1000 ELEMENTARY GERMAN ABROAD (1-10) AAB/IND. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in German. Course may be repeated for a maximum of 10 credit hours.

FLGR 1010 ELEMENTARY GERMAN I (4) LEC. 3. LAB. 2. Fundamentals of German language skills stressed. Exposure to German-speaking cultures. For students with no previous background or less than two years of high school German.

FLGR 1020 ELEMENTARY GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0241 or FLGR 1010. or acceptable score on the FL placement test. Review of basic German grammar and vocabulary. Fundamentals of German language skills with progressive emphasis on conversation. Fulfills the College of Liberal Arts world language core requirement.

FLGR 1030 READING PROFICIENCY IN GERMAN (3) LEC. 3. Instruction to enable graduate students to read and understand scholarly material in German related to their field of student. requirements. May not be used to satisfy undergraduate language requirements. Fall.

FLGR 1100 ACCELERATED ELEMENTARY GERMAN (6) LEC. 6. Basic concepts of German grammar, vocabulary, and culture. Fulfills the College of Liberal Arts world language requirement.

FLGR 2000 INTERMEDIATE GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 2010 INTERMEDIATE GERMAN I (4) LEC. 3. LAB. 2. Pr. LGER score of 0325 or FLGR 1020. or acceptable score on FL placement test. Language skills stressed; structural review and composition; introduction of longer reading texts and cultural comparisons.

FLGR 2020 INTERMEDIATE GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0372 or FLGR 2010. or acceptable score on FL placement test. Structural review and extemporaneous language skills stressed; additional work in composition; longer reading texts and cultural comparisons.

FLGR 3000 JUNIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 3010 GERMAN FLUENCY I: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German, German grammar, syntax, and vocabulary building for more formal settings.

FLGR 3017 HONORS GERMAN FLUENCY I: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German, German grammar, syntax, and vocabulary building for more formal settings.

FLGR 3020 GERMAN FLUENCY II: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German; continued review of German grammar and syntax; vocabulary building for formal settings.

FLGR 3027 HONORS GERMAN FLUENCY II: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German; continued review of German grammar and syntax; vocabulary building for formal settings.

FLGR 3030 THE SOUNDS OF GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Introduction of linguistic principles governing mechanics of spoken German; emphasizes English-German contrast and pronunciation difficulties; further development of conversation skills.

FLGR 3037 HONORS THE SOUNDS OF GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Introduction of linguistic principles governing mechanics of spoken German; emphasizes English-German contrast and pronunciation difficulties; further development of conversation skills.

FLGR 3050 EXPLORING GERMAN CINEMA (3) LEC. Sampling of important films from the 1920's to the present, including the intellectual, historical, cultural, and literary matrix of each film. Course may be repeated by majors for a maximum of 6 credit hours. Course may be repeated for a maximum of 6 credit hours.

FLGR 3100 TEXT AND CONTEXT: INTRODUCTION TO GERMAN LITERATURE (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Basic literary genres and important texts in the German-speaking literary landscape from the 18th century to the present. Analysis within their respective historical and cultural contexts. Learning critical concepts and skills around storytelling, narrative, and creative agency. Required of all majors.

FLGR 3110 GERMAN CULTURE THROUGH THE AGES (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political, and cultural history of German-speaking peoples from the Germanic tribes to 1870.

FLGR 3120 CONTEMPORARY ISSUES IN GERMAN CULTURE AND SOCIETY (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political, and cultural history of German-speaking countries from 1870 to the present.

FLGR 3150 TOPICS IN GERMAN LITERATURE, LANGUAGE, AND CULTURE (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428 or Departmental approval. Critical study of specific literary, linguistic, and/or cultural topics related to Germany. Course may be repeated with change in topics.

FLGR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN GERMAN (1) LEC. 1. Pr. FLGR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than German. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLGR 3930 DIRECTED STUDIES IN GERMAN (1-3) IND. Pr. LGER score of 0428 or Departmental approval. Directed study in area of special interest for the superior student in German. Course may be repeated for a maximum of 9 credit hours.

FLGR 4000 SENIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 4110 GERMAN LITERATURE IN CONTEXT I (3) LEC. 3. Pr. FLGR 3010 or Departmental approval. Selected readings by representative authors from the periods of Classicism, Romanticism, Realism, Naturalism. Analysis within their respective historical and cultural contexts. Mastering critical concepts and skills around storytelling, narrative, and creative agency.

FLGR 4120 GERMAN LITERATURE IN CONTEXT II (3) LEC. 3. Pr. FLGR 3010. or Departmental approval.Readings by representative German-speaking authors from the early 20th century to the post-war era. Textual analysis within their respective historical and cultural contexts. Mastering critical concepts and skills around storytelling, narrative, and creative agency.

FLGR 4150 UNDERSTANDING GERMAN THROUGH THEATER (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438. or Departmental approval.Consideration and analysis of selected theatrical works by German-speaking authors, playwrights, and performers from classical to contemporary traditions. Emphasis placed on audience awareness, performative practices, and mastering interactive language skills.

FLGR 4160 PERSPECTIVES ON GERMAN LITERATURE TODAY (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438 or Departmental approval. Consideration and analysis of contemporary texts. Focus on the broad diversity of genres and voices in the German literary scene.

FLGR 4310 GERMAN FOR THE PROFESSIONS AND THE WORKFORCE I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Refinement of language proficiency skills and cultural awareness in the context of professional and commercial German. Familiarization with German and European business practices.

FLGR 4317 HONORS GERMAN FOR THE PROFESSIONS AND THE WORKFORCE I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Refinement of language proficiency skills and cultural awareness in the context of professional and commercial German. Familiarization with German and European business practices.

FLGR 4320 GERMAN FOR THE PROFESSIONS AND THE WORKFORCE II (3) LEC. 3. Departmental approval. Continued development of German proficiency skills and cultural comparisons in the context of professional settings. Analysis of German and European business practices.

FLGR 4327 HONORS GERMAN FOR THE PROFESSIONS AND THE WORKFORCE II (3) LEC. 3. Continued development of German proficiency skills and cultural comparisons in the context of professional settings. Analysis of German and European business practices.

FLGR 4330 GERMAN FOR BUSINESS, SOCIETY, AND MEDIA (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428. Continued refinement of German proficiency skills and intercultural competence. Focus on current events, language variation, and debate culture through media.

FLGR 4337 HONORS GERMAN BUSINESS, MEDIA, AND SOCIETY (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428. Continued refinement of German proficiency skills and intercultural competence. Focus on current events, language variation, and debate culture through media.

FLGR 4910 PRACTICUM IN GERMAN (1-6) PRA. Pr., Departmental approval. Practical work experience related to major field. Number of credit hours and applicability toward major to be determined in consultation with the undergraduate director. Course may be repeated for a maximum of 6 credit hours.

FLGR 4950 SEMINAR IN GERMAN LITERATURE (3) SEM. 3. Pr. At least 3 credits in FLGR 3000-3999 or Departmental approval. Focused attention to texts from a specific period or genre. Analysis within their respective historical and cultural contexts. Mastering skills involved in literary analysis and rhetorical argument.

FLGR 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written paper and oral exam. Fall, Spring.

Foreign Lng-Global Cultures Courses

FLGC 1150 GLOBAL FLUENCY AND AWARENESS (3) LEC. 3. Introduction to non-native languages as representational reflections of two different cultural regions and impetus for in-depth analysis of global identities. May count either FLGC 1150 or FLGC 1153.

FLGC 3150 GLOBAL FLUENCY FOR THE WORKPLACE (1) LEC. 1. Pr. FLGC 1150. Capstone course for the Workplace Intercultural Competency Certificate in which students are required to demonstrate awareness of and respect for differing cultural perspectives in professional settings.

Foreign Lng-Greek Courses

FLGK 1010 ELEMENTARY ANCIENT GREEK I (4) LEC. 3. LAB. 2. Introduction to the knowledge and skills necessary for reading ancient Greek.

FLGK 1020 ELEMENTARY ANCIENT GREEK II (4) LEC. 3. LAB. 2. Pr. FLGK 1010. Pr. FLGK 1010 or Departmental approval. Introduction to the knowledge and skills necessary for reading ancient Greek.

FLGK 2010 INTERMEDIATE CLASSICAL GREEK I (4) LEC. 3. LAB. 2. Pr. FLGK 1020 or Departmental approval. Introduction to reading ancient Greek. prose and poetry.

FLGK 2020 INTERMEDIATE CLASSICAL GREEK II (4) LEC. 3. LAB. 2. Pr. FLGK 2010 or Departmental approval. Classical Greek. Continuation of FLGK 2010.

FLGK 2200 CLASSICAL MYTHOLOGY (3) LEC. 3. Survey, in English, of the major divine and heroic myths of ancient Greece and Rome, based on the ancient literary and artistic sources, their meanings/uses within cultural, literary, and historical contexts, and the long-lasting influence of classical mythology beyond antiquity.

FLGK 3110 CLASSICAL GREEK LITERATURE (3) LEC. 3. LAB. 2. Pr. FLGK 2010 or Departmental approval. Advanced readings in ancient Greek prose and poetry. Course may be repeated with change in topics.

FLGK 3510 CLASSICAL GREEK LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Classical Greek cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLGK 3930 DIRECTED STUDIES IN ANCIENT GREEK LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of classical Greek text(s). Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topics.

Foreign Lng-Italian Courses

FLIT 1000 ELEMENTARY ITALIAN ABROAD (1-10) AAB/FLD. Pr. Departmental approval. Course work at the elementary level taken in an approved Study Abroad program. Students should consult the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 1010 ELEMENTARY ITALIAN I (4) LEC. 3. LAB. 2. Basic language skills in Italian; exposure to culture.

FLIT 1020 ELEMENTARY ITALIAN II (4) AAB/LLB. Pr. FLIT 1010 or FLIT 1013 or Departmental approval. Continuation of basic language skills; exposure to culture. Fulfills the College of Liberal Arts world language core requirement.

FLIT 2000 INTERMEDIATE ITALIAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 2010 INTERMEDIATE ITALIAN I (4) LEC. 3. LAB. 2. Pr. FLIT 1020 or Departmental approval. Special emphasis on conversation and Italian culture. Language skills stressed, grammar review. Fall.

FLIT 2020 INTERMEDIATE ITALIAN II (4) LEC. 3. LAB. 2. Pr. FLIT 2010 or Departmental approval. Special emphasis on reading skills and Italian culture. Review of Italian grammar for English speakers. Spring.

FLIT 3000 JUNIOR ADVANCED ITALIAN ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLIT 3030 ITALIAN CONVERSATION (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Intensive practice in spoken Italian, based on texts and everyday situations, especially in contemporary Italian society; includes review of vocabulary.

FLIT 3040 ITALIAN COMPOSITION (3) LEC. 3. Pr. FLIT 2020 or Departmental approval. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLIT 3050 ITALIAN CINEMA (3) LEC. 3. Sampling of important films from the time of the telefoni bianchi (1937) to the present (major directors and trends), including the intellectual, historical, cultural, and literary matrix of each film.

FLIT 3110 SPECIAL TOPICS IN ITALIAN (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Supplementary instruction in Italian language, literature, culture. Course may be repeated for a maximum of 9 credit hours.

FLIT 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN ITALIAN (1) LEC. 11. Pr. FLIT 1020 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Italian. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLIT 3510 INTRODUCTION TO ITALIAN CULTURE IN ENGLISH (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Italian culture, as reflected in arts, film, literature, history. Course may be repeated for a maximum of 9 credit hours.

FLIT 3930 DIRECTED STUDIES IN ITALIAN (1-3) IND. Departmental approval. Directed study in area of special interest for the superior student in Italian. Course may be repeated with change in topics.

FLIT 5970 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Pr., Departmental approval. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval.

FLIT 6970 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval. Course may be repeated for a maximum of 9 credit hours.

Foreign Lng-Japanese Courses

FLJP 1000 ELEMENTARY JAPANESE ABROAD (1-10) LEC. Course work at the elementary level take on an approved Study Abroad program. Learning modern Japanese listening, writing, and reading in an integrated manner through an approved Study Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLJP 1010 ELEMENTARY JAPANESE I (4) LEC. 3. LAB. 2. Fundamentals of Japanese. Stress on language skills with progressive emphasis on conversation; exposure to Japanese civilization. Fall.

FLJP 1020 ELEMENTARY JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 1010 or Departmental approval. Stress on language skills; structural review and composition: readings in Japanese literature and exposure to Japanese culture and civilization.

FLJP 2000 INTERMEDIATE JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 2010 INTERMEDIATE JAPANESE I (4) LEC. 3. LAB. 2. Pr. FLJP 1020 or Departmental approval. Stress on language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 2020 INTERMEDIATE JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 2010 or Departmental approval. Continuation of FLJP 2010. Language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 3000 ADVANCED JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 3010 JAPANESE COMPOSITION AND CONVERSATION (3-6) AAB. Pr. FLJP 2010 or Departmental approval. Intensive practice of written and spoken Japanese, based on contemporary social situations and texts. Course may be repeated for a maximum of 6 credit hours.

FLJP 3020 JAPANESE COMPOSITION AND CONVERSATION II (3) LEC. 3. Pr. FLJP 3010. Additional intensive practice of written and spoken Japanese, based on contemporary social situations and texts.

FLJP 3050 JAPANESE CINEMA (3) LEC. 3. Introduction to Japanese films, with particular focus on representations of history from the 1930s to the present. Course may be repeated for a maximum of 6 credit hours.

FLJP 3100 EXTENSIVE READING: TADOKU (1) LEC. 1. SU. Pr. FLJP 1010. Development of Japanese reading skills, the acquisition of vocabulary and grammar and understandings of culture and context. Course may be repeated for a maximum of 3 credit hours. May need instructor’s approval. Students do not have to be currently enrolled in a Japanese language course.

FLJP 3450 TOPICS IN JAPANESE LITERATURE AND CULTURE (3-6) AAB/LEC. Critical study of specific Japanese literary and cultural topics. Course may be repeated for a maximum of 6 credit hours.

FLJP 3650 SURVEY OF MODERN JAPANESE LITERATURE (3) LEC. 3. Introduction to major works of modern Japanese literature translated into English, from the late 19th century to present.

FLJP 3750 SURVEY OF TRADITIONAL JAPANESE LITERATURE (3) LEC. 3. Introduction to major works of traditional Japanese literature translated into English, from Early (to 794 CE) to Edo (1600-1868) period.

FLJP 3930 DIRECTED STUDY IN JAPANESE (3) LEC. 3. Pr. FLJP 2020. Directed study in area of special interest for the superior student in Japanese. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Korean Courses

FLKN 1000 ELEMENTARY KOREAN ABROAD (1-10) LEC. 1-10. This is an entry level course for beginners without any background in Korean. This class will help students learn all four skills of modern Korean--speaking, listening, writing, and reading--while studying abroad. Course may be repeated for a maximum of 10 credit hours.

FLKN 1010 ELEMENTARY KOREAN I (4) LEC. 4. Course for beginners without any background in Korean. This class will help students learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 1020 ELEMENTARY KOREAN II (4) LEC. 4. Pr. FLKN 1010. Course to help students continue to learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 2000 INTERMEDIATE KOREAN ABROAD (1-10) LEC. 1-10. Pr. FLKN 1020. This course will help students learn all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level while studying abroad. Permission from instructor required. Course may be repeated for a maximum of 10 credit hours.

FLKN 2010 INTERMEDIATE KOREAN I (4) LEC. 4. Pr. FLKN 1020. Students will continue learning all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level.

FLKN 2020 INTERMEDIATE KOREAN II (4) LEC. 4. Pr. FLKN 2010. Students will master all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level.

FLKN 2100 KOREAN FOR HERITAGE LEARNERS (4) LEC. 4. The focus of this course is to help heritage learners of Korean improve all four skills of modern Korean--speaking, listening, writing, and reading, with a focus on reading and writing. Permission by instructor required.

FLKN 3000 ADVANCED KOREAN ABROAD (1-10) LEC. 1-10. Pr. FLKN 2020. This course will help students learn all four skills of modern Korean--speaking, listening, writing, and reading--at the advanced level while studying abroad. Approval by instructor required. Course may be repeated for a maximum of 10 credit hours.

FLKN 3010 ADVANCED KOREAN I (3) LEC. 3. Pr. FLKN 2010. Students will continue learning all four skills of modern Korean--speaking, listening, writing, and reading--at the advanced level.

FLKN 3020 ADVANCED KOREAN II (3) LEC. 3. Pr. FLKN 3010. Students will master all four skills of modern Korean--speaking, listening, writing, and reading--at the advanced level.

FLKN 3050 KOREAN CINEMA (3) LEC. 3. Major works of Korean film.

FLKN 3150 KOREAN PROFICIENCY THROUGH POPULAR CULTURE (3) LEC. 3. Pr. FLKN 3010. Students will improve their Korean proficiency through studying popular culture. Course may be repeated for a maximum of 6 credit hours.

FLKN 3450 TOPICS IN KOREAN LITERATURE AND CULTURE (3) LEC. 3. Pr. FLKN 3010. Advanced Korean class, focusing on the study of Korean language, culture, history, and religion. Course may be repeated for a maximum of 6 credit hours.

FLKN 3510 INTRODUCTION TO KOREAN CULTURE IN ENGLISH (3) LEC. 3. Introductory knowledge of Korean culture as depicted in literature, film, and history. No knowledge of Korean required. Course will be taught in English. Course may be repeated for a maximum of 6 credit hours.

FLKN 3930 DIRECTED STUDY IN KOREAN (3) LEC. 1, IND/ST1. 2. Pr. FLKN 2010. Departmental approval. Directed study in area of special interest for the superior student in Korean. Course may be repeated for a maximum of 6 credit hours.

FLKN 4010 ORAL PROFICIENCY IN KOREAN (3) LEC. 3. Proficiency oriented course designed to further develop speaking and comprehension skills in Korean on a variety of topics.

FLKN 4310 KOREAN FOR CAREER PROFESSIONALS (3) LEC. 3. Pr. FLKN 3010. Students will build advanced-level communication skills needed for a variety of Korean business settings.

Foreign Lng-Latin Courses

FLLN 1010 ELEMENTARY LATIN I (4) LEC. 3. LAB. 2. For students with little or no knowledge of Latin. Knowledge and skills necessary for reading classical Latin.

FLLN 1020 ELEMENTARY LATIN II (4) LEC. 3. LAB. 2. Pr. FLLN 1010 or FLLN 1013. Departmental approval. Introduction to the knowledge and skills necessary for reading classical Latin. Fulfills College of Liberal Arts core world language requirement.

FLLN 2010 INTERMEDIATE LATIN I (4) LEC. 4. Pr. FLLN 1020 or FLLN 1023. Four years of high school Latin or Departmental approval. Review of classical Latin grammar with reading of selections from Latin literature. Fall.

FLLN 2020 INTERMEDIATE LATIN II (4) LEC. 3. LAB. 2. Pr. FLLN 2010. or Departmental approval.. Continuation of FLLN 2010. Review of classical Latin grammar with reading of selections from Latin literature. Fulfills the College of Liberal Arts world language core requirement.

FLLN 3110 LATIN LITERATURE (3) LEC. 3. Pr. FLLN 2010 or Departmental approval. Advanced readings in Latin prose and poetry. Course may be repeated with change in topic.

FLLN 3510 ROMAN LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Roman cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLLN 3930 DIRECTED STUDIES IN LATIN LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of Latin texts. Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topic.

Foreign Lng-Russian Courses

FLRU 1010 ELEMENTARY RUSSIAN I (4) LEC. 3. LAB. 2. Fundamentals of Russian. Language skills; progressive emphasis on conversation; exposure to Russian culture and civilization.

FLRU 1020 ELEMENTARY RUSSIAN II (4) LEC. 3. LAB. 2. Pr. FLRU 1010 or FLRU 1013. Fundamentals of Russian. Stress on language skills; progressive emphasis on conversation; exposure to Russian culture and civilization. Fulfills College of Liberal Arts world language core requirement.

Foreign Lng-Spanish Courses

FLSP 1000 ELEMENTARY SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program credit may substitute for required 1000-level courses in Spanish. Course may be repeated for a maximum of 10 credit hours.

FLSP 1010 ELEMENTARY SPANISH I (4) LEC. 3. LAB. 2. Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than two years of high school Spanish.

FLSP 1017 HONORS ELEMENTARY SPANISH I (4) LEC. 5. Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than two years of high school Spanish.

FLSP 1020 ELEMENTARY SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0241 or FLSP 1010 or FLSP 1013. or acceptable score on FL placement test. Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts world language core requirement.

FLSP 1027 HONORS ELEMENTARY SPANISH II (4) LEC. 5. Pr. LSPA score of 0241 or FLSP 1010 or FLSP 1013. or acceptable score on FL placement test. Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts world language core requirement.

FLSP 1030 READING PROFICIENCY IN SPANISH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly material in Spanish related to their field of study. May not be used to satisfy undergraduate language requirements. Spring.

FLSP 2000 INTERMEDIATE SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 2010 INTERMEDIATE SPANISH I (4) LEC. 3. LAB. 2. Pr. LSPA score of 0325 or FLSP 1020. or acceptable score on FL placement test or Departmental approval. Review of grammatical structures, development of reading, writing, and conversation skills, in addition to increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2017 HONORS INTERMEDIATE SPANISH I (4) LEC. 2. LAB. 2. Pr. Honors College. FLSP 1020 or LSPA minimum score of 325. Review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 2020 INTERMEDIATE SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0372 or FLSP 2010 or FLSP 2017. or acceptable score on FL placement test. Continued review of grammatical structures, development of reading, writing, and conversation skills, in addition to increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2027 HONORS INTERMEDIATE SPANISH II (4) LEC. 2. LAB. 2. Pr. Honors College. FLSP 2010 or FLSP 2013 or FLSP 2017 or LSPA minimum score of 372. Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 3000 JUNIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 3010 SPANISH PHONETICS (3) LEC. 45, AAB/LEC. 0. Pr. FLSP 3060 or FLSP 3063. Training in practical phonetics with an emphasis on pronunciation correctives. Fall, Spring.

FLSP 3050 SPANISH SYNTAX (3) LEC. 3. Pr. FLSP 2020 or FLSP 2027. or exam. In this course, the function of the different parts of speech (e.g., prepositions, adverbs, determiners, pronouns, verbs, conjunctions) will be examined, and students will learn to diagram simple and complex hierarchical sentence structure using syntactic trees.

FLSP 3060 COMMUNICATIVE SKILLS IN SPANISH I (3) LEC. 3. Pr. LSPA score of 0428 or FLSP 2020 or FLSP 2027. The first in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3070 COMMUNICATIVE SKILLS IN SPANISH II (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. The second in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3080 INTRO TO CULTURAL ANALYSIS (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. A general introduction to the analysis of Hispanic societies through their diverse cultural practices, local customs, and languages. This class explores how were Hispanic societies formed, the effects of globalization, and their diverse cultural and national identities. Spring.

FLSP 3090 SPANISH FOR HEALTH PROFESSIONS (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. Advanced Spanish for students interested in healthcare careers. Designed to improve spoken and written communicative skills in a Spanish-speaking environment.

FLSP 3097 HONORS SPANISH FOR HEALTH PROFESSIONS (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. Advanced Spanish for students interested in healthcare careers. Designed to improve spoken and written communicative skills in a Spanish-speaking environment.

FLSP 3100 INTRODUCTION TO HISPANIC LITERATURE (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. Study of literary genres, rhetorical figures, and other critical concepts. Literary analysis of Spanish and Spanish-American texts. Fall.

FLSP 3110 CULTURES OF SPAIN (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. An introduction to the social and cultural diversity of Spain. This class explores the ethnic and linguistic diversity of the country, the historical events that forged contemporary Spain, and the cultural plurality of the country.

FLSP 3130 TOPICS IN HISPANIC FILM (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Study of film as a window into Hispanic cultures, both Spanish and Spanish American. Course may be repeated for a maximum of 6 credit hours.

FLSP 3140 TOPICS IN HISPANIC MUSIC (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Study of the interrelationship of Hispanic music and Spanish and Spanish-American cultures. Course may be repeated for a maximum of 6 credit hours.

FLSP 3150 TOPICS IN HISPANIC MEDIA (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Develops students' cultural awareness through a series of written assignments organized around major journalistic and academic genres. We will investigate contemporary issues as presented in the media of Spain, Latin America and U.S. Latino communities. Course may be repeated for a maximum of 6 credit hours.

FLSP 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN SPANISH (1) LEC. 1. Pr. FLSP 2010 or FLSP 2017 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Spanish. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLSP 3210 CULTURES OF SPANISH AMERICA (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. An introduction to the social and cultural diversity of Spanish America. This class explores the cultural, ethnic and linguistic diversity of the Spanish American countries, and the historical events that forged them.

FLSP 3220 HISPANIC CULTURES IN THE U. S. (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. An introduction to the social and cultural diversity of Hispanic U.S. This class explores the diversity in ethnicity, traditions, and arts of Hispanics in the country, the historical events that forged such diversity, and their cultural plurality.

FLSP 3310 SPANISH TRANSLATION AND INTERPRETATION (3) LEC. 3. Pr. FLSP 3070. Introduction to the techniques of English/Spanish and Spanish/English translation in a commercial environment, including correspondence, technical documents, advertising and oral translation. Fall.

FLSP 3930 DIRECTED STUDY IN SPANISH (3) IND. 3. Pr. FLSP 3060. Departmental approval. Development of an advanced-level of Spanish proficiency in listening, speaking, reading, and writing. Course may be repeated for a maximum of 6 credit hours.

FLSP 4000 SENIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 4010 ORAL PROFICIENCY IN SPANISH (3) LEC. 3. Pr. FLSP 3060. Proficiency oriented course designed to further develop speaking and comprehension skills in Spanish in a variety of topics.

FLSP 4020 CONTINUING SPANISH SYNTAX (1-3) AAB/IND. Departmental approval. Continuing practice in Spanish syntax. Course may be repeated for a maximum of 3 credit hours.

FLSP 4030 SPANISH LINGUISTICS (3) LEC. 3. Pr. FLSP 3070. This course introduces students to Spanish linguistics and the basic concepts of some of its principal branches. The primary areas include phonetics and phonology, syntax, morphology, semantics, pragmatics, history of the Spanish language, and linguistics as a cognitive science.

FLSP 4110 MASTERPIECES OF SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100 or FLSP 3080. Major works of Spanish literature from medieval times to the present.

FLSP 4120 TOPICS IN SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100 or FLSP 3080. Readings in Spanish literature. Course may be repeated with change in topic.

FLSP 4210 MASTERPIECES OF SPANISH-AMER LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100 or FLSP 3080. Major works of Spanish American literature from colonial times to the present.

FLSP 4220 TOPICS IN SPANISH-AMERICAN LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100 or FLSP 3080. Readings in Spanish-American Literature. Course may be repeated with a change in topic.

FLSP 4310 BUSINESS SPANISH (3) LEC. 3. Pr. FLSP 3060. Business vocabulary and terminology, business practices, and cultural influences in the Hispanic world.

FLSP 4330 TOPICS IN HISPANIC COMMERCIAL WORLD (3) LEC. 3. Pr. FLSP 3070. Study of an aspect of Spanish business terminology or documentation. Course may be repeated with change in topic. Course may be repeated for a maximum of 6 credit hours.

FLSP 4420 TOPICS IN HISPANIC LITERATURE, CULTURE, AND LINGUISTICS (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Study of specialized periods or concepts in Hispanic literature, culture, or linguistics. Course may be repeated for a maximum of 6 credit hours.

FLSP 4910 PRACTICUM IN SPANISH (1-3) AAB/PRA. Pr., Departmental approval. Practical work experience related to the major field. Course may be repeated for a maximum of 3 credit hours.

FLSP 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLSP 5010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. FLSP 3070. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 5020 ADVANCED SPANISH SYNTAX (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3070. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students.

FLSP 5030 ADVANCED CULTURE AND LITERATURE OF THE SPANISH SPEAKING WORLD (3) LEC. 3. Pr. FLSP 3070 and FLSP 3080. A grade of C or better in at least 4 courses FLSP 3000-3999 or departmental approval. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 6010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Four courses or Departmental approval. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 6020 ADVANCED SPANISH SYNTAX (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Advanced training in Spanish syntax and morphology to carry out syntactic analysis for graduate students and undergraduate students who have previously completed FLSP 3050.

FLSP 6030 ADVANCED CULTURE AND LITERATURE OF SPANISH SPEAKING WORLD (3) LEC. 3. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 7000 GRADUATE SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken on an approved Study Abroad program. Students should consult with the Spanish graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 7010 HISTORY OF THE SPANISH LANGUAGE (3) LEC. 3. Diachronic study of the development of the Spanish language from its Latin origins to the present.

FLSP 7020 SPANISH LINGUISTICS (3) LEC. 3. Synchronic study of the Spanish language focusing on phonology, morphology, syntax, and lexicon, taking into consideration dialectal differences.

FLSP 7030 APPLIED SPANISH LINGUISTICS (3) LEC. 3. Critical study of current research in applied linguistics regarding the acquisition of Spanish by non-native speakers, with emphasis on the problems faced by adult English-speaking individuals.

FLSP 7050 LITERARY CRITICISM AND THEORY (3) LEC. 3. Contemporary literary criticism and theory as it relates to Spanish and Spanish-American literature.

FLSP 7060 RESEARCH METHODS (1) LEC. 1. SU. Methods of scholarly investigation in literary history and criticism. Credit may not be used to satisfy degree requirements.

FLSP 7090 INTRODUCTION TO COLLEGE LEVEL SPANISH INSTRUCTION (3) LEC. 3. Instruction for GTAs, including critical observation in performance and guidance by a designated supervisory professor. Required of all students who hold a graduate teaching assistantship.

FLSP 7100 SPANISH MEDIEVAL LITERATURE I (3) LEC. 3. Critical and historical study of medieval Spanish literature through representative texts from the various genres of the period beginning with the origins of Spanish literature until 1299.

FLSP 7110 SPANISH MEDIEVAL LITERATURE II (3) LEC. 3. Study of medieval Spanish literature through representative texts from the various genres of the period 1300-1500.

FLSP 7120 16TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres from around 1492 to the end of the 16th century.

FLSP 7130 17TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres in the 17th century with emphasis on Baroque literature.

FLSP 7140 SURVEY OF 18TH AND 19TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Survey of the major literary, cultural, and historical trends in 18th and 19th century Spanish literature.

FLSP 7150 HISPANIC COLONIAL LITERATURE OF THE UNITED STATES (3) LEC. 3. Literature about the colonial Hispanic exploration and colonization of the United States from the 16th to 19th centuries.

FLSP 7160 20TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of 20th-century Peninsular literature from the Generation of 98 to Spanish post-war literature through representative works in all genres.

FLSP 7170 CONTEMPORARY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of contemporary literature from the Spanish Civil War to the present through representative works in all genres.

FLSP 7210 COLONIAL SPANISH-AMERICAN LITERATURE (3) LEC. 3. Study of representative literary genres and authors of Vice Regal America from Spanish transcription of pre-Columbian works to those just prior to the Wars of Independence.

FLSP 7220 SPANISH-AMERICAN POETRY I (3) LEC. 3. Critical and historical study of Spanish-American poetry from 1824 to the first generation of modernism.

FLSP 7230 SPANISH-AMERICAN POETRY II (3) LEC. 3. Critical and historical study of Spanish-American poetry from post-modernism to the present.

FLSP 7240 SPANISH-AMERICAN POST-COLONIAL PROSE TEXTS TO THE NEW NARRATIVE (3) LEC. 3. Critical and historical study of representative essayists and fiction writers of the 19th and 20th centuries predating the New Narrative.

FLSP 7250 THE NEW NARRATIVE IN SPANISH-AMERICAN FICTION: MODERNIST AND POST-MODERNIST TEXTS (3) LEC. 3. Critical and historical study of major works of modernist and post-modernist fiction that achieved international acclaim during the second half of the 20th century.

FLSP 7270 SPANISH AMERICAN THEATER I (3) LEC. 3. Critical and historical study of the Spanish-American theater, with emphasis on the period prior to 1900.

FLSP 7280 SPANISH AMERICAN THEATER II (3) LEC. 3. Critical and historical study of the Spanish-American theater from 1900 to present.

FLSP 7300 DON QUIJOTE (3) LEC. 3. Critical study of Cervantes' masterpiece.

FLSP 7970 SPECIAL TOPICS IN LINGUISTICS, LITERATURE AND CULTURE (3) AAB. 3. Pr., BA in Spanish or BS in Foreign Language Education in Spanish. In-depth study of an author or authors and analysis of the cultural milieu influencing their creativity or investigation of a specific linguistic phenomenon in Spanish. Course may be repeated with a change in topic. Course may be repeated with change in topics.

FLSP 7990 RESEARCH AND THESIS (1-10) MST. Directed readings and research culminating in a thesis. Course may be repeated with change in topic.

Asian Studies Minor

Code	Title	Hours
Chinese, Japanese or Korean at the 2000 or 3000 level.		3
Elective Courses—See advisor for approved course listing.		12
Total Hours		**15**

[1] Minimum 9 hours at 3000-level or above

At least 9 hours required for the minor must be completed at Auburn or through AU approved study abroad.

Students must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.

Certificate in Workplace Intercultural Competence

The Certificate in Workplace Intercultural Competence will give students an opportunity to develop and demonstrate the skills required to work in a diverse setting and engage in intercultural communication.

Code	Title	Hours
FLXX 1020 or higher (2nd course in any language sequence)		4
FLGC 1150	Global Fluency and Awareness	3
Approved Study Abroad or International Internship Experience [1]		3
FLGC 3150	Global Fluency for the Workplace [2]	1

Course (3000-level or higher) in the major/minor [3]	3
Total Hours	**14**

1 Students who are unable to participate in an abroad or internship experience can petition the program director to have this requirement fulfilled by an additional approved upper-level course in the field.

2 FLGC 3150 will act as a capstone for the certificate.

3 Students should meet with the program director to choose an appropriate course. The purpose of this course is to tie the topics of the workplace intercultural competence certificate into learning in the student's major field. These course hours can count in both the certificate and the major/minor program.
Students will be able to choose from a wide range of possibilities. As just some examples: BUSI 3250 (International Business), CTCT 3000 (Leadership Skills for Personal and Organizational Development), FINC 3100 (Fundamentals of Global Trade), HOSP 4500 (Strategic Hospitality Management), MKTG 4400 (International Marketing), POLI 3100 (Introduction to World Affairs). Other upper-level courses with an international and professional focus can also be approved by the director. Students are responsible for satisfying the pre-requisites for any course included in the certificate.

Classics Minor

Code	Title	Hours
Greek or Latin (at the 2000 or 3000 level)		3
Elective Courses - See advisor for approved course listing.		12
Total Hours		**15**

1 Minimum 9 hours at 3000-level or above

At least 9 hours required for the minor must be completed at Auburn or through AU approved study abroad.

Student must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.

French (FLFR)

Students must earn a C and maintain a 2.5 GPA in all major courses.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
FLFR 1010 Elementary French I	4	FLFR 1020 Elementary French II	4
Core History[2]	3	Core History to complete sequence or Core Social Science[2]	3
Core Mathematics	3	Core Science I	4
Elective[1]	3		
	16		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[2]	3	Core Social Science	3
Core Social Science	3	Core Literature to complete sequence or Core Humanities[2]	3
Core Science II	4	Core Fine Arts	3
FLFR 2010 Intermediate French I	**4**	LBAR 2010 Liberal Arts Careers Preparation	2

			FLFR 2020 Intermediate French II	**4**
		14		**15**
Junior				
Fall	**Hours**		**Spring**	**Hours**
Select one of the following courses:		**3**	**Select one of the following courses:**	**3**
FLFR 3030 French Conversation and Culture I			**FLFR 3040 Reading & Writing in French I**	
FLFR 3010 The Sounds of French			**FLFR 4020 Applied French Skills**	
FLFR 4030 French Conversation and Culture II			**FLFR 4040 Reading & Writing in French II**	
Select one of the following courses:		**3**	**FLFR 3110 Contemporary Culture & Politics**	**3**
FLFR 3100 Intro To Literature, Arts, & Media			Electives[1]	9
FLFR 3140 Literature, Arts, & Media I				
FLFR 3150 Literature, Arts, & Media II				
COMM 1000 Public Speaking		3		
Electives [1]		6		
		15		**15**
Senior				
Fall	**Hours**		**Spring**	**Hours**
FLFR Electives[1]		**9**	**FLFR 4980 French Senior Capstone**	**1**
Electives[1]		6	**FLFR Electives[1]**	**9**
			Electives[1]	6
			UNIV 4AA0 Achieve the Creed	0
		15		**16**
Total Hours: 120				

1 Students must meet with their advisers to identify approved FLFR electives and to select other electives.

2 Students are required to take at least one Core History and one Core Literature course. They are also required to take a second course from either Core History or Core Literature to complete the two-course sequence.

French Linguistics Minor

Code	Title	Hours
Required Courses		
FLFR 2020	Intermediate French II [1]	4
FLNG 3110	Introduction to Linguistics: A Multilingual Approach	3
Choose three courses from below [1]		**9**
FLFR 3010	The Sounds of French	
FLFR 3040	Reading & Writing in French I	
FLFR 4000	Senior/Advanced French Abroad	
FLFR 4020	Applied French Skills	
FLFR 4410	Advanced Topics in French Literature, Culture, Or Language	
FLFR 4740	Translation	
FLFR 5970	Special Topics in Advanced Language Skills	
Total Hours		**16**

[1] Students majoring in French, French International Trade, International Business French, and Foreign Language Education French are required to take FLFR 2020 for those majors and thus will need to replace this required course by completing 4 courses (12 hours) from the menu of courses above which are not required courses for their major.

French Minor

At least 9 hours required for the minor must be completed at Auburn or through Auburn-approved study abroad.

Students must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.

Code	Title	Hours
Minimum of 6 hours and no more than 8 hours equivalent to FLFR 2010 and FLFR 2020		6-8
Elective courses [1]		9
Total Hours		**15-17**

[1] Students are required to complete a minimum 9 hours at the 3000-level or above. They must meet with their advisers to identify appropriate electives.

French — International Trade (FLFT)

Students must earn a C and maintain a 2.5 GPA in all major courses.

Freshman

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking	3	FLFR 1020 Elementary French II	4
FLFR 1010 Elementary French I	4	ENGL 1120/1127 English Composition II	3
ENGL 1100/1107 English Composition I	3	Core History to complete sequence or Core Social Science[2]	3
Core Mathematics	3	Core Fine Arts	3
Core History[2]	3	Elective[1]	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
Core Literature[2]	3	Core Science II	4
Core Science I	4	**FLFR 2020 Intermediate French II**	**4**
FLFR 2010 Intermediate French I	**4**	LBAR 2010 Liberal Arts Careers Preparation	2
	14		**13**

Junior

Fall	Hours	Spring	Hours
Select one of the following courses:	**3**	ACCT 2210 Principles of Managerial Accounting	3
FLFR 3030 French Conversation and Culture I		MKTG 3310 Principles of Marketing ***or*** 3810 Foundations of Business Marketing	3
FLFR 3010 The Sounds of French		**FLFR 3110 Contemporary Culture & Politics**	**3**
FLFR 4030 French Conversation and Culture II		**FLFR 3310 French Business Communication**	**3**
ACCT 2110 Principles of Financial Accounting	3	Core Literature to complete sequence or Core Humanities[2]	3

MNGT 3100 Principles of Management ***or*** 3810 Management Foundations		3	
Select one of the following courses:		**3**	
FLFR 3040 Reading & Writing in French I			
FLFR 4020 Applied French Skills			
FLFR 4040 Reading & Writing in French II			
Elective[1]		3	
		15	**15**

Senior

Fall	Hours		Spring	Hours	
FINC 3610 Principles of Business Finance		3	**FLFR 4980 French Senior Capstone**		**1**
ECON 4300 International Economics		3	FINC 3100 Fundamentals of Global Trade ***or*** 5510 Multinational Financial Management		3
Select one of the following courses:		**3**	**French Elective[1]**		**6**
FLFR 3100 Intro To Literature, Arts, & Media			**FLFR 4310 French for International Trade**		**3**
FLFR 3140 Literature, Arts, & Media I			Business Elective[1]		3
FLFR 3150 Literature, Arts, & Media II			UNIV 4AA0 Achieve the Creed		0
French Electives[1]		**6**			
		15			**16**

Total Hours: 120

1 Students should meet with their advisors to identify appropriate French and other electives.

2 Students are required to take at least one Core History and one Core Literature course. They are also required to take a second course from either Core History or Core Literature to complete the two-course sequence.

German (FLGR)

Students must earn a C and maintain a 2.5 GPA in all major courses.

Freshman

Fall	Hours		Spring	Hours	
FLGR 1010 Elementary German I		4	FLGR 1020 Elementary German II		4
ENGL 1100 English Composition I		3	ENGL 1120 English Composition II		3
Core History		3	Core History to complete sequence or Core Social Science[2]		3
Core Mathematics		3	Core Science I		4
Elective[1]		3			
		16			**14**

Sophomore

Fall	Hours		Spring	Hours	
Core Literature		3	Core Literature to complete sequence or Core Humanities[2]		3
Core Social Science		3	Core Social Science		3
Core Science II		4	Core Fine Arts		3

FLGR 2010 Intermediate German I	**4**	LBAR 2010 Liberal Arts Careers Preparation	2
		FLGR 2020 Intermediate German II	**4**
	14		**15**

Junior

Fall	Hours	Spring	Hours
COMM 1000 Public Speaking	3	**FLGR 3020 German Fluency II: Mastering Conversational and Written German**	**3**
FLGR 3010 German Fluency I: Mastering Conversational and Written German	**3**	**German Elective**[1]	**3**
FLGR 3100 Text and Context: Introduction to German Literature, 4110 German Literature in Context I, *or* 4120 German Literature in Context II	**3**	Electives[1]	9
Electives[1]	6		
	15		**15**

Senior

Fall	Hours	Spring	Hours
FLGR 3110 German Culture through the Ages *or* 3120 Contemporary Issues in German Culture and Society	**3**	**FLGR 4980 Senior Capstone**	**1**
German Electives[1]	**6**	**German Electives**[1]	**9**
Electives[1]	6	Electives[1]	6
		UNIV 4AA0 Achieve the Creed	0
	15		**16**

Total Hours: 120

1 Students should meet with their advisers to determine appropriate German and other electives.

2 Students are required to take at least one Core History and one Core Literature course. They are also required to take a second course from either Core History or Core Literature to complete the two-course sequence.

German Linguistics Minor

This minor has two required courses and a menu of courses to allow students flexibility in specific topics within the field. Students must earn at least a C and maintain an overall 2.5 GPA in all courses that count toward the minor.

Code	Title	Hours
FLGR 2020	Intermediate German II [1]	4
FLNG 3110	Introduction to Linguistics: A Multilingual Approach	3
Select three of the following courses for 9 credit hours: [2]		9
FLGR 3030	The Sounds of German	
FLGR 4330	German for Business, Society, and Media	
FLGR 3150	Topics in German Literature, Language, and Culture	
FLGR 3120	Contemporary Issues in German Culture and Society	
FLGR 3930	Directed Studies in German	
Total Hours		**16**

1 Students majoring in German, German International Trade, International Business German, and Foreign Language Education German are required to take FLGR 2020 for those majors and thus will need to replace this required course by completing 4 courses from the menu of courses above which are not required courses for their major.

[2] German upper-level courses count toward the minor only when taught by a linguist and contain a linguistics component.

German Minor

At least 9 hours required for the minor must be completed at Auburn or through Auburn-approved study abroad.

Students must earn a C and maintain a 2.5 GPA in all courses that count toward the minor.

Code	Title	Hours
Minimum of 6 hours and no more than 8 hours in courses equivalent to FLGR 2010 and FLGR 2020		6-8
Elective courses [1]		9
Total Hours		**15-17**

[1] Students are required to complete a minimum of 9 hours at 3000-level or above. Of these 9 hours, only 3 hours may be satisfied by culture/film courses offered in English. FLGR 3050 can only be taken once for this minor. Students must meet with their advisers to determine appropriate elective courses.

German — International Trade (FLGT)

Students must earn a C and maintain a 2.5 GPA in all major courses.

Freshman

Fall	Hours	Spring	Hours
FLGR 1010 Elementary German I	4	FLGR 1020 Elementary German II	4
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Mathematics	3	Core Fine Arts	3
COMM 1000 Public Speaking	3	Core History to complete sequence or Core Social Science[3]	3
Core History[3]	3	Elective[1]	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
Core Literature[3]	3	Core Science II	4
Core Science I	4	LBAR 2010 Liberal Arts Careers Preparation	2
FLGR 2010 Intermediate German I	**4**	**FLGR 2020 Intermediate German II**	**4**
	14		**13**

Junior

Fall	Hours	Spring	Hours
ACCT 2110 Principles of Financial Accounting	3	ACCT 2210 Principles of Managerial Accounting	3
Elective [1]	3	MKTG 3310 Principles of Marketing ***or*** 3810 Foundations of Business Marketing	3
MNGT 3100 Principles of Management ***or*** 3810 Management Foundations	3	**FLGR 3020 German Fluency II: Mastering Conversational and Written German**	**3**
FLGR 3010 German Fluency I: Mastering Conversational and Written German	**3**	**FLGR 3110 German Culture through the Ages *or* 3120 Contemporary Issues in German Culture and Society**	**3**

FLGR 3100 Text and Context: Introduction to German Literature[2]		**3**	Core Literature to complete sequence or Core Humanities[3]	3
		15		**15**

Senior

Fall	Hours		Spring	Hours
FINC 3610 Principles of Business Finance		3	**FLGR 4320 German for the Professions and the Workforce II**	**3**
ECON 4300 International Economics		3	FINC 3100 Fundamentals of Global Trade ***or*** 5510 Multinational Financial Management	3
FLGR 4310 German for the Professions and the Workforce I		**3**	**FLGR 4980 Senior Capstone**	**1**
German Electives[1]		**6**	**German Electives**[1]	**6**
			Business Elective[1]	3
			UNIV 4AA0 Achieve the Creed	0
		15		**16**

Total Hours: 120

1 Students should meet with their advisors to determine appropriate German, business, and other elective courses.
2 FLGR 4110 and FLGR 4120 may be used.
3 Students are required to take at least one Core History and one Core Literature course. They are also required to take a second course from either Core History or Core Literature to complete the two-course sequence.

Global Cultures Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above). Students take a sequence of two language skills courses at the 2000 or 3000 level and three supporting courses (see advisor for approved course listing). Students must earn a C and maintain a 2.5 GPA for all courses that count toward the minor. Courses taken in fulfillment of the College Core or other majors and minors may not be counted toward the Global Cultures minor.

International Studies in Liberal Arts (ISLA)

International Studies in Liberal Arts is directed toward students interested in the broad study of social, political, cultural and economic global issues, and who want to develop language skills, expertise in a regional area, and personal experience in other cultures.

Housed in the Department of World Languages, Literatures, and Cultures but with the support of departments in the humanities, fine arts, and social sciences, the International Studies in Liberal Arts program is an interdisciplinary major in the College of Liberal Arts. It offers a broad, interdisciplinary approach to international issues, as well as the opportunity to select a regional focus. Students may choose to focus in a particular region of the world, such as Europe, Middle East and Africa, Latin America, or Asia. All ISLA students are required to complete at least four semesters of a foreign language specific to their regional concentration. They are also required to experience a total cultural immersion by participating in a study abroad program in a country that speaks their chosen language and is within their regional concentration Finally, ISLA majors are required to complete an approved internship either abroad, or with an international company or organization based in the US. Along the way students will also take courses that introduce them to the cultures, history, and achievements of the region in which they wish to concentrate. At the end of the program, students will complete a capstone project, working with CLA faculty members in different departments to ensure a broad-based experience in writing and researching methodologies in line with their regional focus.

Students with the International Studies in Liberal Arts B.A. degree are well prepared to work in education, tourism, translation, federal and state government, research and policy think tanks, non-profit and foreign aid organizations, law, the cooperative job sector, international banking and business, and military service.

The College also offers an array of study abroad, exchange, and international internship programs as well as minors and certificates in relevant topics. Check with CLA advisors for more information about these options.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
FLGC 1150 Global Fluency and Awareness	**3**	Elementary World Language II	4
Elementary World Language I	4	Core Social Science or Core History to complete the sequence[1]	3
Core Math	3	Core Science	4
Core History	3		
	16		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	**Intermediate World Language II**	**4**
Core Science	4	COMM 1000 Public Speaking	3
Intermediate World Language I	**4**	**POLI 1050 Global Politics and Issues**	**3**
LBAR 2010 Liberal Arts Careers Preparation	2	**POLI 3090 Introduction to International Relations**	**3**
GEOG 1010 Global Geography	3	Core Humanities or Core Literature to complete sequence[1]	3
	16		**16**

Junior

Fall	Hours	Spring	Hours
LBAR 4920 International Studies Internship	**3**	SOCY 1000 Sociology: Global Perspective	3
Core Fine Arts	3	**COMM 3450 Intercultural Communication**	**3**
Regional Concentration[2]	**6**	**Regional Concentration[2]**	**3**
Courses for Approved Minor[3]	3	Elective	3
		Courses for Approved Minor[3]	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
Regional Concentration	**3**	**LBAR 4800 International Studies Senior Capstone**	**3**
Courses for Approved Minor[3]	6	**Regional Concentration[2]**	**3**
Elective	6	Courses for Approved Minor[3]	3
		Elective	4
	15		**13**

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

2 Students will complete five courses in one regional area (Asia, Europe, Latin America, or Africa & Middle East).

3 Students must complete a minor approved by advisor.

Italian Studies Minor

Code	Title	Hours
Courses required: 3 hours of Italian (at the 2000 or 3000 level)		3
Students must take at least one FLIT3510 or FLIT3110		3
Elective Courses - See advisor for approved course listing.		9
Total Hours		**15**

[1] Minimum 9 hours at 3000-level or above

At least 9 hours required for the minor must be completed at Auburn or through AU approved study abroad.

Students must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.

Spanish (FLSP)

Students must earn a C and maintain a 2.5 GPA in all major courses.

Freshman			
Fall	**Hours**	**Spring**	**Hours**
FLSP 1010 Elementary Spanish I	4	FLSP 1020 Elementary Spanish II	4
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History[2]	3	Core Social Science or Core History to complete sequence[2]	3
Core Mathematics	3	Core Science I	4
Elective[1]	3		
	16		**14**
Sophomore			
Fall	**Hours**	**Spring**	**Hours**
Core Literature[2]	3	Core Social Science	3
Core Social Science[2]	3	Core Humanities or Core Literature to complete sequence[2]	3
Core Science II	4	Core Fine Arts	3
FLSP 2010 Intermediate Spanish I	**4**	**FLSP 2020 Intermediate Spanish II**	**4**
		LBAR 2010 Liberal Arts Careers Preparation	2
	14		**15**
Junior			
Fall	**Hours**	**Spring**	**Hours**
COMM 1000 Public Speaking	3	**FLSP 3010 Spanish Phonetics**	**3**
FLSP 3060 Communicative Skills in Spanish I	**3**	**FLSP 3070 Communicative Skills in Spanish II**	**3**
Electives[1]	9	**FLSP 3080 Intro to Cultural Analysis**	**3**
		Electives[1]	6
	15		**15**
Senior			
Fall	**Hours**	**Spring**	**Hours**
FLSP 3100 Introduction to Hispanic Literature	**3**	**FLSP Electives[1]**	**9**

FLSP 4010 Oral Proficiency in Spanish	**3**	**FLSP 4980 Senior Capstone**	**1**
Group 1 course[3]	**3**	Electives[1]	6
Electives[1]	6	UNIV 4AA0 Achieve the Creed	0
	15		**16**

Total Hours: 120

1 Students should check with their advisors to determine appropriate electives.
2 Students are required to complete a two-course history sequence *or* a two-course literature sequence. They are also required to complete at least one Core History *or* one Core Literature course in the area not selected as the sequence.
3 Group 1 courses include: FLSP 3110, FLSP 3210, FLSP 3220.

Spanish Linguistics Minor

This minor has two required courses and a menu of courses to allow students flexibility in specific topics within the field. Students must earn at least a C and maintain an overall 2.5 GPA in all courses that count toward the minor.

Code	Title	Hours
All students will take the following (7 hours):		
FLSP 2020	Intermediate Spanish II [1]	4
FLNG 3110	Introduction to Linguistics: A Multilingual Approach	3
Students must choose three of the following courses (9 hours):		9
FLSP 3010	Spanish Phonetics	
FLSP 3050	Spanish Syntax	
FLSP 3930	Directed Study in Spanish	
FLSP 4030	Spanish Linguistics	
FLSP 4420	Topics in Hispanic Literature, Culture, and Linguistics	
FLSP 5010	Advanced Spanish Phonetics	
FLSP 5020	Advanced Spanish Syntax	
Total Hours		**16**

1 Students majoring in Spanish, Spanish International Trade, International Business Spanish, and Foreign Language Education Spanish are required to take FLSP 2020 for those majors and thus will need to replace this required course by completing 4 courses from the menu of courses above which are not required courses for their major.

Spanish Minor

At least 9 hours required for the minor must be completed at Auburn or through Auburn-approved study abroad. At least 9 hours required for this minor must be completed at the 3000 level or above.

Students must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.

Code	Title	Hours
Minimum of 6 hours and no more than 8 hours in courses equivalent to FLSP 2010 and FLSP 2020		6-8
FLSP 3060	Communicative Skills in Spanish I	3
FLSP 3080	Intro to Cultural Analysis	3
or FLSP 3100	Introduction to Hispanic Literature	
FLSP Elective at 3000 or above		3
Total Hours		**15-17**

1 Students must see their advisers for approved elective courses.

Spanish — International Trade (FLST)

Students must earn a C and maintain a 2.5 GPA in all major courses.

Freshman

Fall	Hours	Spring	Hours
FLSP 1010 Elementary Spanish I	4	FLSP 1020 Elementary Spanish II	4
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
COMM 1000 Public Speaking	3	Core Fine Arts	3
Core History[1]	3	Core Social Science or Core History to complete sequence[1]	3
Core Mathematics	3	Elective[2]	3
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature[1]	3	ECON 2030 Principles of Macroeconomics	3
ECON 2020 Principles of Microeconomics	3	Core Science II	4
FLSP 2010 Intermediate Spanish I	**4**	**FLSP 2020 Intermediate Spanish II**	**4**
Core Science I	4	LBAR 2010 Liberal Arts Careers Preparation	2
	14		**13**

Junior

Fall	Hours	Spring	Hours
ACCT 2110 Principles of Financial Accounting	3	**FLSP 3010 Spanish Phonetics**	**3**
MNGT 3100 Principles of Management ***or*** 3810 Management Foundations	3	ACCT 2210 Principles of Managerial Accounting	3
FLSP 3060 Communicative Skills in Spanish I	**3**	**FLSP 3070 Communicative Skills in Spanish II**	**3**
Core Humanities or Core Literature to complete sequence[1]	3	**FLSP 3080 Intro to Cultural Analysis**	**3**
Elective[2]	3	MKTG 3310 Principles of Marketing ***or*** 3810 Foundations of Business Marketing	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
FINC 3610 Principles of Business Finance	3	**FLSP 4980 Senior Capstone**	**1**
ECON 4300 International Economics	3	FINC 3100 Fundamentals of Global Trade ***or*** 5510 Multinational Financial Management	3
FLSP 3100 Introduction to Hispanic Literature	**3**	**FLSP Electives[2]**	**6**
FLSP 4310 Business Spanish	**3**	**FLSP 4330 Topics in Hispanic Commercial World**	**3**
FLSP 3310 Spanish Translation and Interpretation *or* 4010 Oral Proficiency in Spanish	**3**	Business Elective[2]	3
		UNIV 4AA0 Achieve the Creed	0
	15		**16**

Total Hours: 120

1 Students are required to complete a two-course history sequence *or* a two-course literature sequence. They are also required to complete at least one Core History *or* one Core Literature course in the area not selected as the sequence.

2 Students should meet with their advisors to determine appropriate Spanish, business, and other electives.

Majors

Minors

African American and Africana Studies Minor

Code	Title	Hours
AAAS 2000	Introduction to African American & Africana Studies	3
Advisor-Approved Electives		12
Total Hours		**15**

1 Minimum 9 hours at 3000-level or above

Women's and Gender Studies Minor

Women’s and Gender Studies, an interdisciplinary minor, advances teaching, research, and scholarship about women's lives and about gender roles, relations, and identities. The minor sheds new light on existing knowledge of women and gender, integrates scholarship on women and gender into traditional disciplines, examines the impact of the social construction of femininity and masculinity, and promotes understanding of and appreciation for the diversity and complexity of gender historically and cross-culturally. To learn more about the program in Women’s and Gender Studies and to see a current listing of courses to fulfill the electives in the minor, go to https://cla.auburn.edu/womens-gender-studies/undergraduate-minor/ (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcla.auburn.edu%2Fwomens-gender-studies%2Fundergraduate-minor%2F&data=05%7C01%7Cblltn%40auburn.edu%7C301a1804aa1340021b6908db476d9afb%7Cccb6deedbd294b388979d72780f62d3b%7C1%7C0%7C638182308327373716%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=TOzxFGKCxS0sIKA5vNztcj7djKf2YIuALZGzxTns2zA%3D&reserved=0).

Code	Title	Hours
WMST 2100	Introduction to Women's and Gender Studies	3
WMST 5980	Feminist Theory	3
Elective Courses [1]		9
Contact the Director of Women's and Gender Studies or view the Program website for additional approved course listings.		
Total Hours		**15**

1 Students must complete a minimum 9 hours at 3000-level or above.
ANTH 3000,3200,3600,5200, ARTS 3810, CMJN 4400,COMM 5430, ENGL 4310,4320,4510,4710,4740, HDFS 2000, 3040, 4680, 4700, 5300, HIST 3020, 3560,3600,3610,5030,5060, LEAD 2100, MDIA 3320, MUSI 5110,5113, PHIL 1090, 3800, POLI 3720,4030,5610, PSYC 2510, SOCY 3300,3500,5500,5600,5670, SOWO 3800, 3850, THEA 4950, WMST 3500,3900,3970

Options

Engineering

This program provides for enrollment in the Liberal Arts curriculum and in the Samuel Ginn College of Engineering. Two degrees will be awarded: a bachelor of arts degree in the liberal arts major and a bachelor's degree in the designated engineering field. Students should receive dual advising through the Colleges of Liberal Arts and Engineering. Typically, five to six academic years are necessary to complete dual requirements.

Pre-Law

Most majors and curricula are accepted as preparation for the study of law, but students interested in attending law school should also consider majoring in law and justice. Courses deemed useful, and which may be taken as electives, in majors, and in some cases to fulfill certain core requirements, are available from the pre-law program, located in 7002 Haley Center, where students receive advice on preparing for law school admission and the study of law.

Pre-Health

Most majors and curricula in Liberal Arts are accepted as preparation for professional degrees in health, including advanced degrees from schools of medicine, dentistry, optometry, physical therapy, occupational therapy and others. Generally, particular courses in the sciences, mathematics and philosophy should be taken in the University Core. Additional sciences and mathematics may be needed as electives. The university's pre-health advisor should be consulted for elective and core course guidance and for assistance in applying to graduate/professional schools. The liberal arts advisor is available for all other matters related to the student's undergraduate studies.

College of Nursing

The College of Nursing offers undergraduate and graduate programs designed to equip students with the knowledge, skills, and values to positively impact the health of populations. The college is committed to teaching, research, and outreach that advances health and quality of life in our state, nation, and world. Graduates from the program emerge as leaders in healthcare, prepared to lead advancements in patient care, research, and education.

Undergraduate Program

The College of Nursing includes a Bachelor of Science in Nursing (BSN) program with two pathways, traditional and RN to BSN. The traditional track includes classroom, laboratory, and clinical experiences that prepare graduates for professional nursing practice across the lifespan with diverse populations across a variety of settings. The RN to BSN track has two options, traditional RN to BSN and concurrent RN to BSN. Both tracks provide associate degree nurses with education focused on knowledge development, leadership, evidence-based practice, and quality patient care outcomes. Students in the traditional RN to BSN are licensed associate degree nurses who must complete the required prerequisites followed by the three-semester professional program. Concurrent students complete associate degree and BSN courses concurrently and graduate with the BSN one semester after associate degree completion.

Graduate Programs

The graduate programs in the College of Nursing include Master of Science in Nursing (MSN), Doctor of Nursing Practice (DNP), and Doctor of Philosophy in Nursing (PhD) programs. Students seeking the MSN may select the Primary Care Nurse Practitioner or Nurse Educator track. Graduates of the Primary Care Nurse Practitioner track have specialized, advanced education and clinical practice competencies to provide health care for populations and sit for certification as a Family Nurse Practitioner. The Nurse Educator track prepares graduates to teach both student nurses and professional nurses at the bedside and in academic environments. The DNP is a practice-focused doctorate that prepares advanced practice nurses with advanced knowledge of evidence-based care and the ability to apply this knowledge in practice to improve patient outcomes. There are two options for the DNP, BSN to DNP and post-master's DNP. The PhD in Nursing is a research-focused doctoral degree that prepares nurse scientists for positions in academia and other research settings.

Facilities

The College of Nursing is housed in the nursing building located at 710 South Donahue Drive. Undergraduate clinical nursing experiences are conducted at acute care, community and long-term care facilities in a variety of locations across the state of Alabama and in neighboring states. Graduate clinical nursing experiences are conducted in primary care and other healthcare facilities in Alabama and beyond. Students are responsible for complying with policies and procedures required by agencies in which clinical experiences are completed.

Technical Standards and Requirements

Technical standards are provided to inform incoming and current Auburn University College of Nursing students of the performance abilities and characteristics necessary to successfully meet program outcomes and provide safe and effective nursing care.

Acquire and interpret information (AACN Essentials Domains 1, 4, 7, & 8)

- Ability to acquire and interpret information, including, but not limited to information conveyed through coursework, lecture, group activities, written documents, computer systems, and laboratory, simulation, and clinical experiences.

Communicate with others in oral and written form (AACN Essentials Domains 2, 6, & 8)

- Ability to communicate effectively and sensitively through various mediums with a variety of individuals including patients, families, healthcare team members, faculty and peers of diverse ethnic, religious, and cultural backgrounds.
- Ability to elicit information from patients, family members, and healthcare team members to effectively evaluate and plan patient care.
- Ability to comprehend and use standard professional nursing and medical terminology.
- Ability to convey information to patients, families, and the healthcare team including health teaching and explaining care.

Integrate knowledge to demonstrate clinical judgment (AACN Essentials Domains 1, 2, & 3)

- Ability to assess, interpret, respond to, and evaluate patient health needs.
- Ability to critically think, problem-solve, and apply clinical judgment to care for patients, families, and/or communities across the health continuum in diverse care environments.

Exhibit professional behaviors and attitudes (AACN Essentials Domains 9 & 10)

- Ability to exercise proper judgment and complete responsibilities in a timely and accurate manner.
- Ability to demonstrate concern for others, integrity, accountability, interest, and motivation.
- Possess the emotional health necessary to function under stress and adapt to changing environments within the context of classroom and clinical settings.

Utilize motor skills (AACN Essentials Domains 2 & 5)

- Ability to obtain accurate information from patients using gross and fine motor skills appropriate to the technique.
- Possess psychomotor skills and endurance necessary to provide holistic nursing care.
- Practice in a safe manner using universal precautions.
- Provide timely and appropriate care in urgent and emergent situations.

Accreditation

The baccalaureate degree program in nursing, master's degree program in nursing, Doctor of Nursing Practice program, and post-graduate APRN certificate program at Auburn University are accredited by the Commission on Collegiate Nursing Education (http://www.ccneaccreditation.org). The AUCON prelicensure BSN program is approved by the Alabama Board of Nursing.

Undergraduate Programs

- Nursing — Traditional (p. 1173)
- RN — BSN (p. 1176)

Graduate Programs

- Doctor of Nursing Practice — DNP (p. 1714)
- Doctor of Philosophy in Nursing — PhD (p. 1716)
- Nursing Education — Graduate Certificate (post MSN) (p. 1720)
- One Health — Graduate Certificate (p. 1729)
- Post-Masters Healthcare Simulation — Graduate Certificate (p. 1797)
- Primary Care Nurse Practitioner — Graduate Certificate (post MSN) (p. 1721)
- Nurse Practitioner Primary Care and Nurse Educator programs — MSN (p. 1719)

Courses

NURS 1010 NURSING SUCCESS (1) LEC. 1. SU. This elective course is designed to help students explore the nursing profession and the skills necessary to provide a pathway to academic success.

NURS 2020 DOSAGE CALCULATION AND MEDICAL TERMINOLOGY FOR HEALTHCARE PROFESSIONALS (1) DSL/LEC. Provides fundamental dosage calculation and medical terminology concepts essential for professional nursing and/or healthcare practice. Course may be repeated for a maximum of 2 credit hours.

NURS 2030 FOUNDATIONS OF PROFESSIONAL NURSING (3) LEC. Coreq. NURS 2040. Examines the principles of professional nursing and theoretical underpinnings of nursing care.

NURS 2040 PROFESSIONAL NURSING ACROSS THE LIFESPAN (3) LEC. Coreq. NURS 2030. Explores professional nursing care of clients across all stages of human development employing a holistic approach.

NURS 2120 CONTEMPORARY TOPICS IN WOMEN'S HEALTH (3) LEC. 3. This course will provide an overview of health issues affecting women. Topics will include sexually transmitted infections, contraception, childbearing, mental health, domestic violence, human trafficking, and menopause.

NURS 3010 PATHOPHARMACOLOGY FOR SIMPLE AND STABLE CONDITIONS (2) LEC. Pr. NURS 2020 and NURS 2030 and NURS 2040. Coreq. NURS 3510 and NURS 3410. Explores pathophysiological and pharmacological concepts that guide nursing professionals in providing person-centered care. Course content will focus on foundational pathophysiological and pharmacological concepts and their application for managing clients with simple and stable conditions.

NURS 3020 PATHOPHARMACOLOGY FOR ACUTE AND MENTAL HEALTH CONDITIONS (2) LEC. Pr. NURS 3010 and NURS 3410 and NURS 3510. Coreq. NURS 3530 and NURS 3520. Explores pathophysiological and pharmacological concepts that guide nursing professionals in providing person-centered care. Course content will focus on pathophysiological and pharmacological concepts and their application for managing clients with health exacerbations, complications, urgent and critical medical conditions, and mental health conditions.

NURS 3110 THEORETICAL CONCEPTS OF PROFESSIONAL NURSING PRACTICE (3) LEC. 3. Coreq. NURS 3141 and NURS 3130. Exploration of essential professional nursing concepts.

NURS 3120 NURSING PATHOPHYSIOLOGY (3) LEC. 3. Coreq. NURS 3141 and NURS 3130. Admission to the School of Nursing Upper Division. Pathophysiological concepts that guide nursing professionals in the assessment, planning, implementation and evaluation of care for patients across the lifespan.

NURS 3130 EVIDENCE BASED SKILLS, ASSESSMENT, AND HEALTH PROMOTION (4) LEC. 4. Coreq. NURS 3110 and NURS 3141. Integration of current evidence to guide nursing skills, assessment, and health promotion.

NURS 3140 INTERDISCIPLINARY APPROACHES TO CARING FOR CHILDREN IN THE COMMUNITY (2) LEC. 2. The course introduces students to community-dwelling children (birth through teens) who have special needs and/or chronic health conditions. Students will develop skills in communication and practical skills for relating to and interacting with this population. Students will explore community resources and participate in providing outreach projects serving children and their families, and health information to the public.

NURS 3141 CONCEPTS AND EVIDENCE BASED SKILLS FOR PROFESSIONAL CLINICAL PRACTICE (3) LAB. 9. SU. Coreq. NURS 3110 and NURS 3130. Application of foundational nursing concepts, skills, and assessment across the lifespan in diverse settings with emphasis on health promotion.

NURS 3210 CLINICAL PHARMACOLOGY (3) LEC. 3. Pr. (NURS 3120 or NURS 3123) and NURS 3130. Nurse's role in therapeutic pharmacology.

NURS 3230 PROFESSIONAL NURSING CONCEPTS: ACUTE CARE ACROSS THE LIFESPAN (6) LEC. 6. Pr. (NURS 3120 or NURS 3123) and NURS 3110 and NURS 3130 and NURS 3141. Coreq. NURS 3231 and NURS 3210. Concepts inherent in the delivery of nursing care for acutely ill individuals and their families.

NURS 3231 PROFESSIONAL NURSING CONCEPTS: ACUTE CARE ACROSS THE LIFESPAN - CLINICAL (4) LAB. 12. SU. Pr. NURS 3123 or NURS 3120. Coreq. NURS 3210 and NURS 3230. Application of concepts inherent in the delivery of nursing care for acutely ill individuals and their families.

NURS 3330 PROFESSIONAL NURSING CONCEPTS IN THE CHILDBEARING FAMILY AND REPRODUCTIVE HEALTH (4) LEC. 4. Pr. NURS 3120. Coreq. NURS 3331. Concepts inherent in reproductive health and nursing care for childbearing families.

NURS 3331 PROFESSIONAL NURSING CONCEPTS IN THE CHILDBEARING FAMILY AND REPRODUCTIVE HEALTH - CLINICAL (2) LAB. 6. SU. Pr. NURS 3120. Coreq. NURS 3330. Concepts inherent in reproductive health and nursing care for childbearing families applied in clinical settings.

NURS 3410 HEALTH ASSESSMENT (2) LEC. 1. LAB. 1. Pr. NURS 2020 and NURS 2030 and NURS 2040. Coreq. NURS 3510 and NURS 3010. Focuses on holistic assessment across the lifespan.

NURS 3420 PROFESSIONAL COMMUNITY AND PUBLIC HEALTH NURSING (3) LEC. 2. LAB. 3. Pr. NURS 2020 and NURS 2030 and NURS 2040. Coreq. NURS 3410. Explores concepts inherent in the delivery of equitable, just, safe, and person-centered care for individuals, families, and communities in diverse settings.

NURS 3510 CLINICAL JUDGMENT IN NURSING FOR SIMPLE AND STABLE CONDITIONS (5) LEC. 3. LAB. 6. Pr. NURS 2020 and NURS 2030 and NURS 2040. Coreq. NURS 3010 and NURS 3410 and NURS 3420. Prepares students to provide professional nursing care for adult clients experiencing simple and/or stable conditions through didactic, lab, and clinical experiences. Course content will focus on health promotion, wellness, and management of medical conditions.

NURS 3520 CLINICAL JUDGMENT IN NURSING FOR ACUTE CONDITIONS (8) LEC. 4. LAB. 12. Pr. NURS 3010 and NURS 3410 and NURS 3510. Coreq. NURS 3020. Prepares students to provide professional nursing care for adult clients experiencing acute and/or unstable conditions through didactic, lab, and clinical experiences. Course content will focus on health exacerbations, complications, and management of urgent and unstable medical conditions.

NURS 3530 CLINICAL JUDGMENT IN NURSING FOR MENTAL HEALTH (5) LEC. 3. LAB. 6. Pr. NURS 3010 and NURS 3410 and NURS 3510. Coreq. NURS 3020. Prepares students to provide professional nursing care for clients experiencing developmental, behavioral, and mental health disorders through didactic, lab, and clinical experiences. Course content will focus on addressing mental health and well-being across the lifespan.

NURS 3630 PROFESSIONAL NURSING LEADERSHIP IN MICROSYSTEMS (2) LEC. 2. Pr. NURS 3230 and NURS 3231. The study of leadership and management concepts for direct patient care. Nursing Science only

NURS 3700 COMPETENCY RETENTION COURSE FOR NON-CLINICAL CONCEPTS (3) LEC. 3. This course is designed for students who are out of sequence in the professional nursing curriculum. Topics and activities will assist the student in retaining competencies in completed non-clinical courses.

NURS 3701 COMPETENCY RETENTION COURSE FOR CLINICAL CONCEPTS (3) LEC. 2. LAB. 1. This course is designed for students who are out of sequence in the professional nursing curriculum. Topics and activities will assist the student in retaining competencies in completed clinical courses.

NURS 3730 PROFESSIONAL NURSING CONCEPTS: MENTAL HEALTH ACROSS THE LIFESPAN (2) LEC. 2. Pr. NURS 3110 and NURS 3130 and NURS 3141. Coreq. NURS 3330 and NURS 3731. Concepts inherent in the delivery of nursing care for mentally ill individuals, families, and communities across the lifespan.

NURS 3731 PROFESSIONAL NURSING CONCEPTS: MENTAL HEALTH ACROSS THE LIFESPAN CLINICAL (2) LAB. 2. SU. Pr. NURS 3110 and NURS 3130 and NURS 3141. Coreq. NURS 3730. Clinical application of concepts inherent in the delivery of nursing care for mentally ill individuals, families, and communities across the lifespan.

NURS 3810 HOLISTIC NURSING PATHOPHYSIOLOGY & HEALTH ASSESSMENT (5) LEC. 5. Pathophysiological concepts that guide professional nurses in assessment, planning, implementation and evaluation of holistic care for patients across the lifespan.

NURS 3830 EVIDENCE BASED PRACTICE (5) LEC. 5. Pr. (NURS 3813 or NURS 3810) and (NURS 3843 or NURS 3840). Admission into Online RN-to-BSN Program. Utilization of evidence-based practice to promote delivery of quality patient care.

NURS 3840 FORMATION OF PROFESSIONAL NURSING PRACTICE (5) DSL/LEC. 5. Admission to the School of Nursing RN to BSN Program. Examines concepts, theories, and competencies fundamental to the formation of professional nursing practice.

NURS 3940 HEALTHCARE IN THE GLOBAL ARENA (2-3) LEC. 45. LAB. 0. Pr. NURS 3520 and NURS 3530. Study abroad learning opportunity to explore healthcare delivery and cost, licensure and certification, and culture in the global arena. Course may be repeated for a maximum of 6 credit hours.

NURS 3970 SPECIAL TOPICS IN NURSING (3) LEC. 3. Focused study plan designed for students who are out of sequence in the professional nursing curriculum. Course may be repeated for a maximum of 6 credit hours.

NURS 4030 PATHOPHARMACOLOGY FOR PRECONCEPTION THROUGH ADOLESCENCE (2) LEC. Pr. NURS 3020 and NURS 3520 and NURS 3530. Coreq. NURS 4540. Explores pathophysiological and pharmacological concepts that guide nursing professionals in providing person-centered care. Course content will focus on caring for women, childbearing families, and pediatric clients from birth through adolescence.

NURS 4040 PATHOPHARMACOLOGY FOR COMPLEX CONDITIONS (1) LEC. Pr. NURS 4030 and NURS 4410 and NURS 4420 and NURS 4540. Coreq. NURS 4940 and NURS 4550. Explores pathophysiological and pharmacological concepts that guide nursing professionals in providing person-centered care. Course content will focus on pathophysiological and pharmacological concepts and their application for managing clients with critical and multisystem conditions.

NURS 4110 ADVANCED CONCEPTS OF PEDIATRIC NURSING (2) LEC. 2. Pr. NURS 3520 and NURS 3530. Departmental approval. Prepares students to provide professional nursing care for pediatric clients experiencing critical conditions through didactic, lab, and simulation experiences. Course content will focus on concepts of the critical pediatric client's airway, breathing, and circulation.

NURS 4120 HEALTH SCIENCE CAMP EXPERIENCE (2) LAB. 0. Clinical experience in the care of children with chronic conditions in a camp setting.

NURS 4130 WELLNESS IN AGING (2) LEC. 2. Pr. NURS 3520 and NURS 3530. Provides undergraduate nursing students with a specialized focus on geriatric care, equipping them with knowledge, skills, and hands-on simulation experiences to improve the quality of care for older adults in various clinical settings.

NURS 4140 VULNERABLE POPULATIONS (2) LEC. 2. Pr. NURS 3520 and NURS 3530. Explores healthcare challenges faced by vulnerable populations, emphasizing unique healthcare needs, barriers to care, and the importance of culturally competent and compassionate approaches.

NURS 4180 TRAUMA NURSING (2) LEC. 2. Pr. NURS 3520 and NURS 3530. A broad overview of the specialty of trauma nursing and the multiple factors that affect patient care in an emergency or trauma situation.

NURS 4230 PROFESSIONAL NURSING CONCEPTS: CHRONIC AND COMPLEX CONDITIONS (5) LEC. 5. Pr. (NURS 3330 and NURS 3331 and NURS 3730 and NURS 3731 and NURS 3231) and P/C NURS 4231. Concepts inherent in the delivery of nursing care for individuals, families, and populations with chronic and/or complex conditions.

NURS 4231 PROFESSIONAL NURSING CONCEPTS: CHRONIC AND COMPLEX CONDITIONS - CLINICAL (5) LAB. 15. SU. Pr. (NURS 3230 and NURS 3330 and NURS 3331 and NURS 3730 and NURS 3731) and P/C NURS 4230. Applications of concepts inherent in the delivery of nursing care for individuals, families, and populations with chronic and/or complex conditions.

NURS 4240 CULTURAL EXPEDITIONS IN HEALTH CARE (2) LEC. 2. Pr., Senior-level student in Nursing. Hands-on experience with different aspects of culture including an overnight stay in a replica of a third world global village.

NURS 4270 PERIOPERATIVE NURSING (2) LEC. 1. LAB. 1. Pr. NURS 3520 and NURS 3530. This course is designed to give the student a broad knowledge base for the specialty of perioperative nursing and the multiple factors that will impact patient care from the preoperative phase through the recovery phase. The course will cover concepts of care that span all ages and types of surgical procedures.

NURS 4280 ANIMAL-ASSISTED THERAPY (2) LEC. 2. Theoretical foundations and guidelines for practice of animal-assisted therapy.

NURS 4290 EVIDENCE BASED PRACTICE (2) LEC. 2. Pr. NURS 3230. Application of appropriate research findings and other evidence to influence nursing practice.

NURS 4410 PROFESSIONAL NURSING LEADERSHIP (3) LEC. Pr. NURS 3010 and NURS 3410 and NURS 3510 and NURS 3420. Coreq. NURS 4420. Explores knowledge, skills, and attitudes necessary to enhance leadership in nursing practice.

NURS 4420 EVIDENCE BASED PRACTICE (2) LEC. Pr. NURS 3010 and NURS 3410 and NURS 3510 and NURS 3420. Coreq. NURS 4410. Develops students' knowledge and skills to address clinical questions through appraisal of evidence and recommendations for nursing practice.

NURS 4540 CLINICAL JUDGMENT IN NURSING FOR PRECONCEPTION THROUGH ADOLESCENCE (6) LEC. 3. LAB. 9. Pr. NURS 3020 and NURS 3520 and NURS 3530. Coreq. NURS 4030. Prepares students to provide professional nursing care for women, childbearing families, and children experiencing a variety of acute and chronic health conditions through didactic, lab, and clinical experiences. Course content will focus on developmentally appropriate nursing care for women, childbearing families, and children from conception through adolescence.

NURS 4550 CLINICAL JUDGMENT IN NURSING FOR COMPLEX CONDITIONS (5) LEC. 3. LAB. 6. Pr. NURS 4030 and NURS 4410 and NURS 4420 and NURS 4540. Coreq. NURS 4940 and NURS 4040. Prepares students to provide professional nursing care for clients experiencing complex health conditions through didactic, lab, and clinical experiences. Course content will focus on the management of critical and multisystem medical conditions.

NURS 4830 LEADERSHIP AND MANAGEMENT IN PROFESSIONAL NURSING (3) LEC. 3. Pr. (NURS 3813 or NURS 3810) and (NURS 3843 or NURS 3840). Admission into Online RN-to-BSN Program. Addresses evidence-based leadership/management competencies for the professional nurse working with interprofessional team.

NURS 4840 TRANSITION TO PROFESSIONAL NURSING PRACTICE (5) LEC. 5. Pr. (NURS 4833 or NURS 4830) and (NURS 3830 or NURS 3833). Admission into Online RN-to-BSN Program. Integrate past nursing practice and acquired knowledge, skills, and attitudes for transition to the professional nursing role.

NURS 4850 CLINICAL PREVENTION AND POPULATION HEALTH (4) LEC. 4. Pr. (NURS 3833 or NURS 3830) and (NURS 4833 or NURS 4830). Admission into Online RN-to-BSN Program. Concepts inherent in the delivery of nursing care for individuals, families and populations in the global community.

NURS 4900 INDEPENDENT STUDY IN NURSING (1-6) IND. Directed readings and/or clinical study in student-selected areas related to nursing. Course may be repeated for a maximum of 6 credit hours.

NURS 4920 TRANSITION TO PROFESSIONAL NURSING PRACTICE (4) LEC. 4. Pr. NURS 4230 and NURS 4231. Coreq. NURS 4921. Provides the content and learning experiences designed to help students synthesize the essential concepts for successful transition into professional nursing. Course may be repeated for a maximum of 8 credit hours.

NURS 4921 TRANSITION TO NURSING PRACTICE (7) LAB. 7. SU. Pr. NURS 4230 and NURS 4231. Coreq. NURS 4920. Application of essential concepts for transition into professional nursing practice.

NURS 4930 COMMUNITY ASSESSMENT PROJECT (1) LEC. 1. LAB. 14. Pr. (NURS 4230 and NURS 4231) and NURS 4290. Capstone course for a community assessment project completed throughout the nursing program.

NURS 4940 PROFESSIONAL NURSING LICENSURE (1) LEC. Pr. NURS 4030 and NURS 4410 and NURS 4420 and NURS 4540. Coreq. NURS 4941. Facilitates synthesis of essential concepts for success on the NCLEX-RN examination.

NURS 4941 PROFESSIONAL NURSING PRECEPTORSHIP (5) LAB. 15. SU. Pr. NURS 4030 and NURS 4410 and NURS 4420 and NURS 4540. Coreq. NURS 4940. Synthesizes the knowledge, skills, attitudes, and values developed throughout the BSN curriculum with patients and families in an acute care setting.

NURS 4970 SPECIAL TOPICS IN NURSING (1-4) STU. SU. Focused study plan designed for students who have not met an identified curricular benchmark. Course may be repeated for a maximum of 4 credit hours.

NURS 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

NURS 5420 POPULATION HEALTH OUTCOMES (3) DSL. This course provides the student with knowledge and skills to examine population health issues across the lifespan, globally, and regionally. Students will learn and connect with populations while identifying how to measure the health within populations. The course includes a focus on improving health equity and reducing health disparities.

NURS 6420 POPULATION HEALTH OUTCOMES (3) DSL. This course provides the student with knowledge and skills to examine population health issues across the lifespan, globally, and regionally. Students will learn and connect with populations while identifying how to measure the health within populations. The course includes a focus on improving health equity and reducing health disparities.

NURS 7000 FOUNDATIONAL CONCEPTS IN HEALTHCARE SIMULATION (3) DSL/LEC. This course is the first in the Healthcare Simulation Certificate program series of courses. The course provides the learner with a foundation for use of simulation as a teaching methodology in professional healthcare education. Evidence-based standards and theoretical frameworks will be discussed and applied.

NURS 7010 EVIDENCE-BASED APPLICATION OF TECHNOLOGY AND IPE IN HEALTHCARE SIMULATION (3) DSL. Pr. NURS 7000. This is the second course in the Healthcare Simulation Certificate program. The course builds upon foundational knowledge to provide a basic understanding of simulation technology and attributes of effective simulation-enhanced interprofessional learning experiences and provide a review of basic research methods and their application to ensuring evidence-based simulation design. Learners will apply knowledge of simulation best practices, technology, and interprofessional considerations to design a simulation-based activity.

NURS 7020 HEALTHCARE SIMULATION CAPSTONE (4) DSL. Pr. NURS 7000 and NURS 7010. This is the final course in the Healthcare Simulation Certificate program. Students will integrate prior coursework to develop a capstone simulation-based experience utilizing best practices of adult experiential learning, curriculum design, evidence- based practice, research, evaluation, and project management.

NURS 7100 FOUNDATIONS OF RURAL AND UNDERSERVED HEALTH (3) LEC. 3. This course explores the unique challenges and opportunities associated with healthcare delivery in rural and underserved communities. Learners will examine foundational concepts such as social determinants of health, health disparities, health policy, and cultural norms, and their collective impact on community health. The course also emphasizes evidence-based strategies and innovative approaches to address the barriers to healthcare access and improve health outcomes in these settings. Must be currently enrolled in a health or health related.

NURS 7110 ADVANCED HEALTH AND PHYSICAL ASSESSMENT (3-4) DSL/LLB. Focus is on assessment, knowledge and techniques required for master's level prepared nurses in a clinical setting. Course may be repeated for a maximum of 4 credit hours.

NURS 7120 LEARNER DEVELOPMENT & SOCIALIZATION (1) DSL/LEC. Coreq. NURS 7210. Provides an overview of theoretical formulations and instructional technologies that support learner development and socialization.

NURS 7200 POPULATION HEALTH IN RURAL COMMUNITIES (3) DSL. This course will examine challenges with special populations in rural communities. Learners will apply knowledge through a team-based approach to address a specific rural health challenge in special populations. NURS 7200 may be taken as an elective course by any student enrolled in health or health related graduate program of study (Nursing, Psychology, Physical Therapy, Medical Doctors, Veterinarians etc.)

NURS 7210 EVIDENCE-BASED TEACHING STRATEGIES (2) LEC. 2. Coreq. NURS 7120. Provides an overview of evidence-based teaching strategies and instructional technology.

NURS 7220 ROLES AND ISSUES OF THE PRIMARY CARE PRACTITIONER (3) LEC. 3. Pr. (NURS 7340 or NURS 7346) and (NURS 7350 or NURS 7356) and (NURS 7310 or NURS 7316) and (NURS 7230 or NURS 7236) and (NURS 7250 or NURS 7256) and (NURS 7430 or NURS 7436) and (NURS 7240 or NURS 7246) and (NURS 7110 or NURS 7116) and (NURS 7540 or NURS 7546). This course explores the complex process of role development for the advanced practice nurse within current health care systems. Competencies and role development issues of advanced nursing practice are included. Role transition and strategies for facilitating role acquisition and implementation including social, legal and ethical issues governing advanced practice in primary health care are addressed. Admission to the MSN Program.

NURS 7230 ADVANCED PATHOPHYSIOLOGY (3) LEC. 3. This course incorporates the application of advanced pathophysiology concepts across the lifespan. It broadens the concepts of assessment findings and diagnostic testing for specific health issues, utilizing clinical judgment for expected variations in disease presentations.

NURS 7240 ADVANCED PHARMACOLOGY (3) LEC. 3. Pr. (NURS 7230). This course provides an in-depth understanding of pharmacology and pharmacotherapeutics, emphasizing their application in patient-centered care. The primary goal is to deepen comprehension of these principles, focusing on how to safely and effectively integrate these principles into advanced practice nursing.

NURS 7250 HEALTHCARE POLICY AND ETHICS FOR THE NURSE LEADER (3) LEC. 3. Departmental approval. This course addresses the U.S. health care delivery system at micro and macro levels, problems, principles and the alternatives for managing problems in a systematic manner. Health policy, economic, and ethical principles and the relationship of these concepts to advocacy and leadership roles are explored. Admission to the MSN Program

NURS 7260 TRANSITION FROM CLINICIAN TO NURSE EDUCATOR (2) LEC. 2. This course provides the nurse educator student with a basic understanding regarding the nature of the nurse educator role. The student will explore dynamics influencing the development of the students' role and attaining success in higher education, different career paths, and issues shaping their perception of higher education.

NURS 7280 PROFESSIONALISM AND LEADERSHIP (3) LEC. 3. This course is designed to prepare graduate nursing students for advanced practice leadership roles and to foster professionalism in diverse healthcare environments.

NURS 7300 RURAL HEALTH COMMUNITY IMMERSION AND PROJECT (3) DSL. Pr. (NURS 7100 and NURS 7200). This course includes an immersive educational experience in the rural setting to develop a community-based health initiative project to improve health outcomes.

NURS 7310 TRANSITION TO ADVANCED PRACTICE NURSING (2) LEC. 2. This course is designed to introduce the Masters student to scholarly writing and inquiry for evidence-based practice. The principles of synthesis in writing and understanding of research are addressed. Admission to AU MSN Program.

NURS 7320 CURRICULUM DEVELOPMENT AND EVALUATION (3-4) DSL/LEC. Pr. (NURS 7340 or NURS 7346) and (NURS 7210 or NURS 7216). Analysis and evaluation of curriculum construction, selection of teaching strategies for diverse groups and individuals, and evaluation of learning outcomes in education of patients, health providers, and nursing students. Admission to the MSN Program. Course may be repeated for a maximum of 4 credit hours.

NURS 7330 DIAGNOSTIC REASONING AND CLINICAL MANAGEMENT (3-7) DSL/LLB. Pr. NURS 7230 and NURS 7430 and NURS 7340 and NURS 7240 and NURS 7350 and NURS 7110. Focus is on the process of collecting data and arriving at diagnostic and therapeutic conclusions to guide clinical management for patients. Course may be repeated for a maximum of 7 credit hours.

NURS 7340 ADVANCED THEORETICAL FOUNDATIONS OF NURSING (3) LEC. 3. Students will analyze and apply theoretical principles to guide practice in healthcare delivery for individuals, families, and populations. Admission to the MSN or DNP Program.

NURS 7350 QUALITY AND SAFETY IN HEALTHCARE (3) LEC. 3. Students examine and analyze approaches to promote quality and safety in healthcare.

NURS 7420 ASSESSMENT & EVALUATION (3) DSL/LEC. Pr. (NURS 7320). Develop methods to assess learning outcomes and evaluate programs for compliance with accreditation standards.

NURS 7430 ADVANCED EVIDENCE-BASED PRACTICE (3) LEC. 3. Students will explore approaches for identifying and applying relevant evidence to improve practice and health outcomes.

NURS 7440 PRIMARY CARE PRACTICUM OF WOMEN AND CHILDREN (3-7) DSL/LLB. Pr. NURS 7230 and NURS 7430 and NURS 7340 and NURS 7240 and NURS 7350 and NURS 7110 and NURS 7330. Focus is on the primary care nurse practitioner's role in managing common acute and chronic healthcare problems in women and pediatric patients in a variety of primary care settings. Course may be repeated for a maximum of 7 credit hours.

NURS 7540 IMPLEMENTATION AND EVALUATION OF EVIDENCE-BASED NURSING PRACTICE (2) LEC. 2. Pr. NURS 7430 or NURS 7436. This course focuses on the concepts necessary for implementation and evaluation of an evidence-based practice project. Data collection tools, data analyses, and interpretation of data analysis will be explored. Students will discuss change strategies, development of measurable outcomes and dissemination of any results. Admission to MSN Program. Course may be repeated for a maximum of 4 credit hours.

NURS 7550 PRIMARY CARE II: ADULTS AND ELDERLY (3) LEC. 1. Pr. (NURS 7220 or NURS 7226) and (NURS 7330 or NURS 7336). Admission to the MSN Program and completion of pre-requisites. Focus is on the primary care nurse practitioner's role in managing common acute and chronic health problems in the adult and geriatric population in a variety of primary care settings.

NURS 7800 NURSE EDUCATOR PRACTICUM I (2) DSL/PRA. 2. Pr. (NURS 7420). Synthesis and application of theories, research, and strategies in healthcare delivery settings. (120 direct patient care hours)

NURS 7810 NURSING EDUCATION PRACTICUM (3) DSL/PRA. 3. Pr. (NURS 7340 or NURS 7346) and (NURS 7350 or NURS 7356) and (NURS 7310 or NURS 7316) and (NURS 7260 or NURS 7266) and (NURS 7210 or NURS 7216) and (NURS 7230 or NURS 7236) and (NURS 7250 or NURS 7256) and (NURS 7430 or NURS 7436) and (NURS 7320 or NURS 7326) and (P/C NURS 7240 or P/C NURS 7246) and (P/C NURS 7110 or P/C NURS 7116) and (P/C NURS 7540 or P/C NURS 7546). Synthesis of educational theories, research, and strategies in applying the roles of the educator in teaching clients, students, or healthcare providers. Selected educational settings provide opportunities to practice the roles of educator under guidance of a qualified preceptor. The practicum includes 120 academic clinical and 60 healthcare facility clinical based direct care hours. Admission to MSN Program and completion of all pre-requisites.

NURS 7820 CERTIFIED NURSE EDUCATOR PREP (1) DSL/LEC. Pr. (NURS 7800). Coreq. NURS 7810. Provides a comprehensive review of the competency areas for the Certified Nurse Educator and Academic Clinical Certified Nurse Educator exams.

NURS 7920 PRIMARY CARE PRACTICUM (7-8) LEC/PRA. Pr. NURS 7230 and NURS 7430 and NURS 7340 and NURS 7240 and NURS 7350 and NURS 7110 and NURS 7330 and NURS 7440. Focus is on the application of knowledge and skills in the transition to the role of the primary care nurse practitioner. Course may be repeated for a maximum of 8 credit hours.

NURS 8010 DOCTORAL SEMINAR I (1) SEM. This course is designed to foster scientific communication skills of new doctoral students, and to advance dissertation work through development of dissertation research ideas.

NURS 8020 DOCTORAL SEMINAR II (1) SEM. Pr. (NURS 8010). This course is designed to advance dissertation work by fostering data analytics skills and the use of secondary datasets to provide meaningful insights that support decision-making, formation of hypotheses, and making the case for the proposed research.

NURS 8030 DOCTORAL SEMINAR III (1) SEM. Pr. (NURS 8020). This course is designed to advance dissertation work by focusing on the creation of a complete draft of the first manuscript, presenting the scholarly work to peers and faculty, and providing critical reviews of peers' scholarship.

NURS 8040 DOCTORAL SEMINAR IV (1) SEM. Pr. (NURS 8030). This course is designed to advance dissertation work by focusing on approvals needed for the protection of human subjects and permissions for access to research data and/or subjects, and to promote successful career planning and transition.

NURS 8210 RESEARCH PRACTICUM (1-3) RES. Pr. (NURS 8340 and NURS 8350). This course provides the PhD student with practical experiences in conducting research prior to undertaking the dissertation. Course may be repeated for a maximum of 3 credit hours.

NURS 8320 INFORMATICS AND TECHNOLOGY IN HEALTHCARE (3) LEC. 3. Students gain competency to leverage information and technology to improve health outcomes.

NURS 8330 QUANTITATIVE METHODS FOR EVIDENCE-BASED PRACTICE (3) LEC. 3. Admission to DNP Program. Provides the DNP student with clinical data management and outcome skills with an essential component of any EBP.

NURS 8340 DEVELOPMENT OF THE ROLE OF SCIENTIST (2) DSL/LLB. The course is designed to socialize the student into the roles, activities, and responsibilities of a PhD prepared nurse scientist, and is foundational to preparation for a career in research in academia or other research-intensive environments. The content addresses the responsibilities and activities of a scientist in the health professions, including ethical issues, scientific freedom and social responsibility, collaboration and negotiation, interdisciplinary research peer review, development of a research plan, program of research and research career, research funding, presentations, and publications.

NURS 8350 NURSING PHILOSOPHY, SCIENCE, AND THEORY (3) DSL/LEC. This course is a foundational theory course that explores the philosophy of science, development of nursing knowledge, and evaluation and application of theory to nursing research, practice, and education.

NURS 8410 THEORY APPLICATION FOR ADVANCED PRACTICE (3) LEC. 3. Admission to DNP Program. The course is the basis for the Doctor of Nursing Practice (DNP) project by identifying and investigating the various phenomena of interest in student's practice area.

NURS 8420 POPULATION HEALTH OUTCOMES (3) LEC. 3. Provides the student with knowledge and skills to examine population health issues across the lifespan, globally and regionally.

NURS 8430 FINANCIAL MANAGEMENT FOR ADVANCED PRACTICE (3) LEC. 3. This course provides the DNP student with the knowledge and skills necessary to identify, evaluate, and consider costs associated with implementing and sustaining change.

NURS 8440 LEADERSHIP FOR ADVANCED HEALTH POLICY (3) LEC. 3. Admission to DNP Program. Provides the DNP student with the knowledge and skills to be a leader in health care and to influence health policies at multiple levels.

NURS 8450 QUALITATIVE RESEARCH METHODS IN NURSING (3) DSL/LLB. Pr. (NURS 8770). Explores the qualitative research method, including the philosophical, historical, and theoretical foundations of this approach. Learners will examine the ethical issues related to qualitative research and gain understanding of data collection, management, analysis and interpretation.

NURS 8460 QUANTITATIVE RESEARCH DESIGN AND METHODS (3) DSL/LLB. Pr. (STAT 7000 or STAT 7006). Coreq. STAT 7010. The focus of this course is on quantitative research methods and study designs appropriate for investigating health care phenomena and problems of importance to nursing and health care. The interrelationship among clinical problems, literature reviews, research questions, study designs, and methods of inquiry and analysis is emphasized. Through a combination of theoretical discussion and applied practical experience, students develop skills and knowledge that is foundational to the dissertation process. Students will apply knowledge by participating in class discussions, critiquing published research, and exploring possible designs for their research focus.

NURS 8510 FOUNDATION FOR EVIDENCE-BASED PRACTICE (3) LEC. 3. Admission to DNP Program. Provides the DNP student with the methodological basis for translating evidence into practice systems in a variety of health care environments.

NURS 8540 ADVANCED PRACTICE PRACTICUM (2) LEC. 2. Provides the DNP student with opportunity to synthesize advanced practice knowledge and role behaviors in an advanced practice role. Course may be repeated for a maximum of 6 credit hours.

NURS 8550 GRANT WRITING AND MANAGEMENT (3) DSL/LLB. Pr. (NURS 8770 and NURS 8750 and STAT 7010). This course is designed to prepare the student for the fundamental processes and essential skills in developing and writing a grant proposal, seeking and securing project funding, and managing a grant.

NURS 8560 SYSTEMATIC REVIEWS FOR MEDICAL AND BEHAVIORAL INTERVENTIONS (2) DSL/LEC. This course will enable students to conduct systematic and scoping reviews in biomedical and behavioral sciences, and introduce meta-analysis. Students will collaboratively use the PRISMA framework, PROSPERO registry, and Covidence tool to conduct a systematic review relevant to their research.

NURS 8710 TRANSITIONAL SKILLS FOR DNP PRACTICE (2) DSL/LEC. 2. Admission to DNP Program. Provides the DNP student with the knowledge and skills to develop their DNP role as a leader in health care improvement efforts.

NURS 8720 HEALTH INNOVATIONS AND CLINICAL OUTCOMES IMPROVEMENTS (3) LEC. 3. Pr. (NURS 8510 and NURS 8710). Admission to DNP Program. Provides the DNP student with knowledge and skills to develop, implement, and evaluate programs that improve health.

NURS 8740 DISSERTATION DEVELOPMENT SEMINAR (2) DSL/LLB. Pr. (NURS 8460 and NURS 8750 and NURS 8450 and NURS 8560). This seminar will provide students with in-depth exposure to the steps and process of developing, completing, and writing a dissertation.

NURS 8750 MEASUREMENT IN HEALTHCARE RESEARCH AND USE OF DATA (3) DSL/LLB. This course provides the foundation and information for designing sampling plans, measurement and instrumentation, measurement procedures or scoring, and appropriate data analysis for measurement.

NURS 8760 HEALTH POLICY (3) DSL/LLB. Pr. NURS 8460 and STAT 7000 and STAT 7010. This course immerses the student in analysis of health policy and the social determinants of health from ethical and political contexts. The focus of this course is on the research methods and other processes of identifying, evaluating, comparing, and selecting policy options to address problems and issues in health care, as well as evaluating the performance of implemented policy. Students develop a policy research and modeling skillset in considering complex, real-world social and healthcare issues.

NURS 8770 CONCEPTUAL DESIGN & CRITICAL REVIEW OF THE LITERATURE (3) DSL/LLB. This course provides the student with the conceptual foundation for research and development of questions. The course delivers an in-depth analysis of the literature related to concept analysis to support development and critique of conceptual models. Students will apply writing, research, and critical thinking skills in concept analysis. Students will also develop and integrate knowledge within a literature review. Admission to the PhD in Nursing Program required.

NURS 8920 DOCTOR OF NURSING PRACTICE SEMINAR (1) DSL. Pr. (NURS 7280 and NURS 7100 and NURS 7430 and NURS 7340 and P/C NURS 7350 and P/C NURS 8320). This course provides the foundational knowledge and skills necessary to develop and implement a DNP project.

NURS 8930 DNP PROJECT PRACTICUM I: DEVELOPMENT (3) DSL/LEC. Pr. (NURS 8330 and NURS 8920 and P/C NURS 8420). First in a three-course sequence which provides the DNP student with the tools and direction needed to develop a comprehensive project proposal. Student must be admitted to DNP Program.

NURS 8940 DNP PROJECT PRACTICUM II : IMPLEMENTATION (4) LEC. 4. Pr. (NURS 8930 or NURS 8936). Second in a three-course sequence for the DNP student to execute the project plan in collaboration with the agency site.

NURS 8950 DNP PROJECT PRACTICUM III : EVALUATION AND PRESENTATIONS (4) LEC. 4. Pr. NURS 8940 or NURS 8946. Third in a three-course sequence for the DNP student finalize, evaluate, and disseminate their DNP project.

NURS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Pr. (NURS 8350 and NURS 8340) and (STAT 7000 or STAT 7006) and (NURS 8460 and STAT 7010 and NURS 8770 and NURS 8450 and NURS 8750 and NURS 8760 and NURS 8550). Individualized support and direction for students writing their dissertations. Course may be repeated with change in topics. Course may be repeated for a maximum of 10 credit hours.

Nursing — Traditional (NURS)

Freshman eligibility is determined by the Office of Enrollment Services. Admission requirements are stated elsewhere in this *Bulletin*. High school mathematics, chemistry and biology courses are strongly recommended, along with other college preparatory courses in social science, history, literature, and English composition. Students are strongly encouraged to see an academic advisor in the College of Nursing on a regular basis. Transfers from other institutions must apply through the Office of Enrollment Services. Review of transcripts by the College of Nursing will determine the amount of credit allowed for the pre-nursing requirements. Students planning to transfer from other universities are encouraged to contact the College of Nursing as soon as possible for advisement on transfer of credits.

Professional Program

Pre-nursing students must formally apply for admission to the professional program, typically during the sophomore year, and meet the deadlines and requirements for the admission cycle. Auburn Nursing uses a holistic review to assess applicants for admission. Student experiences, transcripts, and traditional and situational interviews are included in the admission process to provide a holistic viewpoint. Students are encouraged to learn more about this process by reading the applicant workbook found on the College of Nursing website. Applicant interviews will be conducted once per year in Fall semester. Due to limited enrollment, all students who meet minimum requirements may not be interviewed or admitted. Students will be notified of admission decisions before the end of fall semester. Those applicants admitted must successfully complete all pre-nursing courses with a C or higher before entering the upper division. Admission to the professional program occurs in spring semester. After successful completion of spring semester, students will progress to the clinical courses beginning either summer or fall semester.

Freshman

Fall	Hours	Spring	Hours
BIOL 1020 Principles of Biology**	3	BIOL 2500 Human Anatomy and Physiology I**	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 2501 Human Anatomy and Physiology I Laboratory	1
CHEM 1030 Fundamentals Chemistry I**	3	ENGL 1120 English Composition II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	Core History II	3
ENGL 1100 English Composition I	3	STAT 2510 Statistics for Biological and Health Sciences**	3
MATH 1120 Pre-Calculus Algebra	3	NTRI 2000 Nutrition And Health**	3
CORE History I	3		
	17		**16**

Sophomore

Fall	Hours	Spring	Hours
BIOL 2510 Human Anatomy and Physiology II**	3	BIOL 3200 General Microbiology**	3
BIOL 2511 Human Anatomy and Physiology II Laboratory	1	BIOL 3201 General Microbiology Laboratory	1
PHIL 1020 Introduction to Ethics ***or*** 1030 Ethics and the Health Sciences	3	Core Literature I or II	3
CORE Fine Art	3	CORE Social Science	3
CORE Humanities	3	**NURS 2020 Dosage Calculation and Medical Terminology for Healthcare Professionals**	**1**
PSYC 2010 Introduction to Psychology (or SOCY 1000 Intro to Sociology)	3	**NURS 2030 Foundations of Professional Nursing**	**3**

		NURS 2040 Professional Nursing Across the Lifespan	**3**
	16		**17**

Total Hours: 66

Must have History sequence and one Literature course OR a Literature sequence and one History course.

- Option for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.
- Students who choose to do a literature sequence should see their advisor for guidance.
- Students must complete all PNUR requirements with a “C” or better prior to beginning the upper division nursing program.
- Students must choose between PSYC 2010 OR SOCY 1000 for at least 3 hours of their social science credit.
- Courses marked with ** are used to calculate your academic attainment score for nursing admission.
- Curriculum guides for the junior and senior years vary according to semester of admission to professional program.

Summer Admission

Junior

Summer	Hours	Fall	Hours	Spring	Hours
NURS 3010 Pathopharmacology for Simple and Stable Conditions	**2**	**NURS 3020 Pathopharmacology for Acute and Mental Health Conditions**	**2**	**NURS 4030 Pathopharmacology for Preconception through Adolescence**	**2**
NURS 3510 Clinical Judgment in Nursing for Simple and Stable Conditions	**5**	**NURS 3520 Clinical Judgment in Nursing for Acute Conditions**	**8**	**NURS 4540 Clinical Judgment in Nursing for Preconception Through Adolescence**	**6**
BLOCK 1		**NURS 3530 Clinical Judgment in Nursing for Mental Health**	**5**	Specialty Course	2
NURS 3410 Health Assessment	**2**			Specialty Course	2
BLOCK 2				**BLOCK 1**	
				NURS 4410 Professional Nursing Leadership	**3**
NURS 3420 Professional Community and Public Health Nursing	**3**			**BLOCK 2**	
				NURS 4420 Evidence Based Practice	**2**
	12		**15**		**17**

Total Hours: 44

Senior

Fall	Hours
BLOCK 1	
NURS 4040 Pathopharmacology for Complex Conditions	**1**
NURS 4550 Clinical Judgment in Nursing for Complex Conditions	**5**
NURS 4940 Professional Nursing Licensure	**1**
BLOCK 2	

NURS 4941 Professional Nursing Preceptorship	**5**
	12

Total Hours: 12

Fall Admission

Junior

Fall	Hours	Spring	Hours
NURS 3010 Pathopharmacology for Simple and Stable Conditions	**2**	**NURS 3020 Pathopharmacology for Acute and Mental Health Conditions**	**2**
NURS 3510 Clinical Judgment in Nursing for Simple and Stable Conditions	**5**	**NURS 3520 Clinical Judgment in Nursing for Acute Conditions**	**8**
BLOCK 1		**NURS 3530 Clinical Judgment in Nursing for Mental Health**	**5**
NURS 3410 Health Assessment	**2**		
BLOCK 2			
NURS 3420 Professional Community and Public Health Nursing	**3**		
	12		**15**

Total Hours: 27

Senior

Fall	Hours	Spring	Hours
NURS 4030 Pathopharmacology for Preconception through Adolescence	**2**	**BLOCK 1**	
NURS 4540 Clinical Judgment in Nursing for Preconception Through Adolescence	**6**	**NURS 4040 Pathopharmacology for Complex Conditions**	**1**
Specialty Course	2	**NURS 4550 Clinical Judgment in Nursing for Complex Conditions**	**5**
Specialty Course	2	**NURS 4940 Professional Nursing Licensure**	**1**
BLOCK 1		**BLOCK 2**	
NURS 4410 Professional Nursing Leadership	**3**	**NURS 4941 Professional Nursing Preceptorship**	**5**
BLOCK 2			
NURS 4420 Evidence Based Practice	**2**		
	17		**12**

Total Hours: 29

Total Credit Hours = 122

Upper Division

Beginning in the first semester of the program, students participate in required clinical (including some night & weekend clinicals) and classroom experiences which prepare them to function in a multifaceted healthcare arena.

Current Nursing Specialty Course Options:

- NURS 3140 Interdisciplinary Approaches to Caring for Children in the Community (3)
- NURS 4120 Health Science Camp Experience (3)

- NURS 4240 Cultural Expeditions in Health Care (2)
- NURS 4270 Perioperative Nursing (2)

Expenses

Students accepted into the professional program should expect to incur additional expenses including a professional fee associated with the clinical courses. Uniforms, equipment, expenses related to travel to clinical sites, smart phone devices with the capability of retrieving required information, laptop with designated specifications, standardized exams and software, NCLEX reviews, a health examination, and liability and health insurance coverage are among the requirements. Students are required to have a current drug screen and background check. The costs of such requirements will be the responsibility of the student. An updated *Detailed Expenses by Semester* sheet can be located on the College of Nursing website.

Academic Regulations

Advanced placement credit in pre-nursing courses is granted according to university policies stated elsewhere in the *Bulletin*. Proficiency examinations or Advanced Placement (CEEB), with accepted score, may be used for advanced placement.

A minimum grade of C is required in pre-nursing courses. Transfer credit will not be granted for courses in which a grade less than C is earned.

In the professional program, a minimum grade of C, or Satisfactory in all courses, must be achieved. An overall GPA of 2.0 must be maintained for progression through the professional program. Because the professional nursing curriculum is designed for progressive development of nursing knowledge and skills, students who earn an Unsatisfactory or grade less than C in a professional program course are not allowed to progress to the next clinical course. The course in which the student earns a grade less than C or Unsatisfactory may be repeated one time only. Students who earn a grade less than C or Unsatisfactory in two or more professional program courses or whose GPA falls below a 2.0 will be dropped from the professional program and are not eligible for readmission. Transfer credit is not generally allowed for courses in the professional program.

Application for RN Licensure

Following successful completion of the traditional Bachelor of Science in Nursing program, the graduate will apply for RN Licensure in Alabama or another state and follow all procedures as stipulated by the state board of nursing.

Nursing, RN to BSN (NURS)

RN to BSN Track

The RN to BSN track is designed for associate degree nurses. Applicants to the RN to BSN track must apply to Auburn University, have a minimum GPA of 2.5 and a C or higher in all required prerequisite courses, have no more than two outstanding prerequisite classes, have completed the statistics prerequisite course, and maintain a current unencumbered RN license throughout the program. Students who have successfully completed NURS 3840, Formation of Professional Nursing Practice, completed the requirements for licensure in nursing, and are currently licensed as an RN will receive 38 credits as documentation of competency (contingent upon review of documentation) toward the BSN degree. These escrow credits count toward the upper division BSN course requirements and residency credit requirements. The RN to BSN track offers admission each semester and is designed to be completed in three semesters.

Concurrent BSN Track

The Concurrent BSN track is designed for students who are admitted to an associate degree in nursing (ADN) program and are entirely prerequisite complete. In partnership with community colleges, the track offers admission each semester and is designed to be completed in six semesters. Applicants to the Concurrent BSN track must apply to Auburn University, have a minimum GPA of 2.5 and a C or higher in all required prerequisite courses. Students will take BSN courses concurrently with ADN courses. Following ADN graduation and licensure, students complete the final semester of the BSN program.

Academic Regulations

Advanced placement credit in pre-nursing courses is granted according to university policies stated elsewhere in the *Bulletin*. Proficiency examinations or Advanced Placement (CEEB), with accepted score, may be used for advanced placement. A minimum grade of C is required in pre-nursing courses. Transfer credit will not be granted for courses in which a grade less than C is earned.

In the professional program, a minimum grade of C, or Satisfactory in all courses, must be achieved. An overall GPA of 2.0 must be maintained for progression through the professional program.

Because the professional nursing curriculum is designed for progressive development of nursing knowledge and skills, students who earn an Unsatisfactory or grade less than C in a professional program course are not allowed to progress to the next course. The

course in which the student earns a grade less than C or Unsatisfactory may be repeated one time only. Students who earn a grade less than C or Unsatisfactory in two or more professional program courses or whose GPA falls below a 2.0 will be dropped from the professional program and are not eligible for readmission. Transfer credit is not generally allowed for courses in the professional program.

Program Requirements

Fall	Hours	Spring	Hours	Summer	Hours
NURS 3810 Holistic Nursing Pathophysiology & Health Assessment	5	NURS 3830 Evidence Based Practice	5	NURS 4840 Transition to Professional Nursing Practice[1]	5
NURS 3840 Formation of Professional Nursing Practice	5	NURS 4830 Leadership and Management in Professional Nursing	3	NURS 4850 Clinical Prevention and Population Health[1]	4
	10		**8**		**9**

Total Hours: 27

[1] These courses include clinical practice hours.

James Harrison College of Pharmacy

LEIGH ANN ROSS, *Dean*
KIMBERLY BRAXTON-LLOYD, *Associate Dean for Clinical Affairs and Outreach*
KAREN MARLOWE, *Associate Dean for Academic Programs*
TIMOTHY MOORE, *Associate Dean for Research*
DANIEL SURRY, *Associate Dean for Faculty Affairs*
EMILY MCCOY, *Interim Assistant Dean for Mobile and Student Success*

THE AUBURN Doctor of Pharmacy (PharmD) degree program is a four-year course of study that requires the completion of the pre-pharmacy curriculum prior to enrollment. The curriculum is designed to facilitate the development of those abilities necessary for entry-level practitioners in various practice settings. Consistent with accreditation standards and guidelines, the College's fully integrated curriculum provides an appropriate balance of course work in the following areas: biomedical sciences (basic and clinical); pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; pharmacy practice; and pharmacy practice experience. The goal of the curriculum is to prepare students who are ready to enter practice at the time of graduation and are life-long learners. To help accomplish this, the curriculum involves students in sequenced patient care responsibilities beginning in the first professional year. Students also participate as active, self-directed learners in interprofessional teaching models. Team-based learning is extensively utilized.

Admission Requirements

Course requirements for admission to the James Harrison College of Pharmacy may be satisfied by completing the Pre-Professional Curricula in either the College of Sciences and Mathematics or the College of Human Sciences (Nutrition Sciences Option). Any or all of these requirements may also be met by transfer of appropriate credit from other institutions.

Admission is limited and is contingent upon available facilities and faculty. To be considered for admission the applicant must have a satisfactory academic record. A grade of D in any prerequisite course will not be accepted. Students are matriculated into the James Harrison College of Pharmacy only during Fall Semester. All pre-pharmacy course work must be completed by the end of the summer term before the professional program begins at the start of Fall Semester.

Applicants must apply to the James Harrison College of Pharmacy through the Pharmacy College Application Service (PharmCAS). The James Harrison College of Pharmacy admits students using a rolling admissions process and student applications are prioritized in the order in which they are received. The final deadline for receipt of all application materials is posted on the PharmCAS Website. Students who are successful in meeting the college’s initial screening criteria are required to complete an in-person or virtual interview in order to be further considered for admission.

The James Harrison College of Pharmacy's Doctor of Pharmacy Program admits students to two campuses: the main Auburn Campus and the Mobile Campus located at the University of South Alabama. Students may express a preference for a specific campus, but assignments are made based on available space. Admitted students are notified of their campus assignment at the time an offer of admission is made.

Prospective students may obtain application information, which further outlines policies and procedures, from the College's website at www.pharmacy.auburn.edu or by contacting the Office of Academic Programs, 2316 Walker Building, Auburn, AL 36849-5501, 334-844-8348. Applications through PharmCAS are submitted online at http://www.pharmcas.org/.

The James Harrison College of Pharmacy offers an Early Admission Program to highly qualified individuals admitted as undergraduate students to Auburn University or the University of South Alabama. Further information may be obtained from the College's Website or Office of Academic Programs.

Prerequisite Requirements

Prerequisite requirements for the Doctor of Pharmacy Program [1]

The prerequisite academic work required for entry into the Harrison College of Pharmacy's (HCOP) Doctor of Pharmacy (Pharm.D.) program consists of a minimum of **62-66 semester hours** distributed as follows.

Humanities and Social Sciences (24 hours)*

- English Composition (6 hours)
- Additional Courses (18 hours) – Courses that are acceptable for meeting this requirement include, but are not limited to, History, Literature, Fine Arts, Philosophy, Religion, Foreign Languages, Ethics, Speech, Communications, and Additional Social Sciences.

Science and Math Core (38-42 hours)

- General Biology (4 hours)
- General Chemistry with Laboratory (8 hours)
- Organic Chemistry with Laboratory (8 hours)
- Human Anatomy and Physiology (8 hours) OR Upper Division Physiology (4 hours)**
- Microbiology (4 hours)
- Calculus (4 hours)
- Statistics (3 hours)
- Biochemistry (3 hours)

***Applicants that will enter the HCOP with a baccalaureate degree are required to complete English Composition (6 hours), but may be waived from additional Humanities and Social Science requirements.**

****Acceptable courses include Mammalian, Vertebrate, Human, or Animal Physiology.**

Doctor of Pharmacy Curriculum

First Year			
Fall	**Hours**	**Spring**	**Hours**
PYPD 9000 Orientation	1	PYPD 9220 Integrated Learning Experience III	6
PYPD 9200 Integrated Learning Experience I	6	PYPD 9230 Integrated Learning Experience IV	6
PYPD 9210 Integrated Learning Experience II	6	PYPD 9330 Longitudinal Experience II	3
PYPD 9320 Longitudinal Experience I	3	PYPD 9410 Workshop II	1
PYPD 9400 Workshop I	1		
Second Year			
Fall	**Hours**	**Spring**	**Hours**
PYPD 9240 Integrated Learning Experience V	6	PYPD 9260 Integrated Learning Experience VII	6
PYPD 9250 Integrated Learning Experience VI	6	PYPD 9270 Integrated Learning Experience VIII	6

PYPD 9340 Longitudinal Experience III	3	PYPD 9350 Longitudinal Experience IV	3
PYPD 9420 Workshop III	1	PYPD 9430 Workshop IV	1
PYPD 9160 Community Pharmacy IPPE	2	PYPD 9080 Population Health IPPE	2
PYPD 9190 Health and Wellness Introductory Pharmacy Practice Experience	1	PROFESSIONAL ELECTIVES	0-2
PROFESSIONAL ELECTIVES	0-2		

Third Year

Fall	Hours	Spring	Hours
PYPD 9280 Integrated Learning Experience IX	6	PYPD 9300 Integrated Learning Experience XI	6
PYPD 9290 Integrated Learning Experience X	6	PYPD 9310 Integrated Learning Experience XII	6
PYPD 9360 Longitudinal Experience V	3	PYPD 9370 Longitudinal Experience VI	3
PYPD 9440 Workshop V	1	PYPD 9450 Workshop VI	1
PYPD 9170 Health System Pharmacy IPPE	2	PROFESSIONAL ELECTIVES	0-2
PYPD 9180 Clinical Pharmacy IPPE	1		
PROFESSIONAL ELECTIVES	0-2		

Students are required to complete 6 hours of professional elective courses in the second and third professional years.

Fourth Year

PYPD 9600 Advanced Pharmacy Practice Experiences 40 total hours

(students complete 40 weeks of Practice Experiences during Summer Term, Fall Semester and Spring Semester, plus a Summative Experience Sequence.)

PYPD 9700 Summative Experience I 3

PYPD 9800 Summative Experience II 3

TOTAL PROGRAM HOURS = 157

Academic Performance Standards

The implementation of all guidelines will be in addition to those existing policies and standards of the University.

To remain in good standing, students are required to achieve a James Harrison College of Pharmacy GPA of at least 2.25. GPAs will be calculated only from professional course work, which is defined as core pharmacy courses approved by the faculty and listed in the Doctor of Pharmacy curriculum.

James Harrison College of Pharmacy students with semester or cumulative GPAs below 2.25, or who receive Ds and Fs in required courses, may be dismissed from the James Harrison College of Pharmacy or required to undergo a remedial plan of study as directed by the Committee on Academic Requirements, Professionalism and Student Success. The remedial plan of study may require students to retake courses in which they received grades of less than C. Policies concerning academic progression, probation, and dismissal are specified in the James Harrison College of Pharmacy's Academic Performance Standards, and other Standards and Policies. Copies of Standards and Policies may be obtained from the James Harrison College of Pharmacy's Office of Academic Programs or from the College's website.

Students must observe pre-requisites and co-requisites stated in the current *Auburn University Bulletin*.

Notes

- Students are required to file an application with the Alabama State Board of Pharmacy for registration as an intern at the time they are enrolled in the James Harrison College of Pharmacy. Information and intern registration forms may be obtained from the Alabama State Board of Pharmacy, 111 Village Street, Hoover, AL 35242, or at www.albop.com. Students must maintain a valid Alabama Internship License as a condition of continued enrollment in the James Harrison College of Pharmacy.

- Upon entering the James Harrison College of Pharmacy, and at the beginning of each academic year, students are required to furnish documentation of professional liability insurance, current CPR and First Aid certification, personal medical insurance, and up-to-date immunizations. Students who fail to maintain documentation will be dis-enrolled and will not be allowed to re-enroll until current documentation has been provided.
- Students are required to undergo criminal background checks prior to matriculation in the James Harrison College of Pharmacy which are updated annually.
- Pharmacy students are required to complete specified co-curricular activities.
- Students in the Doctor of Pharmacy program are required to own a laptop computer that meets the College's specifications. Questions about computer specifications should be directed to the College's Office of Information Technology. Computer literacy must be demonstrated upon entry to pharmacy school.
- Students are required to adhere to all of the James Harrison College of Pharmacy's codes, policies, and professional requirements. The college will take disciplinary action against those students who violate such codes, policies, and professional requirements.
- Students will be required to periodically take examinations and other assessments to assess their ability to integrate the knowledge, skills, and attitudes learned to date. Students may be required to complete remedial work should their performance be unsatisfactory.
- Consistent with the policies of Auburn University, The James Harrison College of Pharmacy reserves the right to make changes at any time in its academic programs, codes, policies, and professional requirements.
- Students will be notified of their site assignments for Introductory and Advanced Practice Experiences at the earliest feasible time, to enable them to make housing arrangements. Rotation sites are located throughout Alabama, western Georgia, the Mississippi Gulf Coast, and the Florida panhandle. Although students may request specific sites, each site has a limited enrollment and students may be assigned to sites they do not request. Students are responsible for procuring housing, including the assessment of its safety and living conditions. Students are also responsible for housing and other living expenses incurred when assigned to rotation sites away from the Auburn and Mobile campuses.

Majors

- Drug and Biopharmaceutical Sciences

Graduate Degrees

- Pharmaceutical Sciences: Health Outcomes Research and Policy Option — MS (p. 1730)
- Pharmaceutical Sciences: Health Outcomes Research and Policy Option (Non-Thesis) — MS (p. 1731)
- Pharmaceutical Sciences: Health Outcomes Research and Policy Option — PhD (p. 1734)
- Pharmaceutical Sciences: Medicinal Chemistry Option - Graduate Certificate (p. 1709)
- Pharmaceutical Sciences: Medicinal Chemistry Option — MS (p. 1709)
- Pharmaceutical Sciences: Medicinal Chemistry Option (Non-Thesis) — MS (p. 1710)
- Pharmaceutical Sciences: Medicinal Chemistry Option — PhD (p. 1710)
- Pharmaceutical Sciences: Pharmaceutics Option — MS (p. 1734)
- Pharmaceutical Sciences: Pharmaceutics Option — PhD (p. 1734)
- Pharmaceutical Sciences: Pharmaceutics Option (Non-Thesis) — MS (p. 1735)
- Pharmaceutical Sciences: Pharmacology Option — MS (p. 1736)
- Pharmaceutical Sciences: Pharmacology Option (Non-Thesis) — MS (p. 1736)
- Pharmaceutical Sciences: Pharmacology Option — PhD (p. 1737)

Graduate Certificates

- Medicinal Chemistry (p. 1709)
- Neuroscience (p. 1714)

Drug Discovery and Development Courses

DRDD 5800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING (2) LEC. 2. Departmental approval. State-of-the-art survey of molecular imaging techniques that are available and their use to monitor the progression of various human diseases.

DRDD 6800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING (2) LEC. 2. Departmental approval. State-of-the-art survey of molecular imaging techniques that are available and their use to monitor the progression of various human diseases.

DRDD 7000 INTRODUCTION TO GRANT WRITING (3) LEC. 3. Course will train students to prepare NIH RO1 grant applications. Students will prepare mock applications on topics of their choosing.

DRDD 7010 PHARMACOKINETICS (4) LEC. 4. Departmental approval. Pharmacokinetic and pharmacodynamic principles and methods used to study the absorption, distribution, metabolism and excretion of drugs.

DRDD 7020 SCIENCE AND TECHNOLOGY OF TABLETING (2) LEC. 2. Pr. (PYPS 7030 or DRDD 7030) or Departmental approval. Formulation, compression, coating and evaluation of tablets.

DRDD 7021 SCIENCE AND TECHNOLOGY OF TABLETING LAB (2) LAB. 6. Pr. (PYPS 7020 or DRDD 7020). Actual formulation, compression, coating and evaluation of tablets.

DRDD 7030 DRUG PRODUCTS AND BIOPHARM (4) LEC. 4. Departmental approval. Formulation, evaluation, and use of various pharmaceutical dosage forms including biopharmaceutical aspects.

DRDD 7040 PHYSICAL PHARMACY (4) LEC. 4. Departmental approval. Application of physical chemical principles to dosage form design and evaluation.

DRDD 7050 NOVEL DOSAGE FORMS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Theoretical basis and design of controlled release and site specific drug delivery systems.

DRDD 7060 FORMULATION AND DELIVERY OF PEPTIDE/PROTEIN DRUGS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Formulation and delivery problems unique to peptide/protein pharmaceuticals and strategies to overcome such problems.

DRDD 7070 TRANSPORT PHENOMENA IN PHARMACEUTICAL SYSTEMS (3) LEC. 3. Departmental approval. Mechanisms of drug transport in various pharmaceutical dosage forms and biological systems. Elucidation of methods to characterize drug transport phenomena. Correlation of transport phenomena with drug disposition in the body. Emphasis on peptide, protein, and oligonucleotide drugs.

DRDD 7080 ADVANCED BIOPHARMACEUTICS (3) LEC. 3. Pr. PYPS 7010 or DRDD 7010. The mathematical and pharmacokinetic relationships between physical and chemical properties of a drug and its dosage form and biological effects.

DRDD 7090 PHARMACEUTICAL SCIENCE I: TARGETS (4) LEC. 4. Departmental Approval. Study of nature and function of drug targets, advanced molecular mechanisms by which drugs interact with these targets and the basic principles of drug design.

DRDD 7100 PHARMACEUTICAL SCIENCE II: ADME (4) LEC. 4. Departmental Approval. Study of the mechanisms of drug absorption, distribution, metabolism and elimination with an advanced study of drug design strategies and methods to optimize these processes.

DRDD 7110 STABILITY KINETICS OF PHARMACUTICALS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Principles of chemical kinetics as applied to the unique stability problems of the various pharmaceutical dosage forms.

DRDD 7200 NATURAL PRODUCTS CHEMISTRY (3) LEC. 3. This course is designed as an introduction to the chemistry of natural products of plant origin with medicinal importance. Traditional and modern approaches to plant natural product drug discovery will be discussed. Major biosynthetic pathways of plant secondary metabolites will be covered and used to classify natural products into distinct groups (alkaloids, sesquiterpenoids, diterpenes, triterpenes, saponins, flavonoids, anthraquinones, coumarins, lignans, amino acids, and peptides) and to display the relationships between diverse structures encountered in nature.

DRDD 7230 ADVANCED MEDICINAL CHEMISTRY I (3) LEC. 3. Departmental approval. Explanation of the principles of Medicinal Chemistry progressing to qualitative and quantitative descriptions of the synthesis, influence of physical and chemical properties of chemical substances on biological activity and biodisposition.

DRDD 7240 ADVANCED MEDICINAL CHEMISTRY II (3) LEC. 3. Pr. PYPS 7230. Departmental approval. Advanced study of organic medicinal agents featuring organic synthesis, chemical and pharmacological properties and current literature topics.

DRDD 7250 DRUG ACTION AND DESIGN (3) LEC. 3. Pr. (PYPS 7230 or DRDD 7230) and (PYPS 7240 or DRDD 7240). Modern molecular modeling methods with emphasis on computer-aided drug design, quantitative structure activity relationships and combinatorial chemistry.

DRDD 7260 SEPARATION SCIENCE (4) LEC. 4. Departmental approval. A survey of modern separation science with emphasis on analytical scale techniques including gas chromatography, liquid chromatography and electrokinetic separations.

DRDD 7270 MASS SPECTROMETRY OF ORGANIC COMPOUNDS (4) LEC. 4. Departmental approval. A survey of modern techniques in mass spectrometry with emphasis on fragmentation chemistry and structure education.

DRDD 7280 NEUROSCIENCE METHODS (3) LEC. 3. This course is designed to provide a conceptual and practical understanding of several of the most common techniques in neuroscience. The interactive lectures will serve to illustrate the ways in which various experimental approaches have been used to advance specific areas of neuroscience, particularly in the context of neuropsychological diseases or processes.

DRDD 7290 NEUROPHARMACOLOGY OF DRUG ABUSE (2) LEC. 2. Departmental approval. An in-depth study of drugs of abuse, including mechanisms of action, pharmacokinetics, addiction, physical dependence and the effects of drug use during pregnancy. Substance abuse treatment strategies will also be discussed.

DRDD 7300 NEUROPHARMACOLOGY (3) LEC. 3. Neurochemical mechanisms related to the pharmacological actions of medicinal agents affecting the central nervous system.

DRDD 7310 PSYCHOPHARMACOLOGY I (3) LEC. 3. Discussions on anxiety, depression and related disorders.

DRDD 7320 PSYCHOPHARMACOLOGY II (3) LEC. 3. Discussions on schizophrenia, Alzheimer's disease, experimental methods and animal models of disorders.

DRDD 7330 PHARMACOLOGY RESEARCH METHODS (3) LEC. 1. LAB. 9. Experimental design, research methods and data analysis in pharmacology.

DRDD 7340 ORGAN SYSTEMS PHARMACOLOGY I (3) LEC. 3. The course will evaluate the basic principles and rationale for current and novel pharmacological therapeutics for various disease states.

DRDD 7350 ORGAN SYSTEMS PHARMACOLOGY II (3) LEC. 3. The course will evaluate the mechanism of action and rationale for current and novel pharmacological therapeutics for various disease states.

DRDD 7360 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY I (3) LEC. 3. Cellular biology course integrated with pharmaceutical sciences for the study of pharmacologically related mechanisms at the molecular and cellular levels.

DRDD 7370 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY II (3) LEC. 3. Pr. PYPS 7360 or DRDD 7360. Cellular biology course integrated with pharmaceutical sciences for the study of pharmacologically related mechanisms at the molecular and cellular levels. This is a continuation of PYPS 7360/DRDD 7360.

DRDD 7380 DRUG DISCOVERY (3) LEC. 3. This course is a survey of modern approaches to drug discovery. It is designed to familiarize students with different steps of drug discovery from target identification to the development of clinical candidates. (Clinical trials, and approval process will be covered in Drug Development class, which will be offered in spring 2020.) We will discuss the techniques used at the different stages of drug discovery process in the course are also widely used in basic biomedical research laboratories.

DRDD 7390 CANCER PHARMACOLOGY AND DRUG DISCOVERY (3) LEC. 3. Pr. VBMS 7970. This course is designed as an introduction to anti-cancer drugs and anti-cancer drug discovery. The course will build on the principles of cancer biology that are introduced in VBMS 7970 Cancer Biology. This course will begin with a survey of anticancer drugs. Classic cytotoxic agents will be discussed, followed by targeted chemotherapeutic agents. A discussion of strategies used to discover classic cytotoxic agents will be followed by strategies used to discover targeted chemotherapeutic agents. The discussion of targeted drug discovery will focus on target identification and validation, hit generation and optimization, and preclinical lead evaluation. Course meetings will feature the primary literature so as to enable students to translate lecture topics to application.

DRDD 7400 PHARMACOGENOMICS AND TRANSLATIONAL RESEARCH METHODS ORIENTATION (3) LLB. Departmental approval. This course consists of lectures and laboratory orientation sessions designed to introduce the basic concepts of pharmacogenomics and translational research in precision medicine.

DRDD 7500 METABOLISM AND DISPOSITION XENOBIOTICS (2) LEC. 2. Portals of entry, absorption, distribution and elimination of drugs and xenobiotics. Metabolic mechanisms relevant to chemical structure and principles of pharmacokinetics will be emphasized.

DRDD 7510 ENVIRONMENTAL TOXICOLOGY (3) LEC. 3. Mechanisms of action of agricultural and industrial chemicals, drugs, radiation, metals, gases, air particulates, food additives, plant and food poisons in the environment.

DRDD 7600 HETEROCYCLIC MEDICINAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7220. Departmental approval. A survey of chemical nature of heterocyclic moieties of medicinal substances with emphasis on methods of synthesis of medicinally important compounds containing a heterocyclic ring.

DRDD 7930 DIRECTED STUDIES IN PHARMACAL SCIENCES (1-3) LEC. Departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 98 credit hours.

DRDD 7950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Course may be repeated for a maximum of 6 credit hours.

DRDD 7960 SPEC PROB IN PHARM SCIE (1-3) IND. At least 6 credits each with a minimum grade of B in DRDD 7000-7999 Selected study topics in the pharmaceutical sciences. Departmental approval and 6 hours of 7000-level courses. Course may be repeated for a maximum of 6 credit hours.

DRDD 7980 NON-THESIS RESEARCH (1-3) RES. Non-thesis research project, to be determined by faculty advisor and student's graduate advisory committee. Course may be repeated for a maximum of 14 credit hours.

DRDD 7990 RESEARCH AND THESIS (1-10) MST. Research And Thesis. Course may be repeated with change in topics.

DRDD 8930 DIRECTED STUDIES IN PHARMACAL SCIENCES (1-3) LEC. Departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 6 credit hours.

DRDD 8950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Course may be repeated for a maximum of 10 credit hours.

DRDD 8960 DIRECTED READINGS IN PHARMACAL SCIENCES (1-3) IND. Pr. At least 6 credits each with a minimum grade of B in DRDD 7000-7999. Selected study topics in the pharmaceutical sciences. Course may be repeated for a maximum of 6 credit hours.

DRDD 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research for doctoral students. Course may be repeated with change in topics.

Drug and Biopharmaceutical Sci Courses

DBPS 1010 INTRODUCTION TO DRUG AND BIOPHARMACEUTICAL SCIENCES I (1) LEC. 1. Departmental approval. This course explores the development of the field of drug and biopharmaceutical sciences and its' relationship to disease treatment from ancient to medieval to current day. This historical prospective provides the foundation for appreciation of human creativity in the advancement of health care and the treatment of human diseases.

DBPS 1020 INTRODUCTION TO DRUG AND BIOPHARMACEUTICAL SCIENCES II (1) LEC. 1. Pr. DBPS 1010. Departmental approval. This course introduces the field of drug and biopharmaceutical sciences to first-year students and provides exposure to a variety of major sub-disciplines and associated opportunities. The course will operate as a series of seminars presented by recognized authorities on subjects such as drug toxicity, drug dosages and routes, drug metabolism, drug distribution, drugs for cancer, drugs for Alzheimer's disease, monoclonal antibody-based drugs, antibiotics, forensic chemistry, drug synthesis, etc. These seminars and lectures will allow the student to recognize the breath of the field and future career opportunities. The exact set of seminars and subject matter will vary from year-to-year.

DBPS 2010 FUNDAMENTALS OF BIOMEDICINAL CHEMISTRY I (4) LEC. 4. Pr. CHEM 1030 and CHEM 1031 and CHEM 1040 and CHEM 1041 and (BIOL 1020 or BIOL 1027) and BIOL 1021 and DBPS 1010 and DBPS 1020. Departmental approval. This course explores the relationships between the structural features of drugs and biomolecules and their physicochemical properties including solubility, ionization, intermolecular interactions and reactivity. These concepts are the foundation principles for understanding the actions of drugs at their biologic targets and how the biologic environment processes drugs.

DBPS 2020 FUNDAMENTALS OF BIOMEDICINAL CHEMISTRY II (4) LEC. 4. Pr. CHEM 1030 and CHEM 1031 and CHEM 1040 and CHEM 1041 and (BIOL 1020 or BIOL 1027) and BIOL 1021 and DBPS 1010 and DBPS 1020 and DBPS 2010 and DBPS 2030. Departmental approval. This course explores the relationships between the structural features of biomolecules and their physicochemical properties including solubility, ionization, intermolecular interactions and reactivity. These concepts are the foundation principles for understanding the properties of biologic targets and how drugs interact with targets to produce their therapeutic effects.

DBPS 2030 DRUG TARGETS I (4) LEC. 4. Pr. (BIOL 1020 or BIOL 1027) and BIOL 1021 and DBPS 1010 and DBPS 1020. Departmental approval. This is the first of a two-course survey sequence designed to explore various biological targets (cells, tissues, organs, micro-biomolecules, and macro-biomolecules) present in the central nervous system (brain and spinal cord), eye, ears, respiratory tract, and gastrointestinal tract for a drug to interact and to impose/enforce its effect in the body. This course will further explain the natural substances (ligands) that interacts with the above targets. These basic concepts are the fundamental principles for understanding the actions of drugs in the body (centrally or peripherally).

DBPS 2040 DRUG TARGETS II (4) LEC. 4. Pr. (BIOL 1020 or BIOL 1027) and BIOL 1021 and DBPS 1010 and DBPS 1020 and DBPS 2030. Departmental approval. This course explores various biological targets (cells, tissues, organs, micro-biomolecules, and macro-biomolecules) present in the cardiovascular, renal system, skin, endocrine system, sexual organs, and bones for a drug to interact and to impose/enforce its effect in the body. This course will further explain the natural substances (ligands) that interacts with the above targets. The above basic concepts are the fundamental principles for understanding the actions of drugs in the body (centrally or peripherally).

DBPS 2050 BIOPHARMACEUTICAL DATA ANALYSIS I (1) LEC. 1. Pr. DBPS 1010 and DBPS 1020. Departmental approval. This course introduces the methods and mathematical concepts of analysis and sampling, as specifically applied to drug and biopharmaceutical sciences. Topics include descriptive measures, probability and distributions, estimation, tests of hypotheses, types of error, significance, confidence levels, sample size and power.

DBPS 2060 BIOPHARMACEUTICAL DATA ANALYSIS II (1) LEC. 1. Pr. DBPS 1010 and DBPS 1020 and DBPS 2050. Departmental approval. This course is a continuation of Biopharmaceutical Calculations & Statistics I and focuses on mathematical concepts of analysis and sampling in biopharmaceutical sciences research and production. Topics include estimation, tests of hypotheses, types of error, significance, confidence levels, sample size and power.

DBPS 3010 MEDICINAL CHEMISTRY I (4) LEC. 4. Pr. DBPS 2020 and DBPS 2040 and DBPS 2060. Departmental approval. This course will combine a discussion of the nature and function of drug targets (including enzymes, receptors, ion channels, pumps, RNA and DNA) with study of molecular mechanisms by which drugs interact with these targets and the basic principles of drug design. The course will use currently relevant examples for each target class and is not intended to provide a comprehensive review of all drug classes at all targets. Course materials will include class lecture notes and assigned readings from the current literature. With this knowledge, the student will be better equipped to understand the molecular basis of drug action and the challenges of drug design in a wide variety of therapeutic situations.

DBPS 3020 MEDICINAL CHEMISTRY II (3) LEC. 3. Pr. DBPS 3010 and DBPS 3050. Departmental approval. This course will provide a comprehensive description and analysis of the relationships between drug/dosage form properties and biodisposition, including absorption, distribution, metabolism and elimination. Methods of drug design to optimize drug biodisposition and pharmacokinetics also will be summarized in overview. This course will serve as a foundational instructional unit for all students interested in pursuing advanced study in the areas of drug discovery and development.

DBPS 3030 DRUG ACTION I (4) LEC. 4. Pr. DBPS 2020 and DBPS 2040 and DBPS 2060. Departmental approval. This is the first of a two-course sequence focused on the mechanism of drug action, adverse drug reactions, and drug-interactions as a drug interacts with its' biological target sites. This course will identify the etiology, understand the disease state effects on target sites, and symptoms of major diseases related to the central nervous system (brain and spinal cord), eye, ears, respiratory tract, and gastrointestinal tract.

DBPS 3040 DRUG ACTION II (4) LEC. 4. Pr. DBPS 3030. Departmental approval. This course will identify the etiology, understand the various pathophysiology, and symptoms of major disease states related to the renal system, endocrine system, cardiovascular system, infection, tumor/cancer, bones, integumentary system, sexual organs, for a drug to exert its prophylactic and therapeutic actions. This course will further explain the mechanism of drug action, adverse drug reactions, and drug-interactions.

DBPS 3050 DRUG FORMULATIONS (3) LEC. 3. Pr. DBPS 2020 and DBPS 2060. Departmental approval. Physical-chemical principles and technologies used in the formulation, manufacture and compounding of solid and oral liquid (solution) pharmaceutical dosage forms and novel drug delivery systems.

DBPS 3060 DRUG PHARMACOKINETICS (4) LEC. 4. Pr. DBPS 3010 and DBPS 3030 and DBPS 3050. Departmental approval. The course deals with absorption, plasma protein binding, tissue distribution and elimination of drugs by liver and kidneys and how these processes determine the overall disposition of the drug in the organism. In addition, the relationships between dose and plasma concentration and of plasma concentration and effect are described, both for a given drug and its metabolites. A brief introduction to the use of pharmacokinetic methods for drug development is given. The course also deals with calculation and evaluation of mathematical parameters that describe pharmacokinetic and pharmacodynamic processes, both regarding single dose and repeated dose administration. Finally, it describes the theoretical basis for clinical drug dosing, reasons for and rational handling of inter-individual variation (genomics) in drug disposition as well as drug-drug interactions.

DBPS 3070 DRUG RESEARCH SEMINAR I (1) LEC. 1. SU. Pr. DBPS 2020 and DBPS 2040. Departmental approval. This research seminar course will feature weekly presentations by graduate students, postdoctoral fellows, faculty and visiting scholars. The presentations will introduce DBPS students to current drug discovery and development research advancements in the fields of medicinal chemistry, pharmacology and pharmaceutics.

DBPS 3080 DRUG RESEARCH SEMINAR II (1) LEC. 1. SU. Pr. DBPS 2020 and DBPS 2040. Departmental approval. This research seminar course will feature weekly presentations by graduate students, postdoctoral fellows, faculty and visiting scholars. The presentations will introduce DBPS students to current drug discovery and development research advancements in the fields of medicinal chemistry, pharmacology and pharmaceutics.

DBPS 4980 RESEARCH (5) LAB. 15. Pr. DBPS 3020 and DBPS 3040 and DBPS 3060 and DBPS 3080. Departmental approval. Course Description for each discipline of DBPS Program: Pharmacological/Biomedical Sciences research areas include molecular and cellular disease mechanisms, physiological and pathological processes of disease development, identification of new therapeutic targets, therapeutic and toxicological mechanisms of drug action, and novel approaches to therapeutics, including tissue engineering, genomics, and immunotherapy. Pharmaceutics and Drug Delivery research areas include formulation science, biomaterials, biopharmaceutics, pharmaceutical compounding, nanotechnology, and pharmacokinetics. Medicinal Chemistry and Drug Development research areas include the synthesis of new drug molecules, structure-activity relationship of drug classes, the use of modern methods of drug design and analysis and the development of assays to test drug candidates. Course may be repeated for a maximum of 10 credit hours.

Health Outcomes Research Pol Courses

HORP 7510 HEALTH SERVICES DELIVERY AND EVALUATION (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. Introduction to basic methods and frameworks for undertaking research and program evaluation within health services organizations and systems.

HORP 7520 SOCIAL AND BEHAVIORAL THEORY IN HEALTH (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option Introduction to the basic theories of behavior and intervention used in practice and research to evaluate changes in health, humanistic, and economic outcomes among patients.

HORP 7530 PHARMACEUTICAL ECONOMICS, OUTCOMES, AND POLICY (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. The graduate-level course is intended to introduce students to concepts relevant to pharmaceutical outcomes, economics, and policy. The course provides foundational knowledge surrounding healthcare.

HORP 7540 PHARMACOEPIDEMIOLOGY: METHODS AND APPLICATIONS (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. STAT 6110 or equivalent SAS training. The course covers topics in pharmacoepidemiology focusing on the methods and applications of analyzing large healthcare claims databases and electronic medical records.

HORP 7720 MOTIVATIONAL INTERVIEWING FOR HEALTH BEHAVIORS (3) LEC. 2, IND/LEC. 1. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. Concepts, current research applications, and intervention development training in motivational interviewing for health behavior change interventions.

HORP 7820 RESEARCH METHODS AND DESIGN HEALTH SCIENCE I (2) LEC. 2. Departmental approval. Application of scientific methods in health care.

HORP 7830 RESEARCH METHODS IN THE HEALTH SCIENCES (3) LEC. 3. Pr. PYPC 7820 or HORP 7820. Application of the principles and concepts obtained in PYPC 7820/HORP 7820.

HORP 7840 MEDICATION INFORMATION SYSTEMS (3) LEC. 3. Health system informatics theories and methodologies. Demonstration of how information reduces uncertainty in health-care decision-making.

HORP 7860 THE PHARMACIST'S ROLE IN IMPROVING PATIENT ADHERENCE (3) LEC. 3. Pr. PYPC 7820. Theories and methodologies involved in adherence to medication regimens.

HORP 7870 SOCIAL, BEHAVIORAL, AND ADMINISTRATIVE ASPECTS OF PHARMACY PRACTICE (3) LEC. 3. Theories and applications in social, behavioral, and administrative aspects of pharmacy practice and medication use systems.

HORP 7950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Required of all Pharmaceutical Science MS students with Health Outcomes Research and Policy Option. Course may be repeated for a maximum of 6 credit hours.

HORP 7960 SPECIAL PROBLEMS IN HEALTH OUTCOMES RESEARCH (2-3) LEC. Departmental approval. Special problems. Course may be repeated for a maximum of 6 credit hours.

HORP 7980 NON-THESIS RESEARCH (1-3) RES. SU. Pharmaceutical Sciences Non-Thesis MS Graduate Student and approval from the Graduate Program Coordinator. The specific research topic and its credit hour(s) will be decided by the student's research advisor, in collaboration with the student and the student's research advisory committee. Course may be repeated for a maximum of 4 credit hours.

HORP 7990 RESEARCH AND THESIS (1-10) MST. Credit hours to be arranged. Course may be repeated with change in topics.

HORP 8950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Required of all Pharmaceutical Science PhD students with Health Outcomes Research and Policy Option. Course may be repeated for a maximum of 10 credit hours.

HORP 8960 SPECIAL PROBLEMS IN HEALTH OUTCOMES RESEARCH (1-3) LEC. Departmental approval. Credit hours to be arranged. Course may be repeated for a maximum of 6 credit hours.

HORP 8990 RESEARCH AND DISSERTATION (1-10) DSR. Credit hours to be arranged. Course may be repeated with change in topics.

Interdept Pharmacy Courses

PYDI 4980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN PHARMACY (1-3) IND. SU. Departmental approval. Individual problems course. Students will work under the direction of a faculty member on some problem of mutual interest. Course may be repeated for a maximum of 6 credit hours.

PYDI 9030 MENTAL ILLNESS I: SERIOUS MENTAL ILLNESS (1) LEC. 2. To expose pharmacy students to psychiatry and to develop a working knowledge of both basic and advanced issues related to psychiatric illnesses. Must be enrolled in Doctor of Pharmacy program.

PYDI 9040 MENTAL ILLNESS II: ANXIETY, ALZHEIMERS AND AUTISM (1) LEC. 2. To expose pharmacy students to psychiatry and to develop a working knowledge of both basic and advanced issues related to psychiatric illnesses. Continuation of PYDI 9030. Must be enrolled in Doctor of Pharmacy program.

PYDI 9050 AMBULATORY CARE PHARMACY PRACTICE (1) LEC. 2. The Ambulatory Care Pharmacy elective will expose the students to this practice setting and the unique patient and practice issues associated with developing an ambulatory care practice. Must be enrolled in Doctor of Pharmacy program.

PYDI 9060 CURRENT ISSUES IN PHARMACY (1) LAB. 4. The Current Issues in Pharmacy elective will expose the students to current topics affecting pharmacy in multiple practice settings and provide students the chance to explore the issues and consider the opportunities presented to the profession by these topics. Students will engage in discussion and application with each other. Must be enrolled in Doctor of Pharmacy program.

PYDI 9070 THE ART OF WELLBEING (1) LEC. 2. This course will explore the following aspects of wellbeing: career, social, financial, physical and community. Additionally, students will gain insight into their own well-being through identifying areas they are thriving in, and areas they can improve. Ultimately, strategies to improve wellbeing in a particular area will be created and implemented. Must be enrolled in Doctor of Pharmacy program.

PYDI 9150 PROVIDING PHARMACY CARE FOR THE LGBTQ COMMUNITY (1) LEC. 2. This course focuses on addressing the health disparities and discrimination members of the LGBTQ community face. The course will discuss healthcare policy, societal barriers to care, and health conditions and disease states which affect the LGBTQ community, including HIV/AIDS, STIs, mental health, and hormone therapy for transgendered patients. Must be enrolled in the Doctor of Pharmacy Program.

PYDI 9160 DEVELOPMENT AND IMPLEMENTATION OF MTM SERVICES (1) LEC. 2. The course focuses on the development and implementation of Medication Therapy Management (MTM) services. Topics discussed include a review of the MTM process, development of MTM services, billing opportunities, case-based approaches to performing MTM, and different technology platforms to assist with the delivery and documentation of MTM services. Must be enrolled in Doctor of Pharmacy Program.

PYDI 9170 MENTAL HEALTH FIRST AID (1) LEC. 1. Pr. PYPD 9230. This course will provide health professional students the skills they need to reach out and provide the initial help and support to someone who may be developing a mental health or substance use problem, or experiencing a crisis.

PYDI 9180 IMMERSIVE TECHNOLOGIES IN HEALTHCARE (1) LEC. 1. Pr. PYPD 9230. Immersive technologies are defined as those that blur the lines between the real world and a virtual world, creating a sense of immersion. This course will introduce HCOP students to these technologies and review examples of both patient-facing and learner-facing applications. HCOP students will also learn the basics of health behavior theories that inform the use of these technologies and the process of development of immersive applications, in very basic, accessible terms.

PYDI 9800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING FOR PHARM.D. (2) LEC. 2. State-of-the-art survey of molecular imaging techniques and clinical imaging modalities that are available and their use to monitor the progression of various human diseases.

PYDI 9960 SPECIAL PROBLEMS IN PHARMACY (1-3) IND. Independent study of problems related to pharmacy under the direction of a faculty member. Departmental approval. Fall. Spring. Course may be repeated for a maximum of 6 credit hours.

PYDI 9970 SPECIAL TOPICS IN PHARMACY (1-3) LEC. 1-3. Instruction and discussion in a selected current topic in Pharmacy. Fall, Spring. Course may be repeated for a maximum of 3 credit hours.

Pharmacy PharmD Courses

PYPD 9000 ORIENTATION (1) WSP. 12.5. This one week course introduces the expectations for a student in the Harrison School of Pharmacy's Practice Ready Curriculum. The course introduces aspects of the role of the pharmacist in healthcare including team member, interprofessional practice, and continual professional development.

PYPD 9010 DRUGS IN PREGNANCY AND LACTATION (1) LEC. 1. The purpose of this course is to introduce pharmacy students to the concepts of teratogenicity, pregnancy and lactation. Non-pharmacological and pharmacological therapy is focused to common pregnancy disease states and lactation issues.

PYPD 9020 FOUNDATIONS OF LEADERSHIP WITHIN THE PHARMACY PROFESSION (1) LEC. 1. This course will allow students to identify leadership skills, traits and values. Leadership tools and resources will be discussed. Students will be exposed to leadership within the practice of pharmacy as well as pharmacy organizations.

PYPD 9030 INTRODUCTION TO PEDIATRICS (1) LEC. 1. The purpose of this course is to introduce students to the basic concepts regarding pediatric development and care including but not limited to normal growth and development, pediatric calculations, community based care, counseling skills, and common disease states.

PYPD 9040 KIDNEYS, DRUGS AND ELIMINATION: WHAT PHARMACISTS NEED TO KNOW (1) LEC. 1. Students will gain in-depth knowledge of how declining kidney function and renal replacement modalities affect biopharmaceutics and develop experience in evaluating drug information related to renal dosing.

PYPD 9050 ONCOLOGY CARE (1) LEC. 1. This course will provide student pharmacists with a working knowledge of cancer as a disease state, as well as the pharmacotherapeutics of chemotherapy, targeted therapy, and biologic therapy. Additionally, students will explore aspects of supportive care, ADR and drug interaction management, chemotherapy administration, and drug monitoring. The structure of the course is highly collaborative and interactive. Students are expected to participate in group activities with a professional and collegial spirit.

PYPD 9060 SELF-CARE AND NONPRESCRIPTION PHARMACOTHERAPY (1) LEC. 1. This course will introduce students to nonprescription pharmacotherapy and other self-care measures used in the outpatient setting to treat minor medical problems. As the most accessible health care professionals, pharmacists are often approached by members of the community to recommend treatments for common ailments. It is important for pharmacists to quickly and accurately assess patients to determine if they are an appropriate self-care candidate or if referral to another health care provider is warranted. This course will expand upon self-care and nonprescription pharmacotherapy topics introduced in the required curriculum, introduce students to self-care issues specific to various special populations, and allow students to learn from one another through group presentations and case discussions.

PYPD 9080 POPULATION HEALTH IPPE (2) CLN. 2. SU. This course is a longitudinal introductory pharmacy practice experience (IPPE) that students will complete during the P2 year. During this course, practical concepts related to pharmaceutical care and the pharmacists' patient care process are re-enforced through the provision of basic care to community based patients. Students will earn 10 IPPE hours from the successful completion of the course. Earning of IPPE hours will be done through multiple formats including traditional in-home patient encounters, patient care simulations, as well as other practical experiences in collaboration with community partners.

PYPD 9160 COMMUNITY PHARMACY IPPE (2) LEC. 2. SU. Students will be exposed to a community pharmacy setting in which they will gain experience in the drug distribution process, patient counseling, and interprofessional collaboration. Students will have opportunities to apply concepts and clinical knowledge learned during their P1 year. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic Programs.

PYPD 9170 HEALTH SYSTEM PHARMACY IPPE (2) CLN. SU. Students will have opportunities to apply concepts and clinical knowledge previously learned to patient care in the setting of a functioning institutional pharmacy. They will participate in patient care through the drug distribution process, prospective drug review, drug monitoring, and interprofessional interactions. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic Programs.

PYPD 9180 CLINICAL PHARMACY IPPE (1) LEC. 1. SU. This is an introductory pharmacy practice experience (IPPE) course focused on providing pharmaceutical care to patients in a primary/ambulatory care or acute care setting. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic Programs.

PYPD 9190 HEALTH AND WELLNESS INTRODUCTORY PHARMACY PRACTICE EXPERIENCE (1) CLN. 1. SU. This is an Introductory Pharmacy Practice Experience (IPPE) that students will complete during a one-week block in their P2 year. Students will receive 40 IPPE hours upon completing the course. Students will build upon their initial exposure to the community pharmacy setting that occurred during their three-week Community Pharmacy IPPE in the Summer after their P1 year and focused on the medication distribution process. The focus of the Health and Wellness rotation experience is providing clinical services to patients within in the community pharmacy setting. Students have opportunities to apply concepts and clinical knowledge learned during their P1 and P2 years to the community pharmacy setting. Students will be engaged in determining patients' immunization status and making appropriate recommendations. Students will educate patients on immunizations and administer immunizations under the supervision of their licensed pharmacist preceptor. Another area of emphasis during this experience will be screening patients for hypertension and diabetes by performing blood pressure and blood glucose measurements. Students will interpret and explain results of health screenings to patients and educate them on the importance of self-monitoring. Admission into the Doctor of Pharmacy Program or approval of the Associate Dean for Academic Affairs.

PYPD 9200 INTEGRATED LEARNING EXPERIENCE I (6) LEC. 6. Students will acquire foundational knowledge of Hypertension, Diabetes Mellitus, Obesity Management, Diarrhea and Constipation, Fluid and Electrolytes, and Hypersensitivity. These disease states will provide context for students to develop knowledge and skills of various aspects of the Patient Care Process.

PYPD 9210 INTEGRATED LEARNING EXPERIENCE II (6) LEC. 6. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. Students will acquire foundational knowledge of Lipids, Depression, Alzheimer's/Dementia, Hypothyroid, Asthma, Chronic obstructive pulmonary disease (COPD), and Smoking Cessation. These disease states will provide context for students to develop knowledge and skills of various aspects of the PPCP.

PYPD 9220 INTEGRATED LEARNING EXPERIENCE III (6) LEC. 6. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216). Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences. Students will acquire foundational knowledge related to Pain, Osteoarthritis (OA), Seizures, Gastroesophageal reflux disease (GERD), Stable ischemic heart disease (SIHD), Stroke, Thromboembolism, and Heart Failure.

PYPD 9230 INTEGRATED LEARNING EXPERIENCE IV (6) LEC. 6. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216). This six-week course will focus on knowledge and skills related to various aspects of the Pharmacists' Patient Care Process such as collecting information, conducting assessments, developing and implementing a plan including patient counseling, and documenting patient information. The course includes an introduction to pharmaceutical compounding and foundational knowledge related to over-the-counter treatment of cough, cold, and various dermatologic conditions.

PYPD 9240 INTEGRATED LEARNING EXPERIENCE V (6) LEC. 6. Pr. (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences to provide students with the knowledge, skills, behaviors, and attitudes necessary for developing into a practice ready pharmacist. During this ILE, students will acquire foundational knowledge related to generalized anxiety disorder; bipolar disorder/ schizophrenia; dementia; Parkinson's disease, attention-deficit/hyperactivity disorder (ADHD); sleep disorders; hepatitis and cirrhosis; pancreatitis; and hyperthyroidism.

PYPD 9250 INTEGRATED LEARNING EXPERIENCE VI (6) LEC. 6. Pr. (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences to provide students with the knowledge, skills, behaviors, and attitudes necessary for developing into a practice ready pharmacist. During this ILE, students will acquire foundational knowledge related to diabetic ketoacidosis (DKA)/ hyperosmolar hyperglycemic state (HHS); acid-base disturbances; nausea and vomiting; dehydration; chronic kidney disease (CKD) and secondary complications; acute kidney injury (AKI); nutrients/nutrition; and iron deficiency.

PYPD 9260 INTEGRATED LEARNING EXPERIENCE VII (6) LEC. 6. Pr. (PYPD 9240 or PYPD 9246) and (PYPD 9250 or PYPD 9256). Students will acquire foundational knowledge related to HIV/AIDS, fungal and opportunistic infections, upper respiratory tract infections, allergic rhinitis, viral infections, meningitis, and sepsis. Students will increase the depth of disease states and medications encountered in ILE 4 including: skin and soft-tissue infections, pneumonia, urinary tract infections, sexually transmitted diseases, cough and cold, and dermatologic conditions. The disease states will be integrated to allow student understanding of the relationship between the disease states and medications used to treat these disorders. These disease states will provide context for students to apply knowledge and skills of various aspects of the Pharmacists' Patient Care Process such as collecting information, conducting assessments, developing and implementing a plan including patient counseling, and documenting patient care plans in the SOAP format and/or in the electronic health record (EHR). Students will explore the relationship between medicinal chemistry and the physical and chemical properties which affect ADME, as well as how these relate to differences within and between drugs and drug classes. ILE 7 will reinforce previous competencies introduced in ILEs 1-6, allowing students to apply what was learned in a different context (varying disease states and/or more complex situations).

PYPD 9270 INTEGRATED LEARNING EXPERIENCE VIII (6) LEC. 6. Pr. (PYPD 9240 or PYPD 9246) and (PYPD 9250 or PYPD 9256). During this learning experience, students will acquire foundational knowledge related to cardiology, rheumatology, men's and women's health, and neurology. Students will increase the depth of disease states and medications encountered earlier in the program including: stable ischemic heart disease, venous thromboembolism, stroke, heart failure, osteoarthritis, pain, and epilepsy. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs

PYPD 9280 INTEGRATED LEARNING EXPERIENCE IX (6) LEC. 6. Pr. (PYPD 9260 or PYPD 9266) and (PYPD 9270 or PYPD 9276). In this course, students will acquire and/or reinforce knowledge related to inflammatory bowel disease, fluids and electrolytes, nutrition support services, hematology, oncology, sepsis, endocarditis, fungal infections, sedation, delirium of critical illness, glomerulonephritis, diabetic ketoacidosis, acid-base disturbances, and type 1 diabetes. This course reinforces competencies related to using subjective and objective information to determine patient-specific healthcare needs and the formulation of an assessment. The content will reinforce organizing and prioritizing information gathered, assessing the appropriateness of therapy based on efficacy and safety, determining the relevance of medication allergies and interactions, and preventing hospital admissions. The development and implementation of an evidence-based, patientcentered care plan that incorporates the assessment of patient-specific factors and medications will be emphasized throughout. Professional communication, focusing on communicating with patients or healthcare providers when there is an educational need, will be reinforced. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs.

PYPD 9290 INTEGRATED LEARNING EXPERIENCE X (6) LEC. 6. Pr. (PYPD 9260 or PYPD 9266) and (PYPD 9270 or PYPD 9276). This course reinforces competencies related to collecting and using subjective and objective information to determine patient specific healthcare needs and the formulation of an assessment and plan. The content will reinforce organizing and prioritizing information gathered, assessing appropriateness of therapy based on efficacy and safety, determining the relevance of medication allergies and interactions, preventing hospital admissions, and knowing when self-treatment is appropriate versus conditions that need a referral. The development and implementation of an evidence-based, patient-centered care plan that incorporates the assessment of patient-specific factors and medications will be emphasized throughout. Professional communication, focusing on communicating with patients or healthcare providers will be reinforced with emphasis on cultural awareness and barriers in education.

PYPD 9300 INTEGRATED LEARNING EXPERIENCE XI (6) LEC. 6. Pr. (PYPD 9280 or PYPD 9286) and (PYPD 9290 or PYPD 9296). This course reinforces competencies related to collecting and using subjective and objective information to determine patient specific healthcare needs and the formulation of an assessment and plan. The content will reinforce organizing and prioritizing information gathered, conducting medication reconciliation, assessing appropriateness of therapy based on efficacy and safety, determining the relevance of medication allergies, and knowing when self-treatment is appropriate versus conditions that need a referral. The development and implementation of an evidence-based, patient-centered care plan that incorporates the assessment of patient-specific factors and medications will be emphasized throughout. The legal requirements for medication distribution will be emphasized for processing medication orders as well as medication safety reporting and documentation.

PYPD 9310 INTEGRATED LEARNING EXPERIENCE XII (6) LEC. 6. Pr. (PYPD 9280 or PYPD 9286) and (PYPD 9290 or PYPD 9296). This course reinforces competencies related to collecting and using subjective and objective information to determine patient specific healthcare needs and the formulation of an assessment and plan. The content will reinforce the interpretation, verification, processing, and labeling of medications orders in different healthcare settings with increasing complexity, complying with all federal, state, and local laws; collecting, reviewing, and assessing subjective and objective information; identifying and correcting drug-related problems; utilizing appropriate medical and medication informational resources and applying the knowledge of study design and literature analysis; performing calculations; communicating with and educating patients, caregivers and stakeholders; and identifying resources for patient's healthcare needs. The students will further develop an understanding of the relationship between patient-specific factors, including pharmacogenomics, on drug selection and monitoring. Drug interactions will be explored more in-depth as students understand how to predict and resolve drug-drug and drug-disease interactions based on drug-specific and patient-specific factors. Cases will emphasize various patient populations, such as adolescent, pregnancy, and older adult. Immunization assessment and plan will be incorporated in each patient case. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic Programs.

PYPD 9320 LONGITUDINAL EXPERIENCE I (3) LEC. 3. This semester-long course focuses on navigating the health care system. Learners will explore key issues related to patient education/public health, communication, assessment, advocacy, and management.

PYPD 9330 LONGITUDINAL EXPERIENCE II (3) LEC. 3. Pr. (PYPD 9320 or PYPD 9326). Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This semester long course integrates multiple disciplines, including social/behavioral/administrative sciences and clinical sciences to introduce students to issues related to public health, population health, and individual health and wellness.

PYPD 9340 LONGITUDINAL EXPERIENCE III (3) LEC. 2.5. Pr. (PYPD 9330 or PYPD 9336). This longitudinal experience will introduce students to topics related to strategic marketing strategies for pharmacists' services and will expose students to different types of innovative pharmacy services in different practice settings. The overall goal of this longitudinal experience is to teach students the pertinent skills and decision-making tools needed to establish a new non-dispensing pharmacy service and justify its existence through both financial and intangible values, as well as to design systems and processes that will foster effective and appropriate communication between the pharmacist and patients, other healthcare providers, and stakeholders.

PYPD 9350 LONGITUDINAL EXPERIENCE IV (3) LEC. 2.5. Pr. PYPD 9340 or PYPD 9346. This Longitudinal experience will build on prior courses with a focus on incorporating and improving a given service within a pharmacy, within the context of services and products. Thus, the Longitudinal will have a Pharmacy Operations Management and Continuous Quality Improvement (CQI) emphasis. Students will be introduced to the CQI process and principles to enable them to 'improve' existing operations and clinical services. The use of a variety of examples will provide opportunities to apply principles to support recommendations regarding pharmacy operations. This will involve data collection and creation of an improvement plan. To complete the exploration of operations and CQI topics, financial considerations will be incorporated, focusing on the entire pharmacy program, including the role of payers. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs

PYPD 9360 LONGITUDINAL EXPERIENCE V (3) LEC. 2.5. Pr. PYPD 9350 or PYPD 9356. This course will focus on the planning and sustainability of pharmacy services through billing, contract, and inventory management along with personnel and formulary management. The emphasis on formulary management will be to assist the Pharmacy and Therapeutics (P&T) committee's decision making regarding which drugs to put on the formulary. The medication use process will also be discussed and applied. The Longitudinal will also prepare students to meet future needs of the pharmacy profession by engaging students in thinking about non-traditional services and ideas.

PYPD 9370 LONGITUDINAL EXPERIENCE VI (3) LEC. 2.5. Pr. PYPD 9360 or PYPD 9366. This semester-long course focuses on providing learners with learning opportunities related to their personal and professional goals. Learners will explore key issues related to drug information / evidence-based medicine, leadership, professionalism, and professional development.

PYPD 9380 GERIATRIC CARE I (1) LEC. 1. This study of geriatric health focuses on geriatric patient assessment and interprofessional care of the older adult patient. Students will be required to evaluate how pharmacists can impact these sequelae through interprofessional care teams while optimizing patient's health-related quality of life. This course focuses on those environmental, psychological, and physiological characteristics that are unique to, or more prevalent among, geriatric patients. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9390 GERIATRIC CARE II (1) LEC. 1. This study of geriatric health focuses on geriatric patient assessment and management of common pharmacotherapy issues in the older adult patient. Students will be required to evaluate how pharmacists can impact these sequelae through pharmacotherapy management while optimizing patient's health-related quality of life. This course focuses on those pharmacodynamic and pharmacokinetic characteristics that are unique to, or more prevalent among, geriatric patients. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9400 WORKSHOP I (1) LEC. 1. In this workshop, will explore the use of drug information resources and related to the use of drug information resources and population levels.

PYPD 9410 WORKSHOP II (1) LEC. 12.5. Pr. PYPD 9400 or PYPD 9406. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to the Pharmacists' Patient Care Process.

PYPD 9420 WORKSHOP III (1) LEC. 12.5. Pr. PYPD 9410 or PYPD 9416. This is a focused, intensive, one-week workshop where students will acquire theoretical and practical knowledge related to a contemporary issue in the field of pharmacy. In this workshop, students will explore the provision of pharmacy-based immunization services utilizing the APhA Pharmacy-Based Immunization Delivery course materials and additional supplemental instructional materials. At the end of this workshop students will have the knowledge and skills related to the development and provision of pharmacy-based immunization services, will know how to serve as a vaccine advocate, and will receive a certificate of completion for the APhA Pharmacy-Based Immunization Delivery course.

PYPD 9430 WORKSHOP IV (1) LEC. 1. Pr. PYPD 9420 or PYPD 9426. This workshop builds upon concepts taught across the first two years in the ILE's and will utilize information the students have developed from a series of self paced videos designed to teach the basic science concepts of pharmacokinetics. The students will also be expected to incorporate knowledge related to previously covered diseases and medications. The focus of the workshop will be to show the students the application of pharmacokinetic knowledge related to A, D, M, and E in multiple settings (retail, hospital, long term care) of pharmacy practice in a case based setting. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs.

PYPD 9440 WORKSHOP V (1) LEC. 12.5. Pr. PYPD 9430 or PYPD 9436. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to pharmacoeconomics and its application to the economic evaluation of pharmaceuticals and the overall healthcare system.

PYPD 9450 WORKSHOP VI (1) DSL/LEC. 12.5. Pr. PYPD 9440 or PYPD 9446. In this focused, intensive, one week workshop students will review and update their patient care skills, determine their own long term career goals, and develop a plan for achieving those goals.

PYPD 9460 FINANCES FOR THE PHARMACIST (1) LEC. 1. Pharmacy students need specific advice to prepare for life after pharmacy school in relation to financial planning including managing debt, credit, budgeting, and banking. After graduation from pharmacy school, the majority of students have high amounts of debt and enter the workforce with a higher income that they are likely unaware of how to manage. Equipping students with skills and knowledge to manage their finances will help them be more productive and avoid pitfalls and anxiety related to finances. Admission into the Doctor of Pharmacy Program or permission of the Associate Dean for Academic Programs.

PYPD 9470 PRINCIPLES OF FUNCTIONAL MEDICINE – A PATIENT CENTERED APPROACH (1) LEC. 1. Students will be introduced to the concept of Functional Medicine and the pharmacist's role in chronic disease state management using Functional Medicine principles. Students will also examine the impact of holistic healing as a path to overall health and wellness through investigation of their own health and wellness. Students will utilize evidence-based medicine as a framework for these principles and will apply the information learned in this course to patient care. Admission into the Doctor of Pharmacy Program or permission of the Associate Dean for Academic Programs.

PYPD 9480 ADVANCED PHARMACOKINETICS I (1) LEC. 1. SU. Pr. PYPD 9430 or PYPD 9436. The purpose of this course is to build upon basic pharmacokinetic concepts introduced earlier in the curriculum to develop the skills and expertise necessary to create an individualized plan for dosing and monitoring vancomycin and aminoglycoside antibiotics.

PYPD 9490 INTRODUCTION TO PHARMACOGENOMICS (1) LEC. 1. Pr. (PYPD 9230). This College of Pharmacy elective course will introduce pharmacy students to genetic variation and how this impacts efficacy and adverse effects associated with pharmacotherapy within a variety of disease states.

PYPD 9500 AMBULATORY CARE ANTICOAGULATION (1) LEC. 1. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will provide students with a working knowledge of pharmacotherapeutic issues related to anticoagulation therapy in the out-patient setting including an introduction to the various roles of pharmacists in the management of anticoagulation therapy.

PYPD 9510 EXPLORING DIABETES CARE FROM THE PATIENT PERSPECTIVE (1) LEC. 2.1. Pr. (PYPD 9200 or PYPD 9206 and PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226 and PYPD 9230 or PYPD 9236). or permission of the Associate Dean for Academic and Student Affairs. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. Students will learn from pharmacists who specialize in diabetes to discuss pivotal literature sources and their impact on patient care. Students will gain appreciation of Standards of Care through active participation in a weekly deconstructed "diabetes experience" documented with reflective individual writings and/or group video recordings.

PYPD 9520 DRUGS OF ABUSE AND MISUSE (1) LEC. 1. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will provide students with a working knowledge of the current trends in drugs of abuse, the public health implications from abuse of these drugs, and the role of different community stakeholders in the fight against this epidemic.

PYPD 9530 RESEARCH METHODS IN HEALTH SERVICES I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. The course is designed to provide a comprehensive introduction to the primary research methods used in clinical and health services research. It will focus on an introduction to various research designs including experimental and non-experimental, as well as quantitative and qualitative research methods. This course is ideal for student pharmacists and graduate students who want to acquire research knowledge and skills enabling them to participate in clinical and translational research teams and to evaluate programs/services at their clinical/pharmacy sites. It will serve as a research resource for their future research projects.

PYPD 9540 RESEARCH METHODS IN HEALTH SERVICES II (1) LEC. 12.5. PYPD 9530 or enrolled in PYPD 9530 during the same semester. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course is ideal for student pharmacists and graduate students who want to acquire research knowledge and skills enabling them to participate in clinical and translational research teams and to evaluate programs/services at their clinical/pharmacy sites. It will serve as a research resource for their future research projects.

PYPD 9550 ACUTE CARE PHARMACOTHERAPY I (1) LEC. 1. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course is designed to orient the pharmacy student to the acute care environment and familiarize the student with patient disease states and pharmacotherapy issues associated with the acutely ill patient in an inpatient setting.

PYPD 9560 ACUTE CARE PHARMACOTHERAPY II (1) LEC. 2. This course is a continuation of PYPD 9550. The course will cover more disease states and pharmacotherapy issues related to patients in an inpatient setting. Additionally, there will be more focus on special populations along with dosing medications in organ dysfunction.

PYPD 9570 HISTORY OF PHARMACY (1) LEC. 1. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. History influences nearly everything we do and that is certainly the case for the profession of pharmacy. Every course taught can provide historical contexts for the information and application. A general course in pharmacy history can give a firm foundation for any student and graduate to fully embrace their chosen profession, understand its beginnings and development, and be a competent practitioner. The intent of this course is to provide that background so that the student has an appreciation for what has come before and an understanding of the many symbols and advances of the profession that surround any pharmacy practitioner. This ranges from the Rx to the patient counseling booth to the pharmacokinetic consult.

PYPD 9580 PALLIATIVE CARE AND END OF LIFE (1) LEC. 1. Students will be introduced to the pharmacist's role in hospice/palliative care and symptoms experienced by the dying with an emphasis on interdisciplinary care. Students will also examine the impact of multicultural aspects of providing care in palliative and hospice care.

PYPD 9590 ADVANCED TRAINING IN DIABETES CARE FROM THE PROVIDER'S PERSPECTIVE (1) LEC. 1. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236) and (PYPD 9240 or PYPD 9246) and (PYPD 9250 or PYPD 9256) and (PYPD 9260 or PYPD 9266) and (PYPD 9270 or PYPD 9276). Course will emphasize completion of necessary steps for achieving The Pharmacist and Patient-Centered Diabetes Care certificate by the American Pharmacists Association, which will include but is not limited to: small group exercises, class discussions, simulated patient counseling (medication, lifestyle and devices). Permission of the Associate Dean for Academic Programs may be needed.

PYPD 9600 ADVANCED PHARMACY PRACTICE EXPERIENCE (5) PRA. Pr. (PYPD 9310 or PYPD 9316). Advanced pharmacy practice experiences in Acute Care/General Medicine, Ambulatory Care/Primary Care, Community Pharmacy, Drug Information, and various other pharmacy practice settings. Course may be repeated for a maximum of 45 credit hours.

PYPD 9610 COMMUNITY PHARMACEUTICAL CARE (5) PRA. 62.5. Advanced Practice Experience in a community pharmacy practice setting that provides pharmaceutical care services such as disease management and other advanced patient care activities. Fall, Spring, Summer.

PYPD 9620 MEDICINE I (5) PRA. 62.5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Fall, Spring, Summer.

PYPD 9630 MEDICINE II - SELECTIVE (5) PRA. 62.5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Additional experience beyond PYDI 9620. Fall, Spring, Summer.

PYPD 9640 PRIMARY/AMBULATORY CARE I (5) PRA. 62.5. Advanced practice experience in providing care to patients as they initially access the health care system. Fall, Spring, Summer.

PYPD 9650 PRIMARY/AMBULATORY CARE II (5) IND/PR1. 62.5. This culminating course will require a comprehensive review and application of knowledge gained throughout the first 3 years of the PharmD Curriculum. Through case, problem and project based learning, learners will apply didactic and clinical knowledge/skills in a self-directed manner.

PYPD 9660 HEALTH SYSTEM PRACTICE (5) PRA. 62.5. Advanced practice experience in a health system setting that prepares the student to adapt and function within systems of integrated pharmaceutical care services. Fall, Spring, Summer.

PYPD 9670 PRACTICE ELECTIVE I (5) PRA. 62.5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYPD 9680 PRACTICE ELECTIVE II (5) PRA. 62.5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYPD 9690 DRUG INFORMATION-SELECTIVE (5) PRA. 62.5. Status of a 4th Year Doctor of Pharmacy Student (P4) or Permission of the Associate Dean for Academic and Student Affairs. Advanced practice experience in providing drug information services to health care providers. Fall, Spring, Summer.

PYPD 9700 SUMMATIVE EXPERIENCE I (3) IND. 37.5. SU. The P4 Summative Experience I is an independent study course focusing on the North American Pharmacist Licensure Examination (NAPLEX) preparation utilizing the RxPrep package. Students will work longitudinally to complete study modules based on an assigned schedule with each module culminating in a cumulative assessment. Course requirements are to be completed outside of Advanced Pharmacy Practice (APPE) rotation requirements.

PYPD 9710 COMMUNITY PHARMACY PRACTICE I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will focus on legal and business aspects of community pharmacy practice. Students will be paired with a mentor for this course who will provide real world examples of these aspects of community pharmacy.

PYPD 9720 COMMUNITY PHARMACY PRACTICE II (1) LEC. 1. This course will focus on the development and implementation of clinical services within the community pharmacy setting. Students will receive training on concept development through implementation of medication therapy management services in this setting.

PYPD 9730 INFECTIOUS DISEASES I (1) LEC. 1. This course will provide the student with an in depth exposure to the treatment of bacterial infectious diseases, with a particular focus on antimicrobial stewardship and the treatment of multidrug-resistant organisms.

PYPD 9740 INFECTIOUS DISEASES II (1) LEC. 1. This course will provide the student with an in depth exposure to the treatment of different viral, fungal, and bacterial infectious diseases not covered in depth in other portions of the curriculum. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs

PYPD 9750 ADVANCED MOTIVATIONAL INTERVIEWING (1) LEC. 1. Motivational interviewing (MI) is an evidence-based method for facilitating voluntary health behavior change with patients and with providers. Target behaviors for patients engaged in comprehensive disease management may include outcome enhancing behaviors like medication taking, healthy eating, monitoring, physical activity, sleep management, smoking cessation, among others. This course will 1) explore the conceptual basis for why motivational interviewing is effective in facilitating health behavior change, and 2) provide basic and advanced training and practice for using motivational interviewing to help patients with self-management of their health conditions. This course is intended and designed to support and build student self-efficacy for using MI in patient encounters within a health/disease management context. MI principles and micro skills will be applied by the instructor in the process of helping facilitate student learning. It is hoped that the student will come away from the course encouraged, not discouraged, about using MI for improved patient outcomes in future practice/research.

PYPD 9760 POST-GRADUATE TRAINING PREPARATION (1) LEC. 1. This course will review post-graduate education opportunities for pharmacists with a focus on pharmacy residency training. Students will learn about post-graduate opportunities within pharmacy and develop skills and tools necessary in securing a position after graduation.

PYPD 9770 ACUTE CARE ANTITHROMBOTIC (1) LEC. 1. This course will provide students with a working knowledge of pharmacotherapeutic issues related to antithrombotic therapy in the inpatient setting including an introduction to roles and responsibilities of pharmacists in the management of antithrombotic therapy in this setting. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9780 TOXICOLOGY AND POISONS (1) LEC. 1. Toxicology is the science of poisons and their antidotes. Almost any substance has the ability to cause noxious effects on living beings. The Toxicology and Poisons course is designed to introduce the Doctor of Pharmacy student to the role of the pharmacist in the management of poisonous substances and intentional and unintentional drug overdoses. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Program.

PYPD 9790 THERAPEUTIC USE OF OPIOIDS (1) LEC. 1. Opioids as a class of medications are a high risk class of medications. As such, it is important that pharmacists learn to be systematic in their approach to dosing these medications and to recognize common mistakes made in their dosing. This course will provide an in-depth approach to dosing these medications. Each week will focus on a different area of dosing using patient cases to allow students to practice calculations and making recommendations. Status as a 3rd year student in the Doctor of Pharmacy program or permission of the Associate Dean of Academic Programs.

PYPD 9800 SUMMATIVE EXPERIENCE II (3) IND. 3. SU. Pr. PYPD 9700. The P4 Summative Experience II contains both an independent study component focusing on North American Pharmacist Licensure Examination (NAPLEX) board exam and Multistate Pharmacy Jurisprudence Examination (MPJE) preparation utilizing the RxPrep package and supplemental materials as well as the completion of various assignments during the course of Advanced Pharmacy Practice Experiences (APPE) rotations. Course requirements are adjunctive to APPE rotation requirements. Status of a 4th Year Doctor of Pharmacy Student (P4) or permission of the Associate Dean for Academic Programs.

PYPD 9810 ADVANCED PEDIATRICS (1) LEC. 1. The purpose of this course is to expose students to advanced pediatric topics regarding disease states, therapeutics (acute and chronic therapy) and pharmacogenomics. Concepts from the Introduction to Pediatrics course will be incorporated. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9820 INTERPROFESSIONAL PEDIATRICS (1) LEC. 1. Course will expose students to advanced pediatric topics regarding disease states, pharmacokinetics, and therapeutics. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9830 ACUTE CARE SELECTIVE II (5) LEC. 5. Advanced practice experience in providing pharmaceutical care to patients in an additional acute care setting. General medicine (acute care) experiences provide comprehensive, evidence-based, individualized, patient-centered care to adult inpatients typically located on a general medicine floor. Pharmacists are expected to be accountable for the patient's drug therapy outcomes and practice as an integrated member of the inter-professional health care team. Typical patients present with the following medical problems: cardiac, pulmonary, renal, hepatic, neurologic, gastrointestinal, endocrine and infectious diseases. The experience incorporates all elements of care from medication reconciliation, medication therapy recommendations and monitoring, discharge counseling, and transitions of care. Doctor or Pharmacy program or permission of the Associate Dean for Academic Programs

PYPD 9840 CLINICAL ISSUES IN UNDERSERVED POPULATIONS (1) LEC. 1. This course focuses on addressing barriers patients vulnerable to health disparities face in our healthcare system. Students will expand knowledge of social determinants of health, available medication resources, and clinical strategies to reduce health disparities in the primary care setting. Enrollment in the Doctor of Pharmacy Program or approval of the Associate Dean for Academic Programs.

PYPD 9850 PRIMARY CARE SELECTIVE II (5) LEC. 5. Advanced practice experience in providing pharmaceutical care to patients as they initially access the health care system. This is an additional opportunity for students to train in a primary care care setting. Primary care experiences provide evidence-based, patient-centered collaborative care in the outpatient setting to meet the medication management needs of patients in the treatment of chronic disease. These pharmacists promote health and wellness, disease prevention and education, and medication management of chronic illnesses such as diabetes, hypertension, coronary artery disease / dyslipidemia, asthma / chronic obstructive pulmonary disease, and heart failure. Other chronic diseases encountered by the ambulatory care pharmacist may include chronic kidney disease, chronic infectious diseases, and other chronic diseases responsive to infusion therapy that do not require hospitalization. Pharmacist delivered ambulatory care occurs in institutional health system-based clinics, community-based clinics, government-funded clinics, and managed care organizations as well as the community pharmacy setting where comparable care is provided. 4th year Doctor of Pharmacy Students or the permission of the Associate Dean for Academic Programs

PYPD 9860 METABOLIC SYNDROME 1 (1) LEC. 1. Metabolic Syndrome 1 will focus on the assessment and treatment (nonpharmacologic and pharmacologic) of disease states related to metabolic syndrome, including prevention of these comorbidities. Special attention will be given to patient considerations in the management of these diseases. Enrollment in the Doctor of Pharmacy Program or Approval of the Associate Dean for Academic Programs.

PYPD 9870 METABOLIC SYNDROME 2 (1) LEC. 1. Metabolic Syndrome 2 will focus on the assessment and treatment (nonpharmacologic and pharmacologic) of disease states related to metabolic syndrome with special attention given to its management of unique patient populations. In addition, considerations for communication with other healthcare providers will be addressed. Enrollment in the Doctor of Pharmacy Program or approval of the Associate Dean for Academic Programs.

PYPD 9880 CARDIOLOGY (1) LEC. 1. Pr. PYPD 9230. This course will introduce and expand upon core cardiovascular disease states essential for the practice ready pharmacist. HCOP students will utilize evidence-based medicine to guide all pharmacotherapy discussions and gain experience in applying these principles to make patient care decisions.

PYPD 9890 CONSULTANT PHARMACY: AN EXPANDING AREA OF PRACTICE (1) LEC. 1. Pr. PYPD 9230. Consultant pharmacy is an expanding area of practice. Consultant pharmacists collaborate with the healthcare team to provide expert clinical guidance to promote safe and effective drug therapy for older adult patients and to ensure compliance with state and federal regulations. This course will introduce HCOP students to the field of consultant pharmacy.

PYPD 9900 THE NUTRITION KITCHEN, AN INTERDISCIPLINARY CULINARY MEDICINE ELECTIVE (PHARMACY) (1) LEC. 1. SU. Pr. (PYPD 9230). The Nutrition Kitchen is an interdisciplinary culinary medicine elective to prepare future healthcare professionals utilizing a food-forward approach in the care of patients with nutrition-related chronic diseases. This specific course is for Doctor of Pharmacy students in the Harrison College of Pharmacy.

PYPD 9910 ANTIMICROBIAL STEWARDSHIP (1) LEC. 1. Pr. PYPD 9230. This HCOP elective course will explore the principles of antimicrobial stewardship and avenues for pharmacists to engage in antimicrobial stewardship efforts in a variety of patient care settings. Through simulated activities, pharmacy students will gain experience learning, recommending, and communicating antimicrobial stewardship interventions.

PYPD 9920 PHARMACY-BASED POINT-OF-CARE TEST AND TREAT (1) LEC. 1. SU. Pr. PYPD 9230. This course provides pharmacy students with knowledge and skills to develop and implement collaborative point-of-care testing programs. This HCOP elective will discuss the point-of-care test and treat process, including specimen collection, legal and management issues associated with point-of-care testing and follow-up care, and assessment of patients to determine if point-of-care testing is appropriate.

PYPD 9930 PRINCIPLES OF FUNCTIONAL MEDICINE 2 – A PATIENT CENTERED APPROACH (1) LEC. 1. Pr. (PYPD 9470). HCOP students will use the principles from the Functional Medicine course and the pharmacist's role in chronic disease state management to approach patient care using nutritional and lifestyle interventions to help prevent, heal, and potentially reverse disease. Students will continue to examine the impact of holistic healing as a path to overall health and wellness through investigation of their own health and wellness.

PYPD 9940 VETERINARY PHARMACY I (1) LEC. 1. Pr. (PYPD 9230). The purpose of this course is to introduce HCOP students to the practice of veterinary pharmacy. Veterinary-specific laws and regulations will be discussed, including special requirements for veterinary prescriptions. Species differences in pharmacokinetics, pharmacodynamics, and pharmacogenomics will be discussed, along with common disease states and pharmacologic treatments.

PYPD 9950 VETERINARY PHARMACY II (1) LEC. 1. Pr. (PYPD 9940). The purpose of this course is to expand HCOP students' knowledge of the practice of veterinary pharmacy. Large and exotic animal pharmacy will be discussed, along with pharmacological treatments.

PYPD 9980 PHARMACY RESEARCH (1-3) LEC. 1-3. The student will be expected to learn to conduct independent research activity. The specific research topic will lie within the scope of the School of Pharmacy writ large and will be decided by the student's faculty research advisor. Course may be repeated for a maximum of 6 credit hours.

Drug and Biopharmaceutical Sciences (DBPS)

B.S. Program in Drug and Biopharmaceutical Sciences (DBPS)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I*	3	ENGL 1120 English Composition II*	3
CHEM 1030 Fundamentals Chemistry I**	3	CHEM 1040 Fundamental Chemistry II**	3
CHEM 1031 Fundamental Chemistry I Laboratory**	1	CHEM 1041 Fundamental Chemistry II Laboratory**	1
Calculus**	4	BIOL 1020 Principles of Biology**	3
Core Humanities and Social Sciences*	3	BIOL 1021 Principles of Biology Laboratory**	1
DBPS 1010 Introduction to Drug and Biopharmaceutical Sciences I***	1	Core Humanities and Social Sciences*	3
		DBPS 1020 Introduction to Drug and Biopharmaceutical Sciences II***	1
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
Core Humanities and Social Sciences*	3	Core Humanities and Social Sciences*	3
Core Humanities and Social Sciences*	3	Core Humanities and Social Sciences*	3
DBPS 2010 Fundamentals of Biomedicinal Chemistry I***	4	DBPS 2020 Fundamentals of Biomedicinal Chemistry II***	4
DBPS 2030 Drug Targets I***	4	DBPS 2040 Drug Targets II***	4
DBPS 2050 Biopharmaceutical Data Analysis I	1	DBPS 2060 Biopharmaceutical Data Analysis II	1
	15		**15**

Junior

Fall	Hours	Spring	Hours
DBPS 3010 Medicinal Chemistry I***	4	DBPS 3020 Medicinal Chemistry II***	3
DBPS 3030 Drug Action I***	4	DBPS 3040 Drug Action II***	4
DBPS 3050 Drug Formulations***	3	DBPS 3060 Drug Pharmacokinetics***	4
DBPS 3070 Drug Research Seminar I***	1	DBPS 3080 Drug Research Seminar II***	1
Core Humanities and Social Sciences*	3	Core Humanities and Social Sciences*	3
	15		**15**

Senior

Fall	Hours	Spring	Hours
DBPS 4980 Research***	5	DBPS 4980 Research***	5
DBPS Program Electives***	5	DBPS Program Electives***	5
AU General Electives (DBPS approval required)**	5	AU General Elective (DBPS approval required)**	5
	15		**15**

Total Hours: 120

* AU Core requirement
** Existing AU course and program prerequisite
*** New DBPS course

College of Sciences and Mathematics

EDWARD THOMAS, *Dean*
MAGGIE HAN, *Associate Dean for Academic Affairs*
MARK LILES, *Associate Dean for Research*

The College of Sciences and Mathematics (COSAM) offers a dynamic and rigorous education in the physical sciences, life sciences, and mathematics through a wide range of undergraduate and graduate programs. In addition to serving its own majors, COSAM provides essential science and mathematics courses for students across all colleges and schools at Auburn University. The college is home to five academic departments—Biological Sciences, Chemistry and Biochemistry, Geosciences, Mathematics and Statistics, and Physics—as well as the interdisciplinary Biomedical Sciences Program. COSAM also oversees several key facilities that enrich education and research, including the Davis Arboretum, the Auburn University Museum of Natural History, and the Leach Science Center.

Undergraduate Degrees

The College of Sciences and Mathematics (COSAM) offers a wide range of four-year bachelor's degree programs in life sciences, physical sciences, and mathematics. These programs support students with strong interests in scientific inquiry, quantitative reasoning, and problem-solving, and prepare them for diverse futures, including graduate study, professional school, or careers in research, healthcare, education, government, and other science-related fields.

Students can pursue the following majors offered through the academic departments in COSAM, as well as the college-level Biomedical Sciences Program:

- Applied Mathematics (p. 1325)
- Applied Mathematics — Actuarial Science Option (p. 1326)
- Applied Mathematics — Applied Discrete Mathematics Option (p. 1327)
- Biomedical Sciences — Pre-professional concentrations in:
  - Pre-Pharmacy (p. 1347)
  - Pre-Medicine, Pre-Dental, Pre-Optometry (p. 1345)

    - Pre-Anesthesiologist Assistant (p. 1346)
    - Health Sciences, Pre-Physical Therapy, Pre-Physician Assistant (p. 1343)
- Chemistry (BA) (p. 1280)
- Chemistry (BA) — Forensics Track (p. 1282)
- Chemistry (BA) — Pre-professional concentrations in:
    - Pre-Medicine, Pre-Dental, Pre-Optometry (p. 1283)
- Chemistry (BS) (p. 1286)
    - Biochemistry Option (p. 1284)
- Genetics (p. 1258)
- Genetics — Pre-professional concentrations in:
    - Pre-Medicine, Pre-Dental, Pre-Optometry (p. 1348)
    - Pre-Veterinary Medicine (p. 1350)
- Geography and Environmental Studies (p. 1303)
- Geology (p. 1304)
    - Geology — Earth System Science Option (p. 1306)
- Laboratory Science (p. 1287)
- Laboratory Science - Histotechnology Track (p. 1289)
- Laboratory Science — Pre-professional concentrations in:
    - Laboratory Science — Pre-Medicine (p. 1290)
    - Laboratory Science — Pre-Physician Assistant (p. 1291)
- Marine Biology (p. 1260)
- Mathematics (p. 1329)
- Medical Laboratory Science (p. 1293)
- Microbiology — Pre-professional concentrations in:
    - Pre-Medical, Pre-Dental, Pre-Optometry (p. 1264)
    - Pre-Physical Therapy, Pre-Physician Assistant (p. 1265)
    - Pre-Veterinary Medicine (p. 1352)
- Microbial, Cellular and Molecular Biology — Microbiology Option (p. 1263)
- Microbial, Cellular and Molecular Biology — Cell & Molecular Biology Option (p. 1262)
- Organismal Biology — Conservation & Biodiversity Option (p. 1269)
- Organismal Biology — Ecology, Evolution & Behavior Option (p. 1271)
- Organismal Biology — Integrative Biology Option (p. 1272)
- Organismal Biology — Pre-professional concentrations in:
    - Pre-Medicine, Pre-Dental, Pre-Optometry (p. 1267)
    - Pre-Physical Therapy, Pre-Physician Assistant (p. 1268)
    - Pre-Veterinary Medicine (p. 1353)
- Physics (p. 1334)
- Physics — Pre-professional concentrations in:
    - Pre-Medicine, Pre-Dental, Pre-Optometry (p. 1335)
    - Pre-Physical Therapy, Pre-Physician Assistant (p. 1337)
- Science Teaching (p. 508) (additional major only)

Pre-Health Curricula

Across select majors in Biomedical Sciences, Biological Sciences, Chemistry and Biochemistry, and Physics, students may pursue pre-professional concentrations designed to prepare them for admission to professional schools and advanced study in healthcare and related fields. These concentrations include:

- Pre-Dentistry
- Pre-Medicine
- Pre-Optometry
- Pre-Pharmacy

- Pre-Physical Therapy
- Pre-Physician Assistant
- Pre-Veterinary Medicine
- Pre-Anesthesiologist Assistant

All COSAM degree programs incorporate the **University Core Curriculum** and are designed to offer a strong foundation in the sciences and mathematics while supporting each student's academic and professional goals.

Math Placement

All students must complete the **ALEKS Math Placement Assessment** prior to registering for a mathematics course. Students who do not place into the first math course required for their major must complete a prerequisite course based on their ALEKS score. For more details, visit aub.ie/mathplacement (http://aub.ie/mathplacement/) or consult your academic advisor.

Graduate Degrees

The College of Science and Mathematics (COSAM) offers Master of Science (MS) and Doctor of Philosophy (PhD) degrees across a variety of disciplines. Information about graduate programs can be found here (p. 1199).

Web Page

Additional information about the College of Sciences and Mathematics can be found at: https://www.auburn.edu/cosam/.

Minors

- Biological Sciences (p. 1258)
- Chemistry (p. 1287)
- Geography (p. 1304)
- Geology (p. 1306)
- Mathematics (p. 1330)
- Physics (p. 1335)
- Statistics (p. 1330)

Undergraduate Certificates

- Geographic Information Systems (GIS) (p. 1302)

Graduate Programs

- Biological Sciences — Graduate Certificate, MS, PhD (p. 1555)
- Chemistry and Biochemistry — MS, PhD (p. 1570)
- Data Science — Graduate Certificate (p. 1706)
- Data Science and Engineering — MS (p. 1582)
- Earth System Science — Interdisciplinary PhD Program (p. 1635)
- Geographic Information Science — Graduate Certificate (p. 1672)
- Geography and Environmental Studies — MS (p. 1673)
- Geology — MS (p. 1673)
- Mathematics — MAM, MS, PhD (p. 1705)
- Physics — MS, PhD (p. 1738)
- Statistics — MS (p. 1785)
- Statistics and Data Science — PhD (p. 1785)

Biochemistry Courses

BCHE 3180 NUTRITIONAL BIOCHEMISTRY (3) LEC. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077 or CHEM 2080 or CHEM 2087. Fundamental pathways of carbohydrate, lipid, and amino acid metabolism in human beings.

BCHE 3200 PRINCIPLES OF BIOCHEMISTRY (3) LEC. 3. Pr. (BIOL 1010 or BIOL 1020 or BIOL 1030 or BIOL 1027 or BIOL 1037) and (CHEM 2030 or CHEM 2070 or CHEM 2077 or CHEM 2080 or CHEM 2087). Structure and function of biomolecules, enzyme catalysis, processing of genetic information, bioenergetics and metabolism, and regulatory mechanisms in cellular processes.

BCHE 5180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways. Bioenergetics.

BCHE 5181 BIOCHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C BCHE 5180 or P/C CHEM 5180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

BCHE 5190 BIOCHEMISTRY II (3) LEC. 3. Pr. BCHE 5180 or BCHE 6180. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

BCHE 5191 BIOCHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C BCHE 5190 or P/C CHEM 5190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals and bacteria.

BCHE 6180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. Fundamentals of the classification, structure, and reactions of the major constituents of living matter and evaluation of binding phenomena and bioenergetics.

BCHE 6181 BIOCHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C BCHE 6180 or P/C CHEM 6180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

BCHE 6190 BIOCHEMISTRY II (3) LEC. 3. Pr. BCHE 6180. Departmental approval. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

BCHE 6191 BIOCHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 6190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals, and bacteria.

BCHE 7200 ADVANCED BIOCHEMISTRY I (3) LEC. 3. Graduate credit will not be given for both BCHE 6190 and BCHE 7200.

BCHE 7210 ADVANCED BIOCHEMISTRY II (3) LEC. 3. Structure and function of macromolecules participating in the flow of molecular information. Graduate credit will not be given for both BCHE 6180 and BCHE 7210. Or equivalent.

BCHE 7220 PRINCIPLES OF CELLULAR AND MOLECULAR ENZYMOLOGY (3) LEC. 3. Pr. BCHE 6190 or CHEM 6190 or BCHE 7200. Departmental approval. The principles of enzyme chemistry including the physical, chemical, and catalytic properties of enzymes.

BCHE 7230 BIOCHEMISTRY OF MACROMOLECULES (3) LEC. 3. Pr. BCHE 6180 or BCHE 7200. Departmental approval. Advanced study of the structure of protein and nucleic acids: DNA replication, RNA transcription and protein synthesis.

BCHE 7260 BIOINFORMATICS (3) LEC. 3. Pr. BCHE 7210. Departmental approval. Advanced study of main concepts and tools of genomics and proteomics.

BCHE 7270 BIOCHEMICAL RESEARCH TECHNIQUES (3) LEC. 3. Pr. BCHE 6190. Modern biochemical laboratory techniques. Course may be repeated for a maximum of 6 credit hours.

BCHE 7280 TOPICS IN BIOCHEMISTRY (1-3) LEC. Pr. BCHE 7210. Departmental approval. Directed studies in biochemistry. BCHE 7210 or equivalent. Course may be repeated for a maximum of 3 credit hours.

Biology Courses

BIOL 1000 INTRODUCTION TO BIOLOGY (3) LEC. 3. Science Core. Introduction to biological principles relevant to human society. Designed for non-science majors. Credit will not be given for both BIOL 1000 and BIOL 1020 or BIOL 1027.

BIOL 1001 INTRODUCTION TO BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1000 or P/C BIOL 1003. Laboratory course for BIOL 1000 or BIOL 1003.

BIOL 1010 A SURVEY OF LIFE (3) LEC. 3. Pr. BIOL 1000 or BIOL 1020 or BIOL 1023 or BIOL 1027 or SCMH 1010 or SCMH 1013 or SCMH 1017 or SCMH 1020 or SCMH 1023 or SCMH 1027. Science Core. Emphasis on contrasting strategies employed by organisms to meet similar biological needs. Credit will not be given for both BIOL 1010 and BIOL 1030 or BIOL 1037.

BIOL 1011 A SURVEY OF LIFE LABORATORY (1) LAB. 2. Pr. P/C BIOL 1010 or P/C BIOL 1013. Laboratory course for BIOL 1010.

BIOL 1020 PRINCIPLES OF BIOLOGY (3) LEC. 3. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1020 and BIOL 1000 or BIOL 1027.

BIOL 1021 PRINCIPLES OF BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1020 or P/C BIOL 1023 or P/C BIOL 1027. Laboratory Course for BIOL 1020.

BIOL 1027 HONORS BIOLOGY (4) LEC. 3. LAB. 2. Pr. Honors College. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1027 and BIOL 1000 or BIOL 1020.

BIOL 1030 ORGANISMAL BIOLOGY (3) LEC. 3. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1030 and BIOL 1010 or BIOL 1037.

BIOL 1031 ORGANISMAL BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1030. Laboratory Course for BIOL 1030.

BIOL 1037 HONORS ORGANISMAL BIOLOGY (4) LEC. 3. LAB. 1. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1037 and BIOL 1010 or BIOL 1030.

BIOL 2100 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities and student development options for majors in biological sciences. Students will investigate post-graduation academic and professional options, develop writing skills by creating resumes and ePortfolios, and explore course and research options with the department. Biology majors only.

BIOL 2425 MARINE BIOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. The invertebrates, vertebrates and marine plants as communities with emphasis on local examples. Taught only at Dauphin Island Sea Lab. (DISL).

BIOL 2500 HUMAN ANATOMY AND PHYSIOLOGY I (3) LEC. 3. Pr. BIOL 1000 or BIOL 1020 or BIOL 1023 or BIOL 1027. Study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2501 HUMAN ANATOMY AND PHYSIOLOGY I LABORATORY (1) LAB. 1. Pr. (BIOL 1000 or BIOL 1020 or BIOL 1027) and (P/C BIOL 2500 or P/C BIOL 2503 or P/C BIOL 2507). Lab course for study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2507 HONORS HUMAN ANATOMY AND PHYSIOLOGY I (3) LEC. 3. Pr. Honors College. BIOL 1000 or BIOL 1020 or BIOL 1023 or BIOL 1027. Study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2510 HUMAN ANATOMY AND PHYSIOLOGY II (3) LEC. 3. Pr. (BIOL 2500 or BIOL 2503 or BIOL 2507) and BIOL 2501. Study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500/2501, concentrating on cardiovascular, respiratory, digestive, urinary, reproductive, and endocrine systems.

BIOL 2511 HUMAN ANATOMY AND PHYSIOLOGY II LABORATORY (1) LAB. 1. Pr. (BIOL 2500 or BIOL 2503 or BIOL 2507) and BIOL 2501 and (P/C BIOL 2510 or P/C BIOL 2517). Lab course for study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500, concentrating on the individual organ systems.

BIOL 2517 HONORS HUMAN ANATOMY AND PHYSIOLOGY II (3) LEC. 3. Pr. Honors College. BIOL 2501 and BIOL 2500 or BIOL 2503 or BIOL 2507. Study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500/2501, concentrating on cardiovascular, respiratory, digestive, urinary, reproductive, and endocrine systems.

BIOL 3000 GENETICS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027). An overview of theoretical principles of transmission, cytological, molecular, and population genetics. Problem solving will be emphasized. May count either BIOL 3000 or BIOL 3003 or AGRI 3000.

BIOL 3001 GENERAL GENETICS LABORATORY (1) LAB. 2. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (P/C BIOL 3000 or P/C BIOL 3003). Laboratory provides practical experience in the areas of transmission, cytological, molecular, and population genetics. Problem solving is emphasized though analysis of simulated and real genetics data sets.

BIOL 3010 COMPARATIVE ANATOMY (4) LEC. 3. LAB. 1. Pr. BIOL 1030 or BIOL 1037. We will examine evolution of anatomical structures from early chordates through vertebrates (both living and extinct). Students will learn the main vertebrate taxa and how each anatomical system appears in them. Students will also examine the linkage of these systems through all vertebrates. The phylogenetic tree (evolutionary relationships of the vertebrates) will be the backbone on which we explore the diversity of anatomy. In lab, students will use and develop their integrative skills by examining the anatomy of a wide variety of organisms.

BIOL 3011 COMPARATIVE ANATOMY LABORATORY (1) LAB. 1. Pr. P/C BIOL 1030 or BIOL 1037. Laboratory to accompany Comparative Anatomy Lecture. This lab course will explore the diverse morphologies of vertebrates.

BIOL 3020 GENOMIC BIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000. An overview of genes, genomes, and genomic and proteomic approaches and methodology. Application of principles of biology at the genomic level. Includes an introduction to bioinformatic approaches to genomic problems in a computer laboratory setting.

BIOL 3030 EVOLUTION AND SYSTEMATICS (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. An introduction to evolutionary processes, classification, of organisms and scientific nomenclature.

BIOL 3040 BIOLOGY OF MARINE SYSTEMS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Introduction to marine systems and biological investigations of coastal, near shore and open ocean organisms and processes.

BIOL 3060 ECOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems. 8 hours of Biology.

BIOL 3075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 4. Pr. (MATH 1150 or MATH 1153) and (CHEM 1110 or CHEM 1117 or CHEM 1030 or CHEM 1033) and PHYS 1500. Departmental approval. The physics, chemistry, biology, and geology of the oceans. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 3100 PLANT BIOLOGY (4) LEC. 4. LAB. 1. Pr. (BIOL 1030 or BIOL 1037) and (CHEM 1010 or CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117). Introduction to the morphology, anatomy, physiology and classification of plants with laboratory.

BIOL 3200 GENERAL MICROBIOLOGY (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and P/C BIOL 3201. Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, and the role in human affairs.

BIOL 3201 GENERAL MICROBIOLOGY LABORATORY (1) LAB. 2. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and (P/C BIOL 3200 or P/C BIOL 3203 or P/C BIOL 3207). Fundamental laboratory techniques required to safely handle, enumerate, identify, and provide basic biochemical characterization of microorganisms.

BIOL 3207 HONORS GENERAL MICROBIOLOGY (3) LEC. 3. Pr. Honors College. CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and BIOL 3201. and BIOL 1020 or BIOL 1023 or BIOL 1027. Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, and the role in human affairs.

BIOL 4000 HISTOLOGY (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 1031 and (BIOL 2500 or BIOL 2507 or BIOL 2510 or BIOL 2517 or BIOL 3010 or BIOL 5240). Coreq. BIOL 4001. Morphology and classification of tissues; arrangement of tissues in organs and systems of vertebrate animals.

BIOL 4001 HISTOLOGY LABORATORY (1) LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Coreq. BIOL 4000. Laboratory investigation of the morphology and classification of tissues using prepared slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

BIOL 4010 INVERTEBRATE BIODIVERSITY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Survey of the phyla of invertebrates with emphasis on morphology, anatomy, ecology, evolution, and systematics.

BIOL 4015 BIOLOGY AND CONSERVATION OF MARINE TURTLES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. OR permission of Marine Biology coordinator. An introductory overview of the biology of marine turtles. Topics include: identification, distribution, nesting & migratory behavior, feeding, population biology, development, paleontology and conservation. Extensive laboratory and field studies of multiple species of turtles. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4020 VERTEBRATE BIODIVERSITY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Ecology and evolution of living vertebrates of the world.

BIOL 4025 ECOLOGY OF THE FLORIDA EVERGLADES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Examines the natural history, ecology and evolution, and human impact on the Everglades. Includes intensive lectures and a more than 1-week long campsite based field trip in the Everglades. Multiple short trips to various locales within the Everglades. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4035 INTRODUCTION TO MARINE ANIMAL NEUROBIOLOGY (3) LEC. 15. LAB. 60. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037. The neuroanatomy and neurophysiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses and neurotransmitters, muscle contraction, sensorimotor integration; neurophysiological bases of behavior; labs include computer simulation of cellular neurobiology. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4045 MARINE MAMMAL BIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Introduction to the evolution, taxonomy and classification, anatomy, physiology, behavior, conservation and management issues of marine mammals, including cetaceans, pinnipeds, mustelids, sirenians and the polar bear. Lab and field research methods used to study marine mammals will be covered. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4065 MARINE CONSERVATION BIOLOGY (4) LEC. 45. LAB. 30. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and (BIOL 3040 or BIOL 3060). Study of major threats to marine biodiversity as and potential solutions to the threats. Students discuss current topics in marine conservation biology and critically debate marine conservation literature. Field trips to impacted and pristine sites will demonstrate principles. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4085 HURRICANES OF THE GULF OF MEXICO (2) LEC. 30. An introductory survey with emphasis on Gulf of Mexico hurricanes. Hurricane features. Basic principles of the atmosphere, review of Gulf, Atlantic and Caribbean hurricanes, El Nino, changes in the Atlantic circulation, hurricane formation, development, features, movement, steering and forecasting. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4095 COASTAL BIRDS OF ALABAMA (2) LEC. 15. LAB. 30. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Behavior and ecology-oriented avian field biology. Identification, banding, record/broadcast, other survey methods. Emphasis on behavioral ecology. Extensive field effort along the Gulf Coast and in the Mobile/Alabama/Tombigbee/Tensaw River Delta, other riparian environments, and salt marshes. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4100 CELL BIOLOGY (3) LEC. 3. Pr. CHEM 2030 or (CHEM 2070 or CHEM 2077) and (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 1030 or BIOL 1037). Introduction to cellular structure and processes, including evolution, organization, physiology, molecular biology of cells, membranes, cytoplasm, and organelles as well as energy, transport, motility, cell division, signaling, transcription, and translation.

BIOL 4101 CELL BIOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 4100 or P/C BIOL 4103. Light/electron microscopy, cell structure, origins of life, centrifugation, protein/nucleic acid electrophoresis, and blotting, motility, DNA purification, chromatography, pH, fluorescence microscopy.

BIOL 4135 MARINE BEHAVIORAL ECOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Animal behavior in the context of the marine environment. Students study the ecological and evolutionary significance of behavior in a marine setting. Topics include principles of marine behavioral ecology, techniques for observing behavior, conducting behavior experiments, and data collection. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4150 HUMAN GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000 and BIOL 4100 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

BIOL 4410 VERTEBRATE DEVELOPMENT (5) LEC. 3. LAB. 4. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Morphogenesis and organogenesis of frog, chick, pig, and human from a descriptive and analytical viewpoint.

BIOL 4415 SHARK AND RAY BIOLOGY (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. An introduction to the biology of sharks and rays with special emphasis on regional shark fauna and field technique. Topics: chondrichthyan origin, systematics, sensory biology, trophic ecology, reproductive biology, life history, ecology, fisheries and conservation. Extensive lab and field work. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4445 SPECIAL PROBLEMS IN MARINE SCIENCE (1-6) AAB/LEC. Departmental approval. Individualized research-oriented experience. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours.

BIOL 4455 MARINE INVERTEBRATE ZOOLOGY (6) LEC. 6. Departmental approval. Structure, classification, phyogenetics, larval development and functional processes of marine and estuarine invertebrates. Taught at Gulf Coast Research Laboratory.

BIOL 4475 MARINE ICHTHYOLOGY (6) LEC. 6. Departmental approval. Biology of the major piscine taxa in Mississippi Sound. Principles involved in classification and evolutionary relationships of these organisms. Taught at Gulf Coast Research Laboratory.

BIOL 4515 MARINE INVERTEBRATE ZOOLOGY (4) LEC. 4. Pr. At least 10 credits in BIOL 2000-8990. Departmental approval. The natural history, systematics, and morphology of marine invertebrates from the Gulf of Mexico; oriented toward a field and laboratory approach. Participation in extended field trips is part of the course. Taught at DISL.

BIOL 4525 DOLPHINS AND WHALES (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Classification, anatomy, and ecology of the cetaceans. Taught at DISL.

BIOL 4565 MARINE VERTEBRATE ZOOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Systematics, zoogeography and ecology of marine fishes, reptiles, and mammals. Taught at DISL. May not be substituted for BIOL 4020.

BIOL 4575 MARINE ECOLOGY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Prerequisites: BIOL1020 or marine biology. Departmental approval. Experimental ecological theory and its application to interactions of marine organisms with each other and the environment. Includes laboratory, extensive field trip experience. Taught at DISL.

BIOL 4585 PLANKTON BIOLOGY (2) LEC. 15. LAB. 15. Pr. ((BIOL 1020 and BIOL 1021) or BIOL 1027) and ((BIOL 1030 and BIOL 1031) or BIOL 1037). Students will learn about the biology of all forms of plankton and the methods for their study including optical and chemical techniques. Students will understand the basic methods of study and be able to sight-identify major groups. Taught at Dauphin Island Sea Lab (DISL).

BIOL 4700 PEDAGOGY OF PEER-LED INSTRUCTION (1) LEC. 1. Departmental approval. This is the pedagogical training course designed for students serving as peer instructors who are interested in effective instructional strategies in the STEM disciplines. This course helps peer instructors integrate educational theory, pedagogy, content, and practice. Course meetings will focus on practical concerns as well as associated theoretical models. This is a seminar course where students are responsible for weekly readings, in-class discussions, reflections and projects which are coordinated with students' practice.

BIOL 4920 INTERNSHIP IN BIOLOGY (1-4) INT. SU. Application of biology concepts and skills in a professional experience. 12 credit hours in 3000-level or higher BIOL courses. Departmental approval. Student must be enrolled in a major offered by the Department of Biological Sciences. Course may be repeated for a maximum of 4 credit hours.

BIOL 4950 SENIOR SEMINAR (1) LEC. 1. Oral presentation and discussion of recent scientific publications from a selected area of biological sciences. One hour is required for all majors. Course may be repeated for a maximum of 3 credit hours.

BIOL 4967 HONORS SPECIAL PROBLEMS (1-3) DSL/LEC. Pr. Honors College. Departmental approval and membership in the Honor College. Course may be repeated for a maximum of 3 credit hours.

BIOL 4970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in Biological Sciences. Course may be repeated for a maximum of 8 credit hours.

BIOL 4980 UNDERGRADUATE RESEARCH (2-4) AAB/IND. Directed research in an area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BIOL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Undergraduate research and thesis. Course may be repeated for a maximum of 3 credit hours.

BIOL 4AA0 PROFESSIONAL DEVELOPMENT II (0) PRA. SU. Students enrolled in this course will complete the ePortfolio that they began developing as Freshmen, in BIOL 2100 - Professional Development I. Successfully designing and completing a professional ePortfolio will provide students with: 1. An opportunity to create a unified, polished and coherent educational and professional history of themselves. 2. A platform to organize their thinking about skills and experiences and the opportunity to connect them to the next step in career development. 3. A place to collect, present and reflect on evidence of professional development and growth during the undergraduate experience.

BIOL 5000 HUMAN CARDIOVASCULAR PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 2510 or BIOL 2517 or BIOL 5240 or BIOL 5600. An in-depth exploration of molecular events and mechanisms governing heart and vascular function in health and disease. Laboratory will provide hands-on experiences with ECG, local blood flow, and case study examples.

BIOL 5020 EMBRYONIC DEVELOPMENT (3) LEC. 3. Pr. (BIOL 4100 or BIOL 4103). This course is designed to teach students the evolution of the molecular mechanisms used by developing embryos to form the adult body plan with a focus on the vertebrate model systems used to understand human developmental biology. In addition, the course will expose students to current research on these processes and the techniques used to carry out these studies.

BIOL 5050 FUNDAMENTALS OF BIOPHYSICS (2) LEC. 2. Pr. PHYS 1510 or BIOL 4100. Introduction to use of theories and methods of physics in biology, illustrated by discussion of organism size, metabolism, physiology, vision, hearing, cell cellular and molecular processesern medicine, physiology and molecular biology.

BIOL 5090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

BIOL 5110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037 or BIOL 2500 or BIOL 2503 or BIOL 2507. Students must have Junior or Senior standing. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals and wildlife. May count either BIOL 5110 or LABT 4050.

BIOL 5120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 5130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 5131 ADVANCED PLANT PHYSIOLOGY LABORATORY (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or BIOL 5130). Laboratory exercises in plant physiology. Including water relations, metabolism and growth, and development.

BIOL 5140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 5150 POPULATION AND COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Quantitative study of natural population and ecological communities. Selected topics include density-dependent population growth, life-history theory, mark-recapture analysis, eco-evolutionary dynamics, and species interactions especially how they relate to questions of species distributions in time and space.

BIOL 5160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3. Prereq. 15 hours of biology. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours.

BIOL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 5200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. (BIOL 3200 or BIOL 3203 or BIOL 3207) and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 5210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 5220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Principles of gene expression including replication, transcription, and translation; structure and regulation of genes; concepts and techniques in recombinant DNA.

BIOL 5230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 5240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or (CHEM 2030 or CHEM 2070 or CHEM 2077). General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 5250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 5260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Credit will not be given for both BIOL 5260 and BIOL 6260.

BIOL 5270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and (BIOL 3201) and (BIOL 5220 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and 6270.

BIOL 5280 GENETHICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Twenty-first century biotechnology and related ethical issues, including human cloning, stem cells, neuroenhancement, age retardation, genetic enhancement, and nanobiology. May count BIOL 5280 or 6280.

BIOL 5290 CASE STUDIES IN INFECTION AND IMMUNITY (3) LEC. 3. Pr. BIOL 5500. This course is designed to enrich student understanding of infection and immunity in the context of clinical presentations. Students will learn to use deductive reasoning to narrow down potential causes of symptoms and then use scientific literature to gain a detailed understanding of the mechanisms underlying disease. Cases covered will include infectious disease, immunodeficiency, neoplasms and/or autoimmunity.

BIOL 5300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 3. LAB. 4. Pr. BIOL 3100. Investigation of the various levels of plant organization from subcellular to organ through use of light and scanning electron microscopes.

BIOL 5320 PLANT GENE EXPRESSION (3) LEC. 3. Pr. BIOL 3100. Departmental approval. Genetic expression of genetic elements in plants from the recent literature.

BIOL 5330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 5330 or BIOL 6330.

BIOL 5340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 5350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 5370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3060. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 5380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 5425 MARINE BOTANY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Departmental approval. Pr. BIOL 1020 or equiv. Survey of microscopic and macroscopic algae, salt marsh vegetation, sea grasses, mangroves and maritime forests with regard to identification, distribution, structure, ecology and physiology. Field trips and laboratory work. Taught at DISL.

BIOL 5440 CLIMATE CHANGE PHYSIOLOGY AND EVOLUTION (3) LEC. 3. LAB. 0. This class investigates on the basic mechanisms of climate change and its impact on living organisms, focusing on their physiological, evolutionary, behavioral and molecular responses. Special interest is given to plants and marine organisms.

BIOL 5500 IMMUNOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203 or BIOL 3207) and BIOL 3201 and (BIOL 3000 or BIOL 3003 or BIOL 3020). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology. May count either BIOL 3500 or BIOL 5500.

BIOL 5501 IMMUNOLOGY LAB (2) LAB. 2. Pr. P/C BIOL 5500 or P/C BIOL 3500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 5521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or P/C BIOL 5260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 5550 NANOMEDICINE (2) LEC. 2. Pr. PHYS 1510 and CHEM 2080 and (P/C BCHE 5180 or P/C BIOL 4100). Nanomedicine is a branch of medicine that applies the knowledge and tools of nanotechnology to the prevention and treatment of disease. It involves the use of nanoscale materials, such as biocompatible nanoparticles, nanorobots and nanosensors, for diagnosis, drug delivery, and sensing in living organisms.

BIOL 5560 RNA IN BIOMEDICINE (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003. This course introduces the basic and novel types and functions of RNAs, as well as the integration of these molecules in biomedical contexts. Students will learn about the 'RNA World' theory, the diverse roles of RNA in cellular processes, and pathogenesis. Technological approaches to RNA research will be covered, as well as the application of this research to the diagnosis and therapy of genetic diseases.

BIOL 5600 BIOMEDICAL PHYSIOLOGY (5) LEC. 4. LAB. 3. Pr. ((BIOL 1030 or BIOL 1037) or ((BIOL 2500 or BIOL 2507) and BIOL 2501)) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation into the physiology of major mammalian organ systems, with a special focus on their biomedical functions and applications.

BIOL 5650 ANIMAL BEHAVIOR (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 5660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6600, or BIOL 6600.

BIOL 5700 APPLIED AND ENVIRONMENTAL MICROBIOLOGY (4) LEC. 3. LAB. 2. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Introduction to the ecology, systematics, interrelationships, and role of micro-organisms in geochemical cycles, bioremediation and pharmaceutical production.

BIOL 5740 HERPETOLOGY (4) LEC. 3. LAB. 3. Ecology and evolution of living amphibians and reptiles of the world.

BIOL 5750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Taxonomy, evolution, ecology, and behavior of birds.

BIOL 5760 MAMMALOGY (4) LEC. 3. LAB. 3. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, field trips, data analysis, and report preparation.

BIOL 5800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510 or STAT 2513. Overview of computational approaches to biological data analysis. Additionally, students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.

BIOL 5850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. An active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 5860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging 'omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 6020 EMBRYONIC DEVELOPMENT (3) LEC. 3. Pr. BIOL 4100 or BIOL 4103. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

BIOL 6050 FUNDAMENTALS OF BIOPHYSICS (2) LEC. 2. Pr. PHYS 1510 or BIOL 4100. Introduction to use of theories and methods of physics in biology, illustrated by discussion of organism size, metabolism, physiology, vision, hearing, cell cellular and molecular processesern medicine, physiology and molecular biology.

BIOL 6090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

BIOL 6110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) or (BIOL 2500 or BIOL 2503) and BIOL 2501. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals, and wildlife.

BIOL 6120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 6130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 6131 ADV PLANT PHYSIOLOGY LAB (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or CHEM 2088). Laboratory exercises in plant physiology. Including water relations, metabolism, and growth and development.

BIOL 6140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Departmental approval. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 6150 POPULATION AND COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Quantitative study of natural population and ecological communities. Selected topics include density-dependent population growth, life-history theory, mark-recapture analysis, eco-evolutionary dynamics, and species interactions especially how they relate to questions of species distributions in time and space.

BIOL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220 and (CHEM 2080 or CHEM 2087). Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 6200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 6210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 6220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both BIOL 6220 and CMBL 6220.

BIOL 6230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 6240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or CHEM 2030 or CHEM 2070 or CHEM 2077. General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 6250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 6260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Course will not be given for both BIOL 5260 and BIOL 6260.

BIOL 6270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203) and (BIOL 3201) and (BIOL 5200 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and BIOL 6270.

BIOL 6290 CASE STUDIES IN INFECTION AND IMMUNITY (3) LEC. 3. Pr. BIOL 6500. This course is designed to enrich student understanding of infection and immunity in the context of clinical presentations. Students will learn to use deductive reasoning to narrow down potential causes of symptoms and then use scientific literature to gain a detailed understanding of the mechanisms underlying disease. Cases covered will include infectious disease, immunodeficiency, neoplasms and/or autoimmunity.

BIOL 6300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 2. LAB. 4. Pr. BIOL 6130. The study of the structure and ontogeny of plant cells, tissues, and organs. Fall.

BIOL 6320 PLANT GENE EXPRESSION (3) LEC. 3. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL 6320 and CMBL 6320.

BIOL 6330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 6330 or BIOL 5330.

BIOL 6340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 6350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 6370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3060 and BIOL 6800. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 6440 CLIMATE CHANGE PHYSIOLOGY AND EVOLUTION (3) LEC. 3. LAB. 0. Pr. BIOL 1030. This class investigates on the basic mechanisms of climate change and its impact on living organisms, focusing on their physiological, evolutionary, behavioral and molecular responses. Special interest is given to plants and marine organisms.

BIOL 6500 IMMUNOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201 and (BIOL 3000 or BIOL 3003 or FISH 3000 or BIOL 3020) and P/C BIOL 6501. The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

BIOL 6501 IMMUNOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 5500 or P/C BIOL 6500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 6521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or BIOL 6220 or BIOL 5260 or BIOL 6260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 6525 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Vertebrate and Invertebrate Zoology required. Taught at DISL.

BIOL 6550 NANOMEDICINE (2) LEC. 2. Pr. PHYS 1510 and CHEM 2080 and BCHE 5180. Nanomedicine is a branch of medicine that applies the knowledge and tools of nanotechnology to the prevention and treatment of disease. It involves the use of nanoscale materials, such as biocompatible nanoparticles, nanorobots and nanosensors, for diagnosis, drug delivery, and sensing in living organisms.

BIOL 6560 RNA IN BIOMEDICINE (3) LEC. 3. This course introduces the basic and novel types and functions of RNAs, as well as the integration of these molecules in biomedical contexts. Students will learn about the ‘RNA World’ theory, the diverse roles of RNA in cellular processes, and pathogenesis. Technological approaches to RNA research will be covered, as well as the application of this research to the diagnosis and therapy of genetic diseases.

BIOL 6600 BIOMEDICAL PHYSIOLOGY (5) LEC. 4. LAB. 3. Pr. ((BIOL 1030 or BIOL 1037) or (BIOL 2500 and BIOL 2501)) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation into the physiology of major mammalian organ systems, with a special focus on their biomedical functions and applications.

BIOL 6650 ANIMAL BEHAVIOR (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6600, or BIOL 6600.

BIOL 6700 APPLIED AND ENVIRONMENTAL MICROBIOLOGY (4) LEC. 3. LAB. 2. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201. An advanced treatment of bacteria comprising the Kingdom Prokaryotae, emphasizing ecology, systematics, interrelationships, geochemical cycles, and bioremediation.

BIOL 6740 HERPETOLOGY (4) LEC. 3. LAB. 3. Ecology and evolution of living amphibians and reptiles of the world.

BIOL 6750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Departmental approval. An intensive investigation of the current literature and relevant research dealing with birds.

BIOL 6760 MAMMALOGY (4) LEC. 3. LAB. 3. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, fieldtrips, data analysis and report preparation.

BIOL 6800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510 or STAT 2513. Overview of computational approaches to the analysis of biological data. Students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.

BIOL 6850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. Active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 6860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging 'omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 7035 MARINE ANIMAL NEUROBIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1023 and BIOL 1021 and BIOL 1030 and BIOL 1031 and BIOL 4100. Biophysical neurobiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses, neurotransmitters, muscle contraction, sensorimotor integration, computer simulation and extensive technical methods: extra-, intracellular, patch recording, molecular neuroimmunology, confocal fluorescence microscopy. Evening/Saturday classes.

BIOL 7075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 30. LAB. 60. Pr. MATH 1150 or MATH 1153 and CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and PHYS 1500 and BIOL 3040. An in-depth examination of the physics, chemistry, geology and biology of the oceans. Lectures cover the interrelationships of these components to each other. Field and lab work will introduce students to research on oceanographic processes of the Gulf of Mexico. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 7170 POPULATION GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Examination of the theories relating to maintenance of variation in natural populations of plants and animals.

BIOL 7180 SCRIPTING FOR BIOLOGISTS (3) LEC. 2. LAB. 1. Pr. BIOL 6800 and STAT 7000. or Instructor approval. A hands-on course to teach students concepts, applications, and best practices of utilizing computer scripting languages in the life sciences.

BIOL 7200 EVOLUTIONARY BIOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Topics of current interest in evolution. Readings and presentation required.

BIOL 7210 EVOLUTIONARY ECOLOGY (3) LEC. 3. The Evolutionary Ecology research paradigm is a key approach to the study of behavioral, evolutionary, and ecological processes in the context of realistic or natural environmental settings. We will investigate a number of current "hot" research topics in Evolutionary Ecology, discuss the leading hypotheses being developed and how they are cast as statistica.

BIOL 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 3. Pr. STAT 7020 or WILD 7150. or equivalent; or permission of the instructor. Data from the life sciences and advanced statistical techniques for data analyses and computation are brought together through a cross-fertilization of graduate student students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects. May count either BIOL 7250 or STAT 7250.

BIOL 7290 EVOLUTIONARY GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 6170. Departmental approval. The role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both BIOL 7290 and CMBL 7290.

BIOL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both BIOL 7440 and CMBL 7440.

BIOL 7470 GENOME EVOLUTION (3) LEC. 3. Provides a broad evolutionary perspective on the origin, composition, and architecture of eukaryotic genomes. Students will participate in a literature-driven discussion format and will complete weekly writing assignments.

BIOL 7485 ADVANCED MARINE ECOLOGY (4) LEC. 2. LAB. 2. Pr. (BIOL 1020 or BIOL 1023) and BIOL 1021 and BIOL 1030 and BIOL 1031 and (BIOL 3060 or BIOL 3040). An advanced course open only to MS or PhD students. Interactions between marine organisms and the environment. In-depth discussion of ecological theory with emphasis on the latest research, using extensive reference to the literature. Lecture, lab and overnight field trips.

BIOL 7490 PHYSIOLOGICAL ECOLOGY (3) LEC. 3. Pr. BIOL 3060. A study of the physiological adaptations that allow animals to survive in unusual environments. A course in ecology required.

BIOL 7500 STRESS PHYSIOLOGY (2) LEC. 2. Pr. (BIOL 4100 or BIOL 5240 or BIOL 5600). This course is a discussion-based course focusing on physiological stress responses at various levels of organization and communication among them, from molecules, cells, organ, to whole organism.

BIOL 7510 NATURAL HISTORY MUSEUM PRACTICUM (1) LAB. 3. Practical methods in natural history museum curation. Students will assist in curating collections at the Auburn University Museum of Natural History. Course may be repeated for a maximum of 4 credit hours.

BIOL 7525 MARINE INVERTEBRATES (4) LEC. 2. LAB. 2. Morphology, natural history, physiology, evolution and ecology. Students examine modern literature and develop an advanced presentation on invertebrate biology involving problem solving in an area such as sensory biology, molecular evolution or management. Term paper, classroom presentation and lecture.

BIOL 7540 PROFESSIONAL ASPECTS OF BIOLOGY (3) LEC. 3. Departmental approval. Instruction on practical aspects of a career in biological sciences.

BIOL 7550 PHYSIOLOGICAL ECOLOGY OF REPRODUCTION (3) LEC. 3. This course focuses on physiological ecology of reproduction by identifying key physiological mechanisms linking the environmental change, reproductive constraints, and reproductive performance and describing how variation in reproductive performance are impacted by ecological and evolutionary processes.

BIOL 7800 COMPUTATIONAL BIOLOGY COLLOQUIUM (2) LEC. 0. LAB. 0, LEC. 0. Pr. (BIOL 7180) or (PLPA 6820). Oral presentations and discussions of recent scientific publications, challenges, and opportunities within the field of computational biology. Hands-on experience in data analysis and presentation.

BIOL 7880 MITONUCLEAR ECOLOGY (2) LEC. 2. Pr. BIOL 3030. This course will explore the implications of the necessity of mitonuclear coadaptation for the evolution of quintessential eukaryotic characteristics, including sex and two sexes, a sequestered germ line, senescence, discrete species, mate choice, and adaptation. Permission of instructor may be needed.

BIOL 7950 MASTERS THESIS SEMINAR (1) LEC. 1. SU. Departmental approval. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 2 credit hours.

BIOL 7960 SPECIAL PROBLEMS (1-4) DSL/LEC. Pr. P/C BIOL 6220. Oral presentation and discussion of recent scientific publications from a selected area molecular biology. Credit will not be given for both BIOL 7960 and CMBL 7960. Course may be repeated for a maximum of 4 credit hours.

BIOL 7970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in botany, microbiology, molecular biology, or zoology. A different topic for advanced study will be selected each semester this course is offered. Course may be repeated for a maximum of 8 credit hours.

BIOL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BIOL 8950 DOCTORAL SEMINAR (1) SEM. 1. SU. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 3 credit hours.

BIOL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

Chemistry Courses

CHEM 1010 SURVEY OF CHEMISTRY I (3) LEC. 3. Science Core. Survey of important topics from general and organic chemistry. Atomic and bonding theory, chemical reactions and stoichiometry, gas laws, solutions, acids and bases, hydrocarbons, alcohols, ethers and amines.

CHEM 1011 SURVEY OF CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1010. Science Core. Laboratory experiments emphasizing course material in CHEM 1010.

CHEM 1020 SURVEY OF CHEMISTRY II (3) LEC. 3. Pr. CHEM 1010. Science Core. Survey of important topics from organic and biochemistry. Aldehydes and ketones, carboxylic acids, carbohydrates, lipids, proteins, enzymes, extracellular fluids, metabolism, nucleic acids, radioactivity.

CHEM 1021 SURVEY OF CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 1020 and CHEM 1011. Science Core. Laboratory experiments emphasizing course material in CHEM 1020.

CHEM 1030 FUNDAMENTALS CHEMISTRY I (3) DSL/LEC. Science Core. Atomic and molecular theory, chemical equations, stoichiometry, gas laws, thermochemistry, bonding, electronic structure, molecular geometries, solids, liquids, properties of solutions, problem-solving techniques. Credit will not be given for both CHEM 1030 and CHEM 1110 or CHEM 1117.

CHEM 1031 FUNDAMENTAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1030 or P/C CHEM 1033. Science Core. Laboratory experiments emphasizing course material in CHEM 1030. Credit will not be given for both CHEM 1031 and CHEM 1111 or CHEM 1118.

CHEM 1040 FUNDAMENTAL CHEMISTRY II (3) LEC. 3. Pr. CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Science Core. Chemical kinetics; chemical equilibrium; acids and bases; calculations of pH; equilibrium constants and thermodynamical properties; electrochemistry; descriptive chemistry. Credit will not be given for both CHEM 1040 and CHEM 1120 or CHEM 1127.

CHEM 1041 FUNDAMENTAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. (P/C CHEM 1040 or P/C CHEM 1043) and (CHEM 1031 or CHEM 1111 or CHEM 1118). Science Core. Laboratory experiments emphasizing course material in CHEM 1040. Credit will not be given for both CHEM 1041 and CHEM 1121 or CHEM 1128.

CHEM 1110 GENERAL CHEMISTRY I (3) LEC. 3. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Science Core. Chemical principles for chemistry and related majors. Atomic and molecular theory, periodicity, chemical reactions, Stoichiometry, gases, thermochemistry, bonding, molecular geometries, liquids, solids, and solutions. Credit will not be given for both CHEM 1110 and CHEM 1030 or CHEM 1117.

CHEM 1111 GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1110 or P/C CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1110. Credit will not be given for both CHEM 1111 and CHEM 1031 or CHEM 1118.

CHEM 1117 HONORS GENERAL CHEMISTRY I (3) LEC. 3. Pr. Honors College. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1110, but covered in more depth. Credit will not be given for both CHEM 1117 and CHEM 1030 or CHEM 1110.

CHEM 1118 HONORS GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. Honors College. CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1117. Credit will not be given for both CHEM 1118 and CHEM 1031 or CHEM 1111.

CHEM 1120 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS II (3) LEC. 3. Pr. CHEM 1110 or CHEM 1117. Science Core. Continuation of CHEM 1110. Chemical kinetics, chemical equilibrium, acids and bases, thermodynamics, electrochemistry, representative element and transition metal chemistry. Credit will not be given for both CHEM 1120 and CHEM 1040 or CHEM 1127.

CHEM 1121 GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. (P/C CHEM 1120 or P/C CHEM 1127) and (CHEM 1111 or CHEM 1118). Science Core. Laboratory experiments emphasizing course material in CHEM 1120. Credit will not be given for both CHEM 1121 and CHEM 1041 or CHEM 1128.

CHEM 1127 HONORS GENERAL CHEMISTRY II (3) LEC. 3. Pr. Honors College. CHEM 1117. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1120, but covered in more depth. Credit will not be given for both CHEM 1127 and CHEM 1040 or CHEM 1120.

CHEM 1128 HONORS GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. Honors College. Science Core. Laboratory experiments emphasizing course material in CHEM 1127. Credit will not be given for both CHEM 1128 and CHEM 1041 or CHEM 1121.

CHEM 2030 SURVEY OF ORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Structure, nomenclature and reactions of the functional group classes of organic compounds polymers, and molecules of biological interest. Credit will not be given for both CHEM 2030 and CHEM 2070.

CHEM 2070 ORGANIC CHEMISTRY I (3) LEC. 3. Pr. CHEM 1040 or CHEM 1043 or CHEM 1120 or CHEM 1127. In-depth study of organic chemistry including structure, nomenclature, reactions, reaction mechanisms, stereochemistry, synthesis and spectroscopic structure determination organized by the functional group approach. Considers alkanes, alkenes, alkynes, alkyl halides, alcohols, ethers, and aromatic compounds. Credit will not be given for both CHEM 2070 and CHEM 2030.

CHEM 2071 ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. (P/C CHEM 2070 or P/C CHEM 2077) and (CHEM 1041 or CHEM 1128 or CHEM 1121). Laboratory for CHEM 2070.

CHEM 2077 HONORS ORGANIC CHEMISTRY I (3) LEC. 3. Pr. Honors College. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2070, but covered in more depth. Additional credit will not be given for CHEM 2070. Member of the Honors College or CHEM 1110 with grade of A or B or CHEM 1040 with grade of A.

CHEM 2078 HONORS ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 2070 or P/C CHEM 2077. Laboratory experiments emphasizing course material in CHEM 2077. Additional credit will not be given for CHEM 2071. Course may be repeated for a maximum of 3 credit hours.

CHEM 2080 ORGANIC CHEMISTRY II (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Continuation of CHEM 2070. Aldehydes, ketones, amines, carboxylic acids, esters, amides, anhydrides, polymers, carbohydrates and amino acids.

CHEM 2081 ORGANIC CHEMISTRY II LABORATORY (1) LAB. 1. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2071 or CHEM 2078) and (P/C CHEM 2080 or P/C CHEM 2087). Laboratory for CHEM 2080.

CHEM 2087 HONORS ORGANIC CHEMISTRY II (3) LEC. 3. Pr. Honors College or departmental approval. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2080, but covered in more depth. Additional credit will not be given for CHEM 2080. Member of the Honors College or CHEM 2077

CHEM 2088 HONORS ORGANIC CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 2080 or P/C CHEM 2087. Laboratory experiments emphasizing course material in CHEM 2087. Additional credit will not be given for CHEM 2081. May count either CHEM 2081 or CHEM 2088. Course may be repeated for a maximum of 3 credit hours.

CHEM 2100 PROFESSIONAL DEVELOPMENT (1) LEC. 1. This course is designed to introduce students to the many opportunities available in chemistry, both as a career choice and while as a student. Students will have the opportunity to investigate available options, will reflect on what career success means to the student, and will chart a pathway to student professional success.

CHEM 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN CHEMISTRY (1-3) LAB. SU. Individual problems course. Students will work under the direction of a staff member on some problem of mutual interest. Departmental approval required. Only Freshman or Sophomore. Course may be repeated for a maximum of 6 credit hours.

CHEM 3000 CHEMICAL LITERATURE (1) LEC. 1. Pr. CHEM 2080 or CHEM 2087. Chemical literature with emphasis on primary and secondary sources and the various computer data bases available.

CHEM 3050 ANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Theory and application of volumetric, potentiometric and photometric chemical analysis.

CHEM 3051 ANALYTICAL CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 3050. Analytical techniques applied to chemical analysis.

CHEM 3160 SURVEY OF PHYSICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127). The principles of physical chemistry.

CHEM 4070 PHYSICAL CHEMISTRY I (3) LEC. 3. Pr. (CHEM 1040 or CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and (MATH 2650 or PHYS 2400) and (PHYS 1610 or PHYS 1617). Principles of chemical thermodynamics, principles of application to problems of chemical interest.

CHEM 4071 PHYSICAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 4070.

CHEM 4080 PHYSICAL CHEMISTRY II (3) LEC. 3. Pr. (CHEM 1040 or CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and (MATH 2650 or PHYS 2400) and (PHYS 1610 or PHYS 1617). Principles of quantum mechanics and spectroscopy; application in molecular structure and in statistical thermodynamics.

CHEM 4081 PHYSICAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 4080. Laboratory for CHEM 4080.

CHEM 4100 INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 4080 or CHEM 3160. Principles of inorganic chemistry emphasizing periodic properties, bonding, structure and symmetry, the solid state, acid-base theory and coordination chemistry.

CHEM 4101 INORGANIC CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 4100. Synthesis and characterization of a variety of inorganic compounds.

CHEM 4110 ORGANOMETALLICS AND CATALYSIS (3) LEC. 3. Pr. CHEM 4100. Departmental approval. Survey of organometallic chemistry and catalysis with main group, transition metal, and f-block elements.

CHEM 4130 INSTRUMENTAL ANALYSIS (3) LEC. 3. Pr. P/C CHEM 3050. Fundamental concepts used in instrumental analytical chemistry emphasizing spectrophotometric, electroanalytical and chromatographic analysis.

CHEM 4131 INSTRUMENTAL ANALYSIS LABORATORY (1) LAB. 3. Pr. P/C CHEM 4130. Laboratory for CHEM 4130.

CHEM 4920 CHEMISTRY INTERNSHIP (3) INT. 12. Departmental approval. Application of chemistry concepts and skills in a professional setting. The course may be repeated for a maximum of 6 credit hours.

CHEM 4950 UNDERGRADUATE SEMINAR (1) LEC. 1. Oral presentation and discussion of research in the area of specialization.

CHEM 4980 UNDERGRADUATE RESEARCH IN CHEMISTRY (3) LAB. 9. Departmental approval. This is an individual problem course. Each student will work under the direction of a staff member on some problem of mutual interest. Course may be repeated for a maximum of 9 credit hours.

CHEM 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Departmental approval. Honors College Members Only; Course may be repeated for a maximum of 6 credit hours.

CHEM 5200 PYTHON PROGRAMMING IN CHEMISTRY (3) LEC. 3. Pr. CHEM 3160 or CHEM 4080. Computer programming in the Python language using specific examples relevant to different branches of chemistry. Emphasizes best practices for collaborative writing, documenting, and validating the program so that it is readable and maintainable.

CHEM 5280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 5450 FOUNDATIONS OF R FOR DBER (3) LEC. 3. R is an open-source statistical software that allows nearly limitless data manipulation, statistical analysis, and advance data visualizations for both the social and physical sciences required for quality research in discipline-based education research (DBER). This course will dedicate approximately one half to learning the basics of coding in R for many common tasks found in DBER (focusing on how to independently find and apply new functions as only a portion of functions can possibly be discussed) and the second half on applying these principles into real data from students' thesis or dissertation (or data can be provided by instructor).

CHEM 6200 PYTHON PROGRAMMING IN CHEMISTRY (3) LEC. 3. Computer programming in the Python language using specific examples relevant to different branches of chemistry. Emphasizes best practices for collaborative writing, documenting, and validating the program so that it is readable and maintainable.

CHEM 6280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 6450 FOUNDATIONS OF R FOR DBER (3) LEC. 3. R is an open-source statistical software that allows nearly limitless data manipulation, statistical analysis, and advance data visualizations for both the social and physical sciences required for quality research in discipline-based education research (DBER). This course will dedicate approximately one half to learning the basics of coding in R for many common tasks found in DBER (focusing on how to independently find and apply new functions as only a portion of functions can possibly be discussed) and the second half on applying these principles into real data from students' thesis or dissertation (or data can be provided by instructor).

CHEM 7100 ADVANCED INORGANIC CHEMISTRY (3) LEC. 3. Departmental approval. Current concepts of inorganic chemistry with an emphasis on theory, structure, bonding and reactivity.

CHEM 7110 PHYSICAL METHODS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Or equivalent. Theory and application of techniques for obtaining information inorganic compounds including magnetism, multinuclear nmr, mass spectrometry, x-ray diffraction, vibrational and electronic spectroscopies.

CHEM 7120 ORGANOMETALLIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Main group and transition metal organometallic chemistry.

CHEM 7160 ADVANCED TOPICS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Currently active research areas in inorganic chemistry. Course may be repeated for a maximum of 12 credit hours.

CHEM 7200 PHYSICAL ORGANIC CHEMISTRY (3) LEC. 3. This course will combine the foundations of undergraduate organic chemistry reactions and add to this the physical properties of chemical reactions as affected by real laboratory applications.

CHEM 7210 STRUCTURE ELUCIDATION OF ORGANIC COMPOUNDS (3) LEC. 3. Pr. CHEM 7200 or CHEM 7220. The early stages of this course will focus on the identification of functional groups, saturated, unsaturated and cyclic compounds using IR and NMR spectroscopy, as well as mass spectrometry. Detailed analyses of 1H NMR spectra, i.e., chemical shift, multiplet shape, and coupling constants will demonstrate the power of these methods in ascertaining atom connectivity in simple organic molecules. More advanced two-dimensional NMR techniques such as COSY, HSQC and HMBC will be discussed and used for determining the structures of more complex organic molecules. The determination of absolute and relative stereochemistry using Mosher ester analyses and NOESY, respectively, in chiral molecules will also be covered. Most of the structures that will be discussed and analyzed will be stereochemically complex systems and polycyclic molecules that require a combination of multiple one-dimensional and two-dimensional NMR techniques.

CHEM 7220 ORGANIC REACTIONS (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2073 or CHEM 2077) and (CHEM 2080 or CHEM 2083 or CHEM 2087). Organic reactions are described in the context of oxidation; reduction; C-C, C-N, C-O bond forming; olefination; aldol (and related) condensations; pericyclic, fragmentation, ring-expansion and ring-contraction reactions; and, named organic reactions and their reaction mechanisms and their application to chemical synthesis. Concurrent enrollment with CHEM 7200 is highly recommended.

CHEM 7230 COMPLEX MOLECULE SYNTHESIS (3) LEC. 3. Pr. CHEM 7220. This class is focused on target-oriented chemical synthesis of complex organic molecules. The main objective is to teach students how to use retrosynthetic analysis, a method for disconnecting a complex molecule into simpler starting materials, as well classical and modern organic reactions to plan syntheses of organic compounds that are biologically relevant and important in the development of better pharmaceuticals. During the course of the semester, students will be introduced to important classes of natural products including terpenes, terpenoids, alkaloids, macrolides, polycyclic ethers, as well as designed molecules that are biologically relevant, but not natural products themselves. Identifying key structural components (i.e., retrons), stereogenic centers, and substructures that can be derived from the chiral pool will be emphasized in synthesis planning. All lecture content will come from the current literature, with only manuscripts published in the past 12 months being discussed in class. Students will be responsible for reading Classics in Total Synthesis on their own and tested on the content of this book as well as assigned current literature in class. Emphasis will be placed on identifying economical and streamlined synthetic protocols that can employ cascade or domino reaction sequences.

CHEM 7260 SPECIAL TOPICS IN ORGANIC CHEMISTRY (1-3) LEC. Pr. CHEM 7200. Advanced course in a research area in organic chemistry which is of mutual interest to graduate students and the instructor. Course may be repeated for a maximum of 6 credit hours.

CHEM 7270 SUPRAMOLECULAR CHEMISTRY: SYNTHESIS, STRUCTURES, AND APPLICATIONS (3) ST1. 3. Pr. CHEM 2080. Supramolecular Chemistry bridges organic, inorganic, surface science, and analytical chemistries. It is a topical area that explores synthesis, spatial organization, weak bonding interactions, hydrogen bonding or covalent bonding, and is interest for numerous industrial or pharmacy applications.

CHEM 7300 ADVANCED PHYSICAL CHEMISTRY (3) LEC. 3. Topics of general and current interest; may vary from year to year.

CHEM 7330 CHEMICAL KINETICS (3) LEC. 3. Theoretical and experimental aspects of reaction rates. The mathematics and characterization of chemically reacting systems.

CHEM 7350 QUANTUM AND STATISTICAL MECHANICS (3) LEC. 3. Pr. CHEM 7300. A quantum mechanical and statistical approach to molecular structure and chemistry.

CHEM 7370 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (1-3) LEC. 3. Pr. CHEM 7300. Modern topics in advanced physical chemistry. Course may be repeated for a maximum of 3 credit hours.

CHEM 7380 MOLECULAR SPECTROSCOPY (3) LEC. 3. Pr. CHEM 7300. Theory and application of optical and magnetic resonance spectroscopy.

CHEM 7410 A DBER APPROACH TO TEACHING AND LEARNING IN CHEMISTRY (3) LEC. 3. Pr. CHEM 1030 and CHEM 1040. Discipline-based education research (DBER) theory andtrends, consuming and evaluating DBER research, activelearning in advanced chemistry topics, action research,review of pedagogical tools, assessment. This coursewill be of use to chemistry graduate students aimingfor careers in academia, masters education studentslooking to take a chemistry course for the fulfillmentof their degree requirements, and other fields that wantto know more about evaluating and critiquing current DBERliterature and methods.

CHEM 7500 ADVANCED ANALYTICAL CHEMISTRY (3) LEC. 3. Analytical principles, applications and methods, mathematical interpretations and current developments.

CHEM 7510 ELECTROANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical applications of electrochemistry.

CHEM 7530 ADVANCES IN BIOANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical Chemistry of microfluidic devices and "Lab on a chip." New methods of miniaturization of separations and analysis with emphasis on bioanalytical applications.

CHEM 7540 FLUORESCENCE IN BIOANALYTICAL CHEMISTRY: SPECTROSCOPY AND IMAGING (3) LEC. 3. Pr. CHEM 7500. Modern fluorescence-based bioanalytical methods as well as an advanced study of related literature. Standard approaches such as biosensors, nucleic acid analysis will be covered, as well as modern techniques such as Fluorescence microscopy, FRET, immunoassays, ELISAs and single-molecule detection.

CHEM 7550 PHOTO AND ELECTROCHEMISTRY (3) ST1. The course offers a simultaneous and comprehensive treatment of photochemistry and electrochemistry.

CHEM 7560 MASS SPECTROMETRY: INSTRUMENTATION AND APPLICATIONS (3) LEC. 3. Departmental approval. Several notable developments in mass spectrometry instrumentation platforms have been introduced which has led to significant increase in their implementations to various research and clinical applications. Learning about the fundamental principles of these instrumentation platforms will guide the users in selecting the correct instrument for a specific application. This course is designed to offer such an approach.

CHEM 7610 BIOCHEMISTRY AND BIOPHYSICS TECHNIQUES (3) LEC. 3. Fundamental concepts in biochemistry, molecular microbiology, and principles of physics will be introduced. This will be followed by presentations on the theory and practical application of common biophysical techniques. The techniques discussed will include, but will not be limited to: Raman, NMR, and Mass Spectrometry of biological molecules, X-ray Diffraction, Ion Mobility, Fluorescence Microscopy, Single-Molecule Approaches, EM/Cryo-EM, and Nano-particle techniques.

CHEM 7750 FORMAL PRESENTATIONS IN MODERN CHEMISTRY (1) LEC. 1. Oral presentations skills will be developed with a focus on the dissemination of new discoveries in the field of Chemistry. Course may be repeated for a maximum of 6 credit hours.

CHEM 7930 DIRECTED INDIVIDUAL STUDY (1-15) IND. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.

CHEM 7950 SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CHEM 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CHEM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Geography Courses

GEOG 1000 INTRODUCTION TO GEOGRAPHY (1) LEC. 1. LAB. 0, LEC. 0. Introduction to fundamental concepts and major fields of study in geography

GEOG 1010 GLOBAL GEOGRAPHY (3) LEC. 3. Social Science I Core. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 1017 HONORS GLOBAL GEOGRAPHY (3) LEC. 3. Pr. Honors College. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 1020 GLOBAL SYSTEMS WEATHER/CLIMATE (4) DSL/LLB. The ‘Weather and Climate’ GS course will teach students the difference between weather and climate. They will evaluate the effect of weather on the food we eat, where we live, what we wear and the science behind climate change. This course will identify and describe Earth’s physical systems and make connections between them.

GEOG 1030 GLOBAL SYSTEMS LAND/WATER (4) DSL/LLB. The ‘Land and Water’ Global Systems course will compare the modification of land and water resources due to human interventions and weather anomalies over time. It will highlight the connection between temperature and precipitation, weathering of rocks, soil type and the river system, human nature interactions and ecosystems of the Earth.

GEOG 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOG 2010 HUMAN GEOGRAPHY (3) LEC. 3. Spatial perspectives on modern society such as population change, economics, politics, urban development, and local culture, and geography's approach to solving problems using case studies and issues.

GEOG 2017 HONORS HUMAN GEOGRAPHY (3) LEC. 3. Spatial perspectives on modern society such as population change, economics, politics, urban development, and local culture, and geography's approach to solving problems using case studies and issues.

GEOG 2020 PHYSICAL GEOGRAPHY (3) LEC. 3. Selected elements of the earth's physical system to include such items as landforms, basic weather elements, soils and vegetation.

GEOG 3000 SPORTS GEOGRAPHY (3) LEC. 3. Geographical basis of sports at different spatial scales, including locational strategies, sportive nationalism, and the urban political economy of sports.

GEOG 3110 UNITED STATES AND CANADA (3) LEC. 3. Survey of the region incorporating physical and cultural elements, providing a synthesis of the economic and political processes of the U.S. and Canada.

GEOG 3120 ALABAMA AND THE SOUTHEAST (3) LEC. 3. Study of the physical and cultural environments of the state.

GEOG 3130 LATIN AMERICA (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development and problems and prospects affecting major countries.

GEOG 3140 AFRICA (3) LEC. 3. Analysis of the relationships among diverse population groups and the physical environments of sub-Saharan Africa.

GEOG 3150 EUROPE (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development, and problems and prospects affecting several of the major countries.

GEOG 3300 INTERNATIONAL TRAVEL AND TOURISM (3) LEC. 3. Environmental and cultural patterns that characterize places attractive to tourists. Provides realistic situations for developing travel plans and programs.

GEOG 3720 STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 10. LAB. 5. Coreq. PARK 3630 and NATR 3320 and NATR 4250. Three-week course intended to give students a general understanding of the potential impacts of climate change on the environment in the tropics via a mix of lectures, hands-on activities and field trips. Departmental approval required.

GEOG 3810 CARTOGRAPHY AND GRAPHICS (4) LEC. 2. LAB. 2. Techniques of map production including relevant computer graphics applications and related laboratory exercises.

GEOG 4740 SENIOR SEMINAR (2) SEM. 2. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count GEOG 4740 or GEOL 4740.

GEOG 4920 INTERNSHIP (3) LEC. 3. Opportunity to apply classroom experience to real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOG 4930 DIRECTED STUDIES (1-4) AAB/IND. Departmental approval. Conferences, reading, research and/or reports may fulfill course requirement. Course may be repeated for a maximum of 4 credit hours.

GEOG 5010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. Senior standing or Departmental approval. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 5210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth's climate system (e.g. surface-atmosphere energy budge, the hydrologic cycle, and atmospheric motion) as well as climate change and sea level rise.

GEOG 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 2. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Study of the origin of landforms with emphasis on the eologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOG 5350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 5380 POLITICAL GEOGRAPHY (3) LEC. 3. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 5400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 5510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation of the inter-relationships between humans and their natural or physical environments.

GEOG 5550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 5600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. Departmental approval. Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons.

GEOG 5700 QUANTITATIVE METHODS AND SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. Pr., STAT 2510 or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills, evaluates written materials in geography, reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 5820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 5830 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 5850 DRONES AND GEOSPATIAL APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. This course will introduce the concepts of drone data collection, processing, and analysis and focus on how these high-resolution datasets can be used in a multitude of geospatial (including GIS and remote sensing) applications. This class will have both in-class and field components. Prerequisite: An Intro to GIS class is preferred, please contact the instructor if you have questions.

GEOG 5880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 5830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and process. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 5890 GIS PROGRAMMING (3) LEC. 2. LAB. 2. Pr. P/C GEOG 5830. This course is an introduction to programming and scripting for intermediate Geographic Information Systems (GIS) users. Students will learn how to design and write clearly structured scripts in Python using a standalone development environment. Students will develop programs to manage geospatial data, perform geoprocessing analysis, and design custom tools that can be integrated into common GIS software packages. Intro to GIS is a prerequisite which can be met if taken during the same semester (co-requisite). Credit will not be given for both GEOG 5890 and GEOG 6890

GEOG 5970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 6010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 6210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth's climate system (e.g surface-atmosphere energy budge, the hydrologic cycle, and atmospheric motion, as well as climate change and sea level rise.

GEOG 6220 GEOMORPHOLOGY (3) LEC. 3. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Credit will not be given for both GEOG 5220 and GEOG 6220.

GEOG 6350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 6380 POLITICAL GEOGRAPHY (3) LEC. 3. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 6400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 6510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation the inter-relationships between humans and their natural or physical environments.

GEOG 6550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 6700 QUANT METH & SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5700 and GEOG 6700.

GEOG 6710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 6800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills; evaluates written materials in geography; Reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 6820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 6830 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Departmental approval. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 6850 DRONES AND GEOSPATIAL APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. This course will introduce the concepts of drone data collection, processing, and analysis and focus on how these high-resolution datasets can be used in a multitude of geospatial (including GIS and remote sensing) applications. This class will have both in-class and field components. Prerequisite: An Intro to GIS class is preferred, please contact the instructor if you have questions.

GEOG 6880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 6830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and processes. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 6890 GIS PROGRAMMING (3) LEC. 2. LAB. 2. Pr. P/C GEOG 6830. This course is an introduction to programming and scripting for intermediate Geographic Information Systems (GIS) users. This course teaches students to design and write clearly structured scripts in Python using a standalone development environment. Students will develop programs to manage geospatial data, perform geoprocessing analysis, and design custom tools that can be integrated into common GIS software packages. Intro to GIS is a prerequisite which can be met if taken during the same semester (co-requisite). Credit will not be given for both GEOG 5890 and GEOG 6890

GEOG 6970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Departmental approval. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 7000 ESSENTIAL TEACHING SKILLS FOR GEOSCIENCE GTAS (3) LEC. 3. LAB. 0, LEC. 0. This course is designed to equip graduate teaching assistants (GTAs) in the geosciences with the foundational skills and knowledge necessary to succeed as effective educators in higher education. Participants will explore essential topics such as backwards design, active learning strategies, classroom management, effective communication, assessment design, the integration of technology in teaching, and navigating power dynamics. The course emphasizes practical application through hands-on activities, peer collaboration, and reflective teaching practices. Department approval.

GEOG 7930 DIRECTED STUDIES (1-3) AAB. Departmental approval. Individualized literature, field and/or laboratory research not available through regularly offered coursework. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOG 7980 CAPSTONE RESEARCH (1-3) RES. SU. Departmental approval. enrolled as GEOG MS non-thesis student. Literature, field and/or laboratory research directed toward the completion of capstone project for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOG 7990 M.S. RESEARCH AND THESIS (1-10) RES. Research and Thesis. Course may be repeated with change in topics.

GEOG 8900 DIRECTED STUDIES (1-6) IND. Provides exposure to discipline-specific research procedures in Earth System Science. Students will work closely with their mentors to explore an Earth-System problem through directed readings, literature searches, field work, laboratory experimentation, and quantitative analysis. Course may be repeated for a maximum of 6 credit hours.

Geology Courses

GEOL 1100 DYNAMIC EARTH (4) LEC. 3. LAB. 2. Science Core. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and landforms. Study of geologic maps. Credit will not be given for both GEOL 1100 and GEOL 3150.

GEOL 1107 HONORS DYNAMIC EARTH (4) LEC. 3. LAB. 2. Pr. Honors College. General physical geology for Honors students and for Geology majors. Topics similar to GEOL 1110 but covered in greater depth. Science Core.

GEOL 1110 EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Science Core. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans.

GEOL 1117 HONORS EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans. For Honors students and Geology majors. Science Core.

GEOL 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOL 2010 MINERALOGY AND OPTICAL CRYSTALLOGRAPHY (5) LEC. 4. LAB. 2. Physical and chemical properties of minerals, classification and roles with emphasis on natural systems, materials science, health, and environment. Credit will not be given for both GEOL 2010 and GEOL 2013.

GEOL 2050 IGNEOUS AND METAMORPHIC PETROLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 2010 or GEOL 2013. Principles and processes of igneous and metamorphic activity in a plate tectonic and petrologic context. Description, classification and interpretation of igneous and metamorphic rocks.

GEOL 2100 ENVIRONMENTAL GEOLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Emphasis on geology as an environmental science; applied geology, geological hazards and environmental regulations as applied to geologic environmental remediation.

GEOL 3060 LUNAR AND PLANETARY GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Departmental approval. Geology of the planets, moons, asteroids and comets. Origin of the solar system. Space exploration. Impact cratering.

GEOL 3200 INTRODUCTION TO PALEOBIOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 1110 or GEOL 1113 or GEOL 1117. The nature of the fossil record, applications of that data to geological and biological questions with emphasis on the concepts using examples from all biotic groups.

GEOL 3300 EVOLUTION AND EXTINCTION OF THE DINOSAURIA (3) LEC. 2. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Departmental approval. Survey of the dinosaurs, their evolution and extinction. Southeastern U.S. dinosaurs.

GEOL 3400 STRUCTURAL GEOLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 2050. Fundamentals of rock deformation. The mechanics of rock flow, fracture, and folding. Geometric techniques of structural analysis.

GEOL 3550 FIELD GEOLOGY: METHODS AND APPLICATION (3) LEC. 2. LAB. 2, AAB/LLB. 2. Pr. GEOL 1100 and GEOL 1110. Departmental approval. Through a combination of classroom, laboratory, and field-based activities, this course develops skills of geologic data collection, observation, interpretation, and communication.

GEOL 3650 ADVANCED FIELD GEOLOGY (3) LEC. 1. LAB. 10. Pr. GEOL 3400 and GEOL 3550. Instruments and methods used in geological field mapping, interpretation of sedimentary, igneous and metamorphic rocks and deformational analysis. Summer only.

GEOL 4110 STRATIGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOL 4010. Departmental approval. Description and correlation of layered earth materials. Synthesis and interpretation of stratigraphic correlations. North American Stratigraphic Code. History and theory of stratigraphy.

GEOL 4200 SEDIMENTARY PETROLOGY AND STRATIGRAPHY (4) LEC. 3. LAB. 2, LLB. 0. Pr. GEOL 2050. Description, classification, and interpretation of sediments and sedimentary rocks. Description and correlation of layered Earth materials. Stratigraphic correlation methods, and sequence stratigraphy. Department approval.

GEOL 4210 ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3400. The origin, distribution and classification of mineral deposits formed by igneous, metamorphic and sedimentary processes. Introduction of methods of exploration and development.

GEOL 4260 INTRODUCTION TO GEOCHEMISTRY (3) LEC. 3. Pr. CHEM 1040 and GEOL 2050. Principles governing the distribution of major, minor and trace elements within the earth; differentiation of elements due to geologic processes and the hydrosphere.

GEOL 4300 GEODYNAMICS (3) LEC. 3. Pr. GEOL 3400 and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Structure and dynamics of the earth deduced from seismology, gravity, heat flow and magnetism.

GEOL 4740 SENIOR SEMINAR (2) SEM. 2. Geology majors with upperclass standing. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count either GEOL 4740 or GEOG 4740.

GEOL 4920 INTERNSHIP (1-3) INT. SU. Geology majors with upper-class standing (juniors or seniors). An opportunity to apply classroom experience to a real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOL 4930 DIRECTED STUDIES IN UNDERGRADUATE RESEARCH (1-3) AAB. Departmental approval. Directed studies in areas of geology not covered by an existing course or to supplement knowledge gained from an existing course. Course may be repeated for a maximum of 3 credit hours.

GEOL 4970 SPECIAL TOPICS IN GEOLOGY (1-4) ST1. Instruction and discussion of selected topics in geosciences. Course may be repeated for a maximum of 8 credit hours.

GEOL 4980 UNDERGRADUATE RESEARCH METHODS (1-3) IND. Departmental approval. Active participation in original research under supervision of a senior investigator. Course may be repeated for a maximum of 3 credit hours.

GEOL 5060 INTRODUCTION TO MICROPALEONTOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3200 and (BIOL 1030 or BIOL 1037). A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 5100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 1. Study of the origin of landforms with emphasis on the geologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOL 5300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. P/C GEOL 4010. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 5440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction in the theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). The course provides an understanding the EMPA as a research tool for evaluating the composition and structure of a wide range of materials.

GEOL 5500 PETROLEUM GEOLOGY (3) LEC. 3. Pr. GEOL 4010. Coverage of petroleum source rocks, migration, reservoir rock characters, and trapping mechanics. Overview of exploration methods including well-log analysis and seismic interpretation.

GEOL 5600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 5700 GEOHEALTH (3) LEC. 3. Pr. GEOL 1100 and CHEM 1030. The effects of the composition of Earth materials and the local geological phenomena on human, plant, and animal health. The application of principles of geology and chemistry to predict and prevent diseases.

GEOL 5840 CLIMATE CHANGE AND SOCIETY (3) LEC. 3. The science of Earth’s changing climate, the societal influences on climate change, as well as the expected impacts based on the collected scientific evidence. Analyzes key aspects of climate science, the drivers of climate change, Earth’s climate trends, the evidence of climate change, the predicted future climate scenarios, the expected impacts, and the array of possible response options.

GEOL 6060 INTRODUCTION TO MICROPALEONTOLOGY (3) LEC. 3. LAB. 1. A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 6100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 6220 GEOMORPHOLOGY (3) LEC. 2. LAB. 1. Study of origin of landforms with emphasis on geologic processes and structures that generate landforms; includes the applications of landform analysis. May count either GEOL 6220 or GEOG 6220.

GEOL 6300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 4010. Departmental approval. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 6400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2. LAB. 2. Departmental approval. A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography.

GEOL 6440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction to theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). Provides an understanding of EMPA as a research tool for evaluating composition and structure of wide range of materials. GEOL 5440 or GEOL 6440.

GEOL 6500 PETROLEUM GEOLOGY (3) LEC. 3. Pr. P/C GEOL 4010. Geology/Geography graduate students who took GEOL 4010 ("P/C"). Coverage of petroleum source rocks, migration, reservoir rock characters, and trapping mechanics. Overview of exploration methods including well-log analysis and seismic interpretation.

GEOL 6600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 6700 GEOHEALTH (3) LEC. 3. The effects of the composition of Earth materials and the local geological phenomena on human, plant, and animal health. The application of principles of geology and chemistry to predict and prevent diseases.

GEOL 6840 CLIMATE CHANGE AND SOCIETY (3) LEC. 3. The course will investigate the science of Earth’s changing climate, the societal influences on climate change, as well as the expected impacts based on the collected scientific evidence. Analysis of peer-reviewed literature on the key aspects of climate science, the drivers of climate change, Earth’s climate trends, the evidence of climate change, predicted future climate scenarios, expected impacts, and the array of possible societal response options to prevent/mitigate the consequences of anthropogenic climate change. The class will have a strong component of discussion of literature and foundational knowledge as well as reflection on what students have learned and the implications of this knowledge for their areas of interest and generally for their lives.

GEOL 7100 GEOCOMMUNICATION (3) LEC. 3. Departmental approval. Instruction and practice in written and oral communication skills necessary for a successful career in the geosciences; emphasis on preparation of scientific articles, technical reports, abstracts, and thesis; preparation and delivery of oral presentations.

GEOL 7170 IMPACT AND PLANETARY GEOLOGY (3) LEC. 3. Pr. GEOL 1100 and GEOL 1110. Study of impact craters and their formation. Identification of impact crates. Role of impacts in planetary evolution and in evolution and extinction of life on Earth. Study of rocky and icy geologic surface terrains and their geologic processes.

GEOL 7200 TECTONICS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. Emphasis will be placed on plate tectonics and driving forces, evolution of collisional, transform and extensional systems, and dynamic indicators of past and current tectonic processes.

GEOL 7250 GROUNDWATER HYDROGEOLOGIC MODELING (3) LEC. 2. LAB. 2. Pr. GEOL 6100. Departmental approval. Overview of groundwater modeling techniques with environmental and geologic applications. Interaction of geology and subsurface groundwater flow. Basin hydrology modeling. Practical experience in computer simulations of subsurface hydrogeologic processes.

GEOL 7260 AQUEOUS AND ENVIRONMENTAL GEOCHEMISTRY (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Departmental approval. Study of water-rock reactions that control the chemical composition of groundwater; aqueous geochemistry of trace elements; groundwater pollution, remediation and geomic robiology.

GEOL 7300 CYCLES THROUGH EARTH HISTORY (3) LEC. 2. LAB. 2. Pr. GEOL 4100 and GEOL 4260. Discussion of the fundamental processes controlling sedimentary cycles at different physical, biotic, and temporal scales.

GEOL 7400 ADVANCED ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 4210. Departmental approval. The practical and theoretical aspects of economic geology as applied to exploration and development of natural resources.

GEOL 7410 GEOLOGY OF ORGANIC MATTER (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. The origins, classifications, taphonomy of organic matter, modern and ancient processes and environments of deposition of organic-rich strata, including hydrocarbon- source rocks and coals. Laboratory and field trips required.

GEOL 7450 MINERAL RESOURCES AND THE ENVIRONMENT (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Overview of geology and geographic distribution of mineral resources; economic aspects affecting their extraction; environmental impacts and cost of mineral resource extraction.

GEOL 7500 PALEOCLIMATOLOGY (3) LEC. 3. Explores how Earth's climate has evolved dynamically over time, varying within restricted boundaries that allowed life to exist and evolve. Explores interactions among Earth's surface abiotic and biotic components, and includes plate tectonics, atmospheric chemistry and physics, and ocean productivity.

GEOL 7550 ADVANCED GEOPHYSICAL METHODS (3) LEC. 2. LAB. 2. Pr. GEOL 6600. Departmental approval. Advanced treatment of geophysical methods, data interpretation and modeling. Applications to resource development and environmental assessments will be explored, with emphasis on seismic methods.

GEOL 7600 PETROLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. The description, classification, formative processes, and petrologic interpretation of igneous, metamorphic and sedimentary rocks.

GEOL 7610 STRUCTURAL AND METAMORPHIC ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 3400 and GEOL 3650. Quantitative analysis of dynamic, kinematic and chemical responses of rocks and minerals to crustal movements and dynamo thermal metamorphism.

GEOL 7650 FACIES ANALYSIS AND SEQUENCE STRATIGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. Systematic analysis of modern and ancient deposition facies, and their interpretation in a sequence stratigrahic context. Laboratory and field trips required.

GEOL 7700 ANALYTICAL ISOTOPE GEOCHEMISTRY (3) LEC. 2. LAB. 1. Pr. CHEM 1040 or PHYS 1510 or MATH 1620. Biweekly lectures will teach the theory and principles of isotope geochemistry and mass spectrometry, leading to applications in geoscience research. Lab sessions and problem sets will support lectures and emphasize work with various mass spectrometers in the Department of Geosciences.

GEOL 7930 DIRECTED STUDIES (1-3) LEC. 3. Departmental approval. Directed studies. May incorporate literature, field and/or laboratory research in any proportion. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOL 7980 CAPSTONE PROJECT (1-3) LEC. SU. Literature, field and/or laboratory research directed towards completion of capstone project required for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOL 7990 RESEARCH AND THESIS (1-10) MST. Departmental Approval. Course may be repeated with change in topics.

GEOL 8900 DIRECTED STUDY (1-6) IND. 3. Provides exposure to discipline-specific research procedures in Earth System Science. Students will work closely with their mentors to explore an Earth-system problem through directed readings, literature searches, field work, laboratory experimentation, and quantitative analysis. Course may be repeated for a maximum of 6 credit hours.

Laboratory Science Courses

LBSC 2010 BASICS IN LABORATORY SCIENCE (2) LEC. 1. LAB. 1. Basic laboratory skills, quality control and assurance, standard precautions for biohazard testing; requirements for careers in medical and laboratory science.

LBSC 4010 HEMATOLOGY (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Origin, maturation, morphology, and function of normal blood cells and abnormalities in diseased blood with clinical correlation to disease processes.

LBSC 4011 HEMATOLOGY LAB (2) LAB. 6. Pr. (CHEM 2070 or CHEM 2077) and P/C LBSC 4010 and P/C LBSC 2010. Lab portion of course covering origin, maturation, morphology, and function of normal blood cells and abnormalities in disease blood with clinical correlation to disease processes.

LBSC 4050 CLINICAL IMMUNOHEMATOLOGY/PARASITOLOGY (5) LEC. 3. LAB. 6. Pr. (CHEM 2070 or CHEM 2077) and (BIOL 1020 or BIOL 1027). Immunogenetics, clinical significance of blood group antigens and antibodies, theory and techniques of serological study of human blood groups. Human parasites, life cycles and disease processes.

LBSC 4250 CLINICAL BIOCHEMISTRY/INSTRUMENTATION (4) LEC. 3. LAB. 3. Pr. P/C BCHE 5180 or P/C BCHE 3200. Biochemistry/physiology of systems in the body of elements in body fluids during the normal and abnormal processes. Theoretical and practical application of Lab techniques, atomic absorption, gaschromatograph-FID, HPLC, spectroscopy, spectrophotometry, ion selective electrodes and RIA used in analysis of body fluids.

LBSC 4910 CLINICAL PRACTICUM (0) PRA.

LBSC 4920 CLINICAL INTERNSHIP (0) INT/PRA.

Mathematics Courses

MATH 1000 COLLEGE ALGEBRA (3) LEC. 3. Pr. ALEK score of 1. Fundamental concepts of algebra, equations and inequalities, functions and graphs, polynomial and rational functions. Does not satisfy the core requirement in mathematics. Students who have previous credit in any higher-numbered math course may not also receive credit for this course.

MATH 1100 FINITE MATH AND APPLICATIONS (3) LEC. 3. Pr. ALEK score of 50 or MATH 1000 or MATH 1003. ALEKS Math Placement Assessment score of at least a 50 or MATH 1000. Mathematics Core. Overview of finite mathematics and its applications. Graph theory, matrices, finite and conditional probability; descriptive and inferential statistics, voting methods, game theory.

MATH 1120 PRE-CALCULUS ALGEBRA (3) LEC. 3. Pr. ALEK score of 50 or MATH 1000 or MATH 1003. ALEKS Math Placement Assessment score of at least a 50 or MATH 1000. Mathematics Core. Preparatory course for calculus. This course emphasizes the algebra of functions – including polynomial, rational, exponential, and logarithmic functions. In addition, the course covers non-linear inequalities as well as systems of linear and non-linear equations and inequalities. The course also includes an introduction to sequences and series. No credit is given to students with higher-numbered math course.

MATH 1121 PRE-CALCULUS ALGEBRA WORKSHOP (1) LAB. 2. SU. Pr. P/C MATH 1000 or P/C MATH 1003 or P/C MATH 1120 or P/C MATH 1123. Workshop for College Algebra and Pre-Calculus Algebra.

MATH 1130 PRE-CALCULUS TRIGONOMETRY (3) LEC. 3. Pr. ALEK score of 64 or MATH 1120 or MATH 1123. ALEKS Math Placement Assessment score of at least a 64 or MATH 1120. Mathematics Core. Preparatory course for the calculus sequence. Basic analytic and geometric properties of the trigonometric functions. Complex numbers, De Moivre' Theorem, polar coordinates. Students who have previous credit in any higher-numbered math course may not also receive credit for this course.

MATH 1150 PRE-CALCULUS ALGEBRA AND TRIGONOMETRY (4) LEC. 4. Pr. ALEK score of 64 or MATH 1000 or MATH 1003. ALEKS Math Placement Assessment score of at least a 64 or "C" or better in MATH 1000. Mathematics Core. Algebraic functions, Exponential Logarithmic functions. Analytic and geometric properties of trigonometric functions.

MATH 1151 MATHEXCEL PRECALCULUS WORKSHOP (2) LEC. 2. SU. Coreq. MATH 1150. Appropriate score on the mathematics placement exam or grade of "C" or better in MATH 1000. Workshop for MATH 1150. Two 2-hour sessions per week.

MATH 1610 CALCULUS I (4) LEC. 4. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or ALEK score of 78. ALEKS Math Placement Assessment score of at least a 78 or "C" or better in MATH 1130 or in MATH 1150. Mathematics Core. Limits, the derivative of algebraic, trigonometric, exponential, logarithmic functions. Applications of the derivative, antiderivatives, the definite integral and applications to area problems, the fundamental theorem of calculus. Students may receive credit for only one of MATH 1610/1617.

MATH 1617 HONORS CALCULUS I (4) LEC. 4. Pr. Honors College. MATH 1130 or MATH 1150 or ALEK minimum score of 78 or MATH 1133 or MATH 1153. ALEKS Math Placement Assessment score of at least a 78 or "C" or better in MATH 1130 or in MATH 1150. Mathematics Core. Honors version of MATH 1610. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: Applied Math-Actuarial Sci (ACTU), Applied Math-Discrete (APDM), Applied Mathematics (AMTH), and Mathematics (MATH). This course covers the same material as MATH 1610 but in a greater depth appropriate for Honors students and Mathematics majors. Students may receive credit for only one of MATH 1610, MATH 1617 or MATH 1680.

MATH 1620 CALCULUS II (4) LEC. 4. Pr. MATH 1610 or MATH 1613 or MATH 1617. "C" or better in MATH 1610 or in MATH 1617. Techniques of integration, applications of the integral, parametric equations, polar coordinates. Vectors, lines and planes in space. Infinite sequences and series. Students may receive credit for only one of MATH 1620 or MATH 1627.

MATH 1627 HONORS CALCULUS II (4) LEC. 4. Pr. Honors College. MATH 1610 or MATH 1613 or MATH 1617. "C" or better in MATH 1610 or in MATH 1617. Honors version of MATH 1620. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: Applied Math-Actuarial Sci (ACTU), Applied Math-Discrete (APDM), Applied Mathematics (AMTH), and Mathematics (MATH). The same material as MATH 1620, but in greater depth appropriate for honors students and Mathematics majors. Students may receive credit for only one of MATH 1620 or MATH 1627.

MATH 1680 CALCULUS WITH BUSINESS APPLICATIONS I (4) LEC. 4. Pr. MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or ALEK score of 68. ALEKS Math Placement Assessment score of at least a 68 or MATH 1120 or MATH 1130 or MATH 1150. Students in College of Business. Mathematics Core. Differentiation and integration of exponential and logarithmic functions, applications to business. Functions of several variables, partial derivatives, multiple integrals.

MATH 1690 CALCULUS WITH BUSINESS APPS II (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or MATH 1610 or MATH 1617 or MATH 1613. Probability, random variables, probability distributions. Further topics in calculus: integration, functions of several variables, applications to probability. Applications to business and related areas. Credit will not be given to majors in Engineering or Math or Physics.

MATH 1950 FIRST YEAR MATHEMATICS SEMINAR (1) SEM. 1. This seminar will provide a shared intellectual experience for incoming freshmen mathematics majors. It will serve as a focused and interactive forum to provide a glimpse into the world of mathematics that lies beyond elementary calculus. Each semester's symposium will be devoted to a specific mathematical topic. Writing about mathematics and explaining mathematical ideas to both “math people” and “non-math people” will be emphasized. Only offered to incoming first-year students (though transfer students and higher rank students may be allowed to enroll on an approval basis). May not be repeated for credit. High School Math will be required.

MATH 2630 CALCULUS III (4) LEC. 4. Pr. MATH 1620 or MATH 1623 or MATH 1627. "C" or better in MATH 1620, MATH 1623 or MATH 1627. Multivariate calculus: vector-valued functions, partial derivatives, multiple integration, vector calculus. Credit will be given for only MATH 2630 or MATH 2637.

MATH 2637 HONORS CALCULUS III (4) LEC. 4. Pr. MATH 1620 or MATH 1623 or MATH 1627. Must have earned a "C" or better in MATH 1620, MATH 1623 or MATH 1627. Honors version of MATH 2630. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: Applied Math-Actuarial Sci(ACTU), Applied Math-Discrete(DISC), Applied Mathematics(AMTH), and Mathematics(MATH). The same material as MATH 2630, but in greater depth appropriate for honors students and Mathematics majors. Credit will be given for only one of MATH 2630 or MATH 2633 or MATH 2637.

MATH 2650 LINEAR DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. P/C MATH 2630 or P/C MATH 2633 or P/C MATH 2637. Introduction to ordinary differential equations, specifically linear equations of first and second order, and applications.

MATH 2660 TOPICS IN LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Matrices, row-reduction, systems of linear equations, (finite-dimensional) vector spaces, subspaces, bases, dimension, change of basis, linear transformations, kernels, orthogonality, Gram-Schmidt.

MATH 2667 HONORS TOPICS IN LINEAR ALGEBRA (3) LEC. 3. Pr. Honors College. MATH 1620 or MATH 1623 or MATH 1627. Must have earned a "C" or better in MATH 1620 or MATH 1623 or MATH 1627. Honors version of MATH 2660. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: (Applied Math-Actuarial Sci(ACTU), Applied Math-Discrete(DISC), Applied Mathematics(AMTH), and Mathematics(MATH). Topics include: matrices, row-reduction, systems of linear equations, (finite-dimensional) vector spaces, subspaces, bases, dimension, change of basis, linear transformations, kernels, orthogonality, Gram-Schmidt. The same material as MATH 2660, but in greater depth appropriate for honors students and Mathematics majors, with possible additional topics as determined by the instructor. Credit will be given for only one of MATH 2660 or MATH 2667.

MATH 2670 INTRODUCTION TO DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. MATH 1620. Rigorous introduction to ordinary differential equations with emphasis on mathematical justification of solution methods and qualitative analysis of equations and low dimensional systems. The existence and uniqueness theorems. Separable equations, exact equations and integrating factors. Second order linear equations, the Wronskian, method of undetermined coefficients, variation of parameters. Laplace transform. Higher order equations. Systems of first order equations, fundamental matrix.

MATH 2790 MATHEMATICS OF INTEREST THEORY (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Mathematical foundations of the theory of interest necessary as preparation for the Society of Actuaries examination on the theory of interest.

MATH 2850 MATHEMATICS FOR ELEMENTARY EDUCATION I (3) LEC. 3. For Elementary Education major or departmental approval. Mathematical insights for elementary school teachers. Sets, the structure of the number system (integers, fraction, decimals).

MATH 2860 MATHEMATICS FOR ELEMENTARY EDUCATION II (3) LEC. 3. Pr. MATH 2850. For Elementary Education majors or departmental approval. Mathematical insights into measurement and geometry for elementary school teachers. Shapes in two and three dimensions. Similarities, congruences and transformations.

MATH 2870 MATHEMATICS FOR ELEMENTARY EDUCATION III (3) LEC. 3. For Elementary Education majors or departmental approval. Mathematical insights into probability, data analysis and functions for elementary school teachers. Uncertainty, probability spaces and an introduction to statistics. Relationships, functions and change.

MATH 3010 HISTORY OF MATHEMATICS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. The evolution of modern mathematics from its motivational roots in the physical sciences; the lives and contributions of outstanding mathematicians; the parallel development of mathematics and western culture.

MATH 3100 INTRODUCTION TO ADVANCED MATHEMATICS (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Teaching of the fundamental abilities necessary for the pursuance of mathematical studies. Logic and set theory, mathematical induction, basic number theory, basic analysis. Credit will not be given for both MATH 3100 and Math 3710.

MATH 3710 DISCRETE MATHEMATICS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Methods of proof, induction, counting, inclusion-exclusion, discrete probability, relations, partial orders, graphs, trees, languages, grammars, finite state machines, automata. Credit will not be given for both MATH 3710 and Math 3100.

MATH 4110 ADVANCED LOGIC (3) LEC. 3. Pr. MATH 3100 or PHIL 3110. Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics. May count either MATH 4110 or PHIL 4110.

MATH 4790 ACTUARIAL SEMINAR IN THE MATHEMATICS OF FINANCE (3) LEC. 3. Pr. MATH 2790. Intensive seminar in the mathematical aspects of finance, and the theory of interest primarily intended as preparation for the Society of Actuaries Course 2 examination.

MATH 4800 INTRODUCTION TO ACTUARIAL MATHEMATICS (3) LEC. 3. Pr. STAT 3600 and MATH 2790. An introduction to important actuarial methods in modeling and foundational principles of ratemaking and reserving for short-term coverages primarily intended as preparation for part of the Society of Actuaries Exam FAM.

MATH 4820 ACTUARIAL SEMINAR IN PROBABILITY (3) LEC. 3. Pr. STAT 3600. or equivalent. Intensive seminar in calculus, probability, and risk theory primarily intended as preparation for the Society of Actuaries Course 1 examination.

MATH 4930 DIRECTED STUDIES (1-3) IND. Study of individual problems or topics of interest to students. Course may be repeated for a maximum of 3 credit hours.

MATH 4970 SPECIAL TOPICS (1-4) IND. Departmental approval. An individual problems course. Each student will work under the direction of a staff member on a problem of mutual interest. Course may be repeated for a maximum of 4 credit hours.

MATH 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental approval. Directed research in the area of specialty under faculty supervison. Course may be repeated for a maximum of 3 credit hours.

MATH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours. Membership in Honors College.

MATH 5000 MATH MODELING (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667). Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term project. Programming ability.

MATH 5010 VECTOR CALCULUS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and (MATH 2660 or MATH 2667). Departmental approval. Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green's Theorem, Stoke's Theorem, Gauss' Theorem. Tensors and differential forms. Applications.

MATH 5030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3. Pr. MATH 5030. Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 5060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. MATH 2650 or MATH 2670. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 5110 NUMBER THEORY (3) LEC. 3. Pr. MATH 3100. Greatest common divisor, unique factorization, linear Diophantine equations. Modular arithmetic, Chinese remainder theorem, polynomial congruences. Quadratic residues, Legendre/Jacoby symbols, quadratic reciprocity. Primes. Moebius inversion. Sums of squares. Units and the integers mod n.

MATH 5120 INFORMATION THEORY (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 5130 CALCULUS OF VARIATION (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Fundamental concepts of extrema of functions and functionals; first and second variations; generalizations; sufficient conditions; constrained functionals; the general Lagrange Problem; optimal control.

MATH 5140 DATA COMPRESSION (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 5150 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.

MATH 5170 FINITE EXTREMAL SET THEORY (3) LEC. 3. Pr. (MATH 2660 or MATH 2667) and (MATH 3100 or MATH 3710). Finite posets and their Hasse diagrams. Sequences and the Erdos-Szekeres Theorem. Chains and antichains, Dilworth's Theorem. Set systems in the hypercube, Sperner's Lemma and the LYM inequality. Intersecting families, the Erdos-Ko-Rado Theorem. Isoperimetric inequalities in the hypercube. Additional topics related to recent research. Includes paper reading and presentation component.

MATH 5180 CRYPTOGRAPHY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 5200 ANALYSIS I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, Cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity. Emphasis on proofs.

MATH 5210 ANALYSIS II (3) LEC. 3. Pr. MATH 5200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; R^n and abstract spaces, functions of several variables. Emphasis on proofs.

MATH 5280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667). Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

MATH 5300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Linear difference equations, initial value problems, Green's functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

MATH 5310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 5320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 5310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, Galois Theory.

MATH 5330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 5310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic/robotics problems, symbolic manipulation software.

MATH 5350 INTRODUCTION TO ALGEBRAIC GEOMETRY (3) LEC. 3. Pr. MATH 5320. LEC. 3. Pr. "C" or better in Math 5320. Affine varieties, Hilbert's Nullstellensatz, the Ideal-Variety Correspondence, irreducibility, polynomial and rational functions, projective varieties, Bezout's Theorem, dimension theory.

MATH 5370 LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Introduction to the theoretical foundations of Linear Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces, matrix representations, eigenvalues, eigenspaces.

MATH 5380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 5390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 5380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, advanced theorems on the circle.

MATH 5460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods.

MATH 5500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Pr. MATH 3100. C or better in MATH 3100. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 5630 INTRODUCTION TO NUMERICAL ANALYSIS I (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Programming ability. Numerical solution of equations, polynomial approximation, numerical differentiation and integration, numerical solutions of ordinary differential equations, error analysis. Written programs using algorithms. Programming ability.

MATH 5640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Programming ability. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigen vectors, error analysis. Written programs using the algorithms.

MATH 5650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667). Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 5670 and STAT 5670.

MATH 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 5670 or STAT 5670. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 5680 and STAT 5680.

MATH 5710 LINEAR OPTIMIZATION (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 5730 ENUMERATION (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.

MATH 5740 SOCIAL NETWORK ANALYSIS (3) LEC. 3. Pr. (MATH 3100 or COMP 2240) and (P/C COMP 1220 or P/C COMP 1230). Introduction to Social Network Analysis and Python, graph properties and network visualization, Network Metrics, Cascading Behavior in Networks, 2-Mode network, Large-scale structure of networks and corresponding Algorithms, Clustering, Ego analysis and Bipartite networks, Exponential random graph modeling, and Network evolution.

MATH 5750 INTRODUCTION TO GRAPH THEORY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Algorithmic and theoretical aspects of graph theory: matchings, colorings, scheduling problems, Hamilton cycles. Euler tours, spanning trees, network reliability, connectivity, extremal graphs, planar graphs, disjoint paths.

MATH 5770 COMBINATORIAL DESIGNS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.

MATH 5800 ACTUARIAL MATHEMATICS I (3) LEC. 3. Pr. MATH 2790 and STAT 3600. A development of theoretical basis of survival models, life table, life insurance benefits, annuities, premium calculation and policy values primarily intended as preparation for part of the Society of Actuaries Exam FAM.

MATH 5810 ACTUARIAL MATHEMATICS II (4) LEC. 4. Pr. MATH 5800. This course develops the knowledge of theoretical basis to traditional and modern contingent payment models and the application of those models to insurance and other financial risks. It is primarily intended as preparation for the Society of Actuaries Exam ALTAM.

MATH 5840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Divisibility, Diophantine equations, congruencies.

MATH 5850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Computer familiarity.

MATH 5860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 5870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1617) and (MATH 1620 or MATH 1627) and (MATH 2650 or MATH 2670) and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 5970 SPECIAL TOPICS (1-3) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.

MATH 6000 MATHEMATICAL MODELING: CONTINUOUS (3) LEC. 3. Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term-project. Programming ability.

MATH 6010 VECTOR CALCULUS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (MATH 2660 or MATH 2667). Departmental approval. Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green's Theorem, Stoke's Theorem, Gauss' Theorem. Tensors and differential forms. Applications.

MATH 6030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 6060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 6110 NUMBER THEORY (3) LEC. 3. Greatest common divisor, unique factorization, linear Diophantine equations. Modular arithmetic, Chinese remainder theorem, polynomial congruences. Quadratic residues, Legendre/Jacoby symbols, quadratic reciprocity. Primes. Moebius inversion. Sums of squares. Units and the integers mod n.

MATH 6120 INFORMATION THEORY (3) LEC. 3. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 6140 DATA COMPRESSION (3) LEC. 3. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 6150 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.

MATH 6170 FINITE EXTREMAL SET THEORY (3) LEC. 3. Pr. (MATH 2660 or MATH 2667) and (MATH 3100 or MATH 3710). Finite posets and their Hasse diagrams. Sequences and the Erdos-Szekeres Theorem. Chains and antichains, Dilworth's Theorem. Set systems in the hypercube, Sperner's Lemma and the LYM inequality. Intersecting families, the Erdos-Ko-Rado Theorem. Isoperimetric inequalities in the hypercube. Additional topics related to recent research. Includes paper reading and presentation component. Graduate version of MATH 5170.

MATH 6180 CRYPTOGRAPHY (3) LEC. 3. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 6200 ANALYSIS I (3) LEC. 3. or equivalent course, subject to departmental approval. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, Cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity; intermediate#value and extreme-value theorems. Emphasis on proofs.

MATH 6210 ANALYSIS II (3) LEC. 3. Pr. MATH 6200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; R^n and abstract spaces, functions of several variables. Emphasis on proofs.

MATH 6310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 6320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 6310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, and Galois Theory.

MATH 6330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 6310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic/robotics problems, and symbolic manipulation software.

MATH 6350 INTRODUCTION TO ALGEBRAIC GEOMETRY (3) LEC. 3. Pr. MATH 5320. LEC. 3. Pr. "C" or better in Math 5320. Affine varieties, Hilbert's Nullstellensatz, the Ideal-Variety Correspondence, irreducibility, polynomial and rational functions, projective varieties, Bezout's Theorem, dimension theory.

MATH 6370 LINEAR ALGEBRA (3) LEC. 3. Introduction to the theoretical foundations of Linear Algebra Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces matrix representations, eigenvalues, eigenspaces.

MATH 6380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 6390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 6380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, and advanced theorems on the circle.

MATH 6460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Departmental approval. Analytical solutions of nonlinear problems, ODES, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

MATH 6500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Departmental approval. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 6630 INTRODUCTION TO NUMERICAL ANALYSIS I (3) LEC. 3. Numerical solution of equations, polynomial approximation, numerical differentiation and integration, numerical solutions of ordinary differential equations, error analysis. Written programs using algorithms. Programming ability.

MATH 6640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms. Programming ability.

MATH 6650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 6670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 6670 and STAT 6670.

MATH 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi- regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 6680 and STAT 6680.

MATH 6710 LINEAR OPTIMIZATION (3) LEC. 3. Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 6730 ENUMERATION (3) LEC. 3. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.

MATH 6740 SOCIAL NETWORK ANALYSIS (3) LEC. 3. Introduction to Social Network Analysis and Python, graph properties and network visualization, Network Metrics, Cascading Behavior in Networks, 2-Mode network, Large-scale structure of networks and corresponding Algorithms, Clustering, Ego analysis and Bipartite networks, Exponential random graph modeling, and Network evolution.

MATH 6750 INTRODUCTION TO GRAPH THEORY (3) LEC. 3. Algorithmic and theoretical aspects of graph theory: matchings, colorings, scheduling problems, Hamilton cycles. Euler tours, spanning trees, network reliability, connectivity, extremal graphs, planar graphs, disjoint paths.

MATH 6770 COMBINATORIAL DESIGNS (3) LEC. 3. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.

MATH 6800 ACTUARIAL MATHEMATICS I (3) LEC. 3. Departmental approval. A development of theoretical basis of survival models, life table, life insurance benefits, annuities, premium calculation and policy values primarily intended as preparation for part of the Society of Actuaries Exam FAM.

MATH 6810 ACTUARIAL MATHEMATICS II (4) LEC. 4. Pr. MATH 6800. This course develops the knowledge of theoretical basis to traditional and modern contingent payment models and the application of those models to insurance and other financial risks. It is primarily intended as preparation for the Society of Actuaries Exam ALTAM.

MATH 6840 NUMBER SYSTEMS AND ALGEBRA FOR TEACHERS (3) LEC. 3. Pr. MATH 3100. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on number systems, algebra, and functions, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving. Admission to a program in Secondary Mathematics Education or department approval required.

MATH 6850 FUNCTIONS AND MATHEMATICAL MODELING FOR TEACHERS (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) or MATH 2660 or MATH 2667. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on functions and mathematical modeling, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving. Admission to a program in Secondary Mathematics Education or department approval required.

MATH 6860 GEOMETRY FOR TEACHERS (3) LEC. 3. Pr. MATH 2660 or MATH 2667 or MATH 3100. Connect advanced college-level mathematics with the secondary mathematics curriculum, focusing on geometry, to develop mathematical knowledge relevant to teaching. The contents include axiomatic systems of geometry, transformational geometry, and similarity. Appropriate technology and mathematics problem solving skills will be introduced. Admission to a program in Secondary Mathematics Education or department approval required.

MATH 6870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1617) and (MATH 1620 or MATH 1627) and (MATH 2650 or MATH 2670) and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 6970 SPECIAL TOPICS (1-3) DSL. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.

MATH 7000 APPLIED MATHEMATICS I (3) LEC. 3. Departmental approval. Linear spaces, matrices, eigenvalues, least squares solutions to linear systems, Hilbert spaces, orthogonal expansions, integral equations, compact operators, Green's functions for boundary value problems, eigenfunction expansions.

MATH 7010 APPLIED MATHEMATICS II (3) LEC. 3. Pr. MATH 7000 or MATH 7006. Calculus of variations, asymptotic expansions, Spectral theory, Fourier transform, Partial differential equations, transform methods and eigenfunction expansions, vibrations, diffusion processes, equilibrium states, Green's functions, boundary layer problems.

MATH 7110 DISCRETE GEOMETRY AND CONVEXITY I (3) LEC. 3. Departmental approval. Geometric objects and configurations with discrete symmetry groups. Regular polygons and polyhedra. Regular arrangements. Plane tilings and patterns.

MATH 7120 DISCRETE GEOMETRY AND CONVEXITY II (3) LEC. 3. Pr. MATH 7110. Convexity and related geometric extremum problems. Packing and covering. Arrangements of extreme density.

MATH 7140 INTRODUCTION TO MODEL THEORY (3) LEC. 3. Departmental approval. First-order languages, Satisfaction. Consequences. The completeness and compactness theorems, models constructed from constants. Elementary substructures and embeddings, Lowenheim-Skolem-Tarskj theorems. Ultraproducts and ultrapowers.

MATH 7150 AXIOMATIC SET THEORY I (3) LEC. 3. Departmental approval. Introduction to modern set theory. The axioms of ZFC, ordinals and cardinals, closed unbounded sets, the constructible universe L, Martin's Axiom.

MATH 7160 AXIOMATIC SET THEORY II (3) LEC. 3. Pr. MATH 7150. Introduction to forcing, independence results, iterated forcing, consistency of Martin's Axiom.

MATH 7180 ALGORITHMIC ALGEBRA I (3) LEC. 3. Departmental approval. Fundamental aspects of algorithmic algebra. Noetherian rings. Theory of Groebner bases. Hilbert Nullstellensatz. Elimination theory. Applications to graph theory and algebraic geometry.

MATH 7190 ALGORITHMIC ALGEBRA II (3) LEC. 3. Pr. MATH 7180. Modules. Groebner bases for modules and syzygy computations. Improved Buchberger's algorithm. Computation of Ext. Groebner bases over rings. Primary decomposition of ideals. Dimension theory.

MATH 7200 REAL ANALYSIS I (3) LEC. 3. Departmental approval. Sigma algebras, measures, measurable functions, integratability, properties of Lebesgue measure, density, Lusin's theorem, Egeroff's theorem, product measures, Fubini's theorem. Limit theorems involving pointwise convergence and integration.

MATH 7210 REAL ANALYSIS II (3) LEC. 3. Pr. MATH 7200. L-p spaces, completeness, duals. Weak convergence, norm convergence, pointwise convergence, convergence in measure. Signed and complex measures. Absolute continuity, Lebesgue decomposition. Measure theory, Lebesgue integration, introductory functional analysis.

MATH 7230 FUNCTIONS OF A COMPLEX VARIABLE I (3) LEC. 3. Departmental approval. Complex numbers, analytic functions, derivatives, Cauchy integral theorem and formulae, Taylor and Laurent series, analytic continuation, residues, maximum principles, Riemann surfaces.

MATH 7240 FUNCTIONS OF A COMPLEX VARIABLE II (3) LEC. 3. Pr. MATH 7230. Conformal mappings, families of analytic functions and harmonic analysis.

MATH 7280 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Existence and continuation theorems for ordinary differential equations, continuity and differentiability with respect to initial conditions, linear systems, differential inequalities, Sturm theory.

MATH 7290 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7280. Stability theory, periodic solutions, boundary value problems, disconjugacy of linear equations, Green's functions, upper and lower solutions, a priori bounds methods, current research.

MATH 7310 ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Lagrange's Theorem, normal subgroups, factor groups, Isomorphism and Correspondence Theorems. Symmetric groups, alternating groups, free groups, torsion groups. Introduction to rings, correspondence theorems.

MATH 7320 ALGEBRA II (3) LEC. 3. Pr. MATH 7310. Rings, modules, vector spaces, and semi-simple modules. Commutative rings; prime and primary ideals, PIDs are UFD, factorizations in integral domains, field extensions, the Galois Correspondence Theorem.

MATH 7340 RING THEORY (3) LEC. 3. Pr. MATH 7320. Topics on: commutative rings (Cohen-Seidenberg theorems, Krull Intersection Theorem, Dedekind domains), or noncommutative rings (projective modules over Artinian algebras, representation type, Noether-Skolem Theorem, division algebras).

MATH 7350 ALGEBRAIC GEOMETRY (3) LEC. 3. Pr. MATH 7320 and P/C MATH 7500. Pr. ``C" or better in Math 7320 and Math 7500. Affine and projective varieties, the Ideal-Variety Correspondence, morphisms and rational maps of varieties, Bezout's Theorem, sheaves, schemes, divisors, sheaf cohomology.

MATH 7360 LIE ALGEBRA (3) LEC. 3. General introduction of Lie algebras including their structures and classifications of semisimple Lie algebras.

MATH 7370 MATRICES I (3) LEC. 3. Departmental approval. Jordan form, functions of a matrix, spectral theorem, singular values, norms, quadratic forms, field of values, inertia; topics of current interest.

MATH 7380 MATRICES II (3) LEC. 3. Pr. MATH 7370. Matrix stability and inertia, inequalities for matrix eigenvalues and singular values, The Kronecker and Hadamard matrix products, the exponential and logarithm matrix map; topics of current interest.

MATH 7390 MULTILINEAR ALGEBRA (3) LEC. 3. Pr. MATH 5370 or MATH 6370. Multilinear algebra, symmetry class of tensors, induced operators, generalized matrix functions, and current research topics.

MATH 7400 FUNCTIONAL ANALYSIS I (3) LEC. 3. Pr. MATH 7210. Departmental approval. Bounded linear transformations and functionals on Banach and Hilbert spaces, weak topologies, linear operators, adjoints, compact operators. Banach algebras, spectral theory, Gelfand transform.

MATH 7410 FUNCTIONAL ANALYSIS II (3) LEC. 3. Pr. MATH 7400. C*-algebras, Hermitian, self adjoint elements, functional calculus for commutative algebras. Normal operators on Hilbert space, spectral theorem, applications, symmetric and self-adjoint operators, normal operators, the spectral theorem.

MATH 7440 PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Second order linear elliptic and hyperbolic equations stressing non-linear and numerical problems, characteristic domains of dependence, energy integrals, finite difference schemes, Sobolev spaces, maximum principle.

MATH 7450 PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7440. Parabolic and hyperbolic equations, stressing numerical problems, characteristics, domains of dependence, energy integrals, reaction-diffusion problems, Navier-Stokes equations, fixed-point and Galerkin methods.

MATH 7460 ADVANCED PERTURBATION METHODS (3) LEC. 3. Departmental approval. Solutions of nonlinear problems and integrals using WKB, Rayleigh-Janzen, Generalized Scales, Latta, van der Pol, Watson, Laplace, Adomian, homotopy, Pade, Liouville-Green and Burmann transformations. May count either AERO 7460/7466 or MATH 7460/7466.

MATH 7500 TOPOLOGY I (3) LEC. 3. Departmental approval. Separation and countability axioms, covering properties, completeness, connectedness, metric spaces and metrizability, product and quotient spaces, function spaces.

MATH 7510 TOPOLOGY II (3) LEC. 3. Pr. MATH 7500. Homotopy, elementary properties of retracts, fundamental groups, covering spaces, computations of fundamental groups.

MATH 7530 CONTINUUM THEORY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Topics such as inverse limits, decompositions, hyperspaces, special mappings, topological structures from the pathological (indecomposable continua), to the straightforward (Peano continua).

MATH 7540 CONTINUUM THEORY II (3) LEC. 3. Pr. MATH 7530. Topics in continuum theory such as confluent mappings, epsilon mappings, chains, to-the-boundary theorems, relationship to inverse limits, advanced topics.

MATH 7550 SET THEORETIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Compactifications, covering properties, metrization theorems and generalized metrizable spaces, topological groups.

MATH 7560 SET THEORETIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7550. Topological Groups, Cardinal invariants, use of set-theoretic axioms such as Martin's Axiom, independence results, advanced topics.

MATH 7600 ADVANCED NUMERICAL MATRIX ANALYSIS (3) LEC. 3. Departmental approval. Topics selected from: discretization matrices, sparse matrices, QR-algorithm, symmetric eigenvalue problems, singular value decomposition, pseudo-inverses, simplex method, matrix algorithms for vector computers.

MATH 7610 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667) and (MATH 5630 or MATH 6630) and (MATH 5640 or MATH 6640). Finite difference methods for ordinary and partial differential equations.

MATH 7630 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7610. Finite element methods for partial differential equations.

MATH 7700 GRAPH THEORY (3) LEC. 3. Algorithmic, enumerative and theoretical aspects of graph theory: matchings and factors, colorings, Hamiltonicity, connectivity, trees, extremal graphs, planarity. May count either MATH 6750 or MATH 7700.

MATH 7710 COMPUTATIONAL GEOMETRY (3) LEC. 3. Departmental approval. Design and time-complexity of computer algorithms for geometry problems studying the geometric ideas needed for computer-aided design, computer graphics and robotics.

MATH 7720 INTRODUCTION TO CODING THEORY (3) LEC. 3. Introduction to methods and algorithms for reliable communications through error control coding. BCH, Reed- Solomon, Reed-muller codes, convolutional codes, Berlekamp-Massey, Viterbi, and iterated decoding algorithms.

MATH 7730 ADVANCED TOPICS IN CODING THEORY (3) LEC. 3. Pr. MATH 7720. Departmental approval. Structure and theoretical properties of codes and related algorithms. Relations to other combinatorial and algebraic objects stressed.

MATH 7740 ADVANCED COMBINATORIAL DESIGNS (3) LEC. 3. Topics of current interest and research in combinatorial design theory. Areas included: latin squares, embeddings, Wilson's constructions, quadruple systems, Hadamard designs, graph designs, orthogonal arrays.

MATH 7750 ADVANCED TOPICS IN GRAPH THEORY (3) LEC. 3. Pr. MATH 6750 or MATH 7700. Topics of current interest and recent research in graph theory. May include edge colorings, algebraic graph theory, network flows, factor theory.

MATH 7760 INTRODUCTION TO ALGEBRAIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Homology of chain complexes, the axioms of homology and their verification, computations of homology groups.

MATH 7770 INTRODUCTION TO ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7760. Homology with coefficients and universal coefficient theorem theorems, Cohomology and universal coefficient theorems, homology of products of spaces, cup and cap products, duality in manifolds.

MATH 7780 ADVANCED ALGEBRAIC TOPOLOGY I (3) LEC. 3. Departmental approval. Advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7790 ADVANCED ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7780. Continuation of MATH 7780; advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7800 PROBABILITY I (3) LEC. 3. Pr., a full year of undergraduate mathematical analysis at a level commensurate with MATH 5200/5210. Measure-theoretic foundations, independence, conditioning, martingales, Markov property, stationarity, random walks, Markov chains, Poisson processes.

MATH 7810 PROBABILITY II (3) LEC. 3. Pr. MATH 7800. Classical and modern topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both MATH 7810 and STAT 7810.

MATH 7820 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances). Credit will not be given for both MATH 7820 and STAT 7820.

MATH 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances).

MATH 7870 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY I (3) LEC. 3. Pr. MATH 7210 or MATH 7500. Borel classification of sets, the Baire classification of real functions. Derivatives and approximately continuous functions. The Lebesegue density topology.

MATH 7880 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY II (3) LEC. 3. Pr. MATH 7870. Analytic and coanalytic sets. Lebesegue measurable, universally measurable and Marczewski measurable sets and functions. Baire properties. Singular sets. Category analogs to real analysis.

MATH 7950 SEMINAR (1-3) AAB. SU. Course may be repeated for a maximum of 6 credit hours.

MATH 7960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 10 credit hours.

MATH 7970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated with change in topics.

MATH 7980 RESEARCH AND SPECIAL PROJECT IN APPLIED MATHEMATICS (1-10) RES. SU. Departmental approval. For students working on the Master of Applied Mathematics degree with concentration in numerical analysis. Course may be repeated for a maximum of 10 credit hours.

MATH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

MATH 8310 HOMOLOGICAL ALGEBRA I (3) LEC. 3. Pr. MATH 7320. Departmental approval. Homology and cohomology. Hom and Tensor functors; the adjoint isomorphisms, injective/projective modules, flat modules, the classification of certain rings using homological tools.

MATH 8330 INTRODUCTION TO LIE GROUPS (3) LEC. 3. Pr. MATH 7310 or MATH 7370. Introduce Lie groups via matrix groups. Topics include exponential map, Lie algebras, classical groups, structures and classifications, manifolds, representations.

MATH 8960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Physics Courses

PHYS 1000 FOUNDATIONS OF PHYSICS (4) LEC. 3. LAB. 2. Science Core. Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics. Students who have previous credit in any higher-numbered physics course may not receive credit.

PHYS 1001 FOUNDATIONS OF PHYSICS LABORATORY (1) LAB. 2. Coreq. PHYS 1003. Core-curriculum laboratory course in physics focusing on practical applications and hands-on experience. Topics include: Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics.

PHYS 1100 PHYSICS ORIENTATION (1) LEC/SEM. SU. The course will provide incoming Physics majors with an orientation to the Physics program and will develop critical thinking and professional skills that complement academic and research training. Students will be exposed to aspects of physics research through a broad range of topical discussions with the instructor, other faculty and/or outside speakers.

PHYS 1150 ASTRONOMY (4) LEC. 3. LAB. 3. Science Core. Open to non-science majors. Earth, the solar system, stars, neutron stars, black holes, supernova, galaxies, the expanding universe, and modern cosmological theories.

PHYS 1400 PHYSICS FOR AVIATORS (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1150 or MATH 1610 or MATH 1617) and SCMH 1010. Departmental approval. The course provides students with an overview of introductory physics topics such as kinematics, laws of motion, conservation laws, thermodynamics, waves, basic electrical circuits, magnetic fields, and optics essential as a foundation of aviation. The course will specifically utilize examples and problems related to aviation.

PHYS 1500 GENERAL PHYSICS I (4) LEC. 3. LAB. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 1710 or P/C MATH 1720 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation and cosmology, concept of conservation laws, solids and fluids, thermodynamics. Math at level of MATH 1130 or higher is expected. Credit will not be given for both PHYS 1500 and PHYS 1600 or PHYS 1607.

PHYS 1510 GENERAL PHYSICS II (4) LEC. 3. LAB. 3. Pr. PHYS 1500 or PHYS 1600 or PHYS 1607. Science Core. Electricity and magnetism, AC circuits, waves, nuclear physics, radioactivity and particle physics. Physics at the level of PHYS 1500 or higher is expected. Credit will not be given for both PHYS 1510 and PHYS 1610 or PHYS 1617.

PHYS 1600 ENGINEERING PHYSICS I (4) LEC. 3. LAB. 3. Pr. MATH 1610 or MATH 1613 or MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation, cosmology, conservation of energy, momentum and angular momentum, special relativity, and fluids using introductory calculus. Math at the level of MATH 1610 or higher is required as a prerequisite. Credit will not be given for both PHYS 1500 and PHYS 1600 or PHYS 1607.

PHYS 1607 HONORS PHYSICS I (4) LEC. 3. LAB. 3. Pr. Honors College. Science Core. Honors version of PHYS 1600. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1610 or higher is required as a prerequisite. Credit will not be given for both PHYS 1500 and PHYS 1600 or PHYS 1607.

PHYS 1610 ENGINEERING PHYSICS II (4) LEC. 3. LAB. 3. Pr. (PHYS 1600 or PHYS 1607) and (MATH 1620 or MATH 1623 or MATH 1627). Science Core. Thermodynamics, electricity and magnetism, simple AC circuits, waves, and geometric optics. Physics at the level of PHYS 1600 or higher is expected. Math at the level of MATH 1620 or higher is required as a prerequisite. Credit will not be given for both PHYS 1510 and PHYS 1610 or PHYS 1617.

PHYS 1617 HONORS PHYSICS II (4) LEC. 3. LAB. 3. Pr. Honors College. MATH 1620 and PHYS 1600 or PHYS 1607. Science Core. Honors version of PHYS 1610. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1620 or higher is required as a prerequisite. Physics at the level of PHYS 1600 or higher is expected. Credit will not be given for both PHYS 1510 and PHYS 1610 or PHYS 1617.

PHYS 2100 INTERMEDIATE MECHANICS (3) LEC. 3. Pr. (PHYS 1610 or PHYS 1617) and (P/C MATH 2630 or P/C MATH 2637 or P/C MATH 2633). Principles and applications of Newtonian mechanics, noninertial reference frames, harmonic motion, central forces, rigid bodies, introduction to Lagrangian and Hamiltonian mechanics.

PHYS 2200 INTRODUCTORY QUANTUM PHYSICS AND RELATIVITY (3) LEC. 3. Pr. PHYS 1617 or PHYS 1610. Observational foundations of quantum physics, relativity and developments of several branches of physics up to their present frontiers.

PHYS 2300 PHYSICS LABORATORY SKILLS (3) LEC. 1. LAB. 5. Pr. PHYS 1617 or PHYS 1610. The measurement process and its unavoidable uncertainties; standard laboratory instruments; data analysis techniques and tools.

PHYS 2400 MATHEMATICAL AND COMPUTATIONAL METHODS OF PHYSICS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1610 or PHYS 1617). This course introduces students of physics and related fields to mathematical tools and techniques that are needed later in the physics curriculum. Topics include complex numbers, linear algebra, linear and partial differential equations, Fourier series and integrals, and vector calculus with physical application. Students will be introduced to the Python-based computational toolkits to aid in their problem solving.

PHYS 3100 INTERMEDIATE ELECTRICITY AND MAGNETISM (3) LEC. 3. Pr. (PHYS 1617 or PHYS 1610) and (MATH 2630 or MATH 2637 or MATH 2730). Electrostatics, Magnetostatics, Laplace's equation, boundary-value problems, multipole expansions, dielectric and magnetic materials. Faraday's law, AC circuits, and Maxwell's equations.

PHYS 3200 STATISTICAL THERMODYNAMICS (3) LEC. 3. Pr. PHYS 2200. The basic laws of thermodynamics, kinetic theory, and statistical mechanics including entropy, the partition function, free energy, and the quantum statistics of Fermions and Bosons.

PHYS 3500 PHYSICS OF THE WORLD AROUND US (3) LEC. 3. Interdisciplinary topic e.g. Biophysics, Astrophysics, Physics of Weather, Physics of Music, or Environmental Physics. Course may be repeated for a maximum of 12 credit hours.

PHYS 3610 APPLICATIONS OF MODERN PHYSICS (3) LEC. 3. Pr. PHYS 2200. Survey of contemporary subdisciplines in physics and technology that are based on the principles of quantum mechanics such as atomic/molecular physics, statistical mechanics, condensed matter/material science, astrophysics, nuclear physics, and elementary particle physics.

PHYS 3620 OBSERVATIONAL ASTRONOMY (3) LEC. 3. Pr. PHYS 1600 and (MATH 1620 or MATH 1627). This course will introduce students to astronomy from an observational perspective. Students will first learn about astronomical images and data analysis and discuss the physics of the solar system, stars, galaxies, and the universe. As part of the course, students will collect and analyze astronomical data using departmental telescopes and access publicly available data from facilities to demonstrate astrophysical principles.

PHYS 4100 FUNDAMENTALS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 2200 and MATH 2650. Schrodinger equation, stationary and time-dependent solutions, spin and the exclusion principle, perturbation theory, scattering and resonances, the interpretation of quantum mechanics.

PHYS 4200 FUNDAMENTAL EXPERIMENTS IN PHYSICS (3) LEC. 1. LAB. 5. Pr. PHYS 2300. Experiments that demonstrate the fundamental ideas and facts of physics. Data will be collected, analyzed, interpreted and reported in comprehensive lab reports.

PHYS 4930 DIRECTED STUDIES IN PHYSICS (1-5) IND. Departmental approval. Student will study a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours.

PHYS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

PHYS 4980 UNDERGRADUATE RESEARCH IN PHYSICS (1-5) IND. Departmental approval. Student will work under the direction of a faculty member on a problem of mutual interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

PHYS 5100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 4100. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 5200 TEACHING AND LEARNING OF STEM (3) LEC. 3. This course will provide students with a basic knowledge of the relevant research in cognitive psychology and learning science and the ability to apply that knowledge to enhance their ability to learn and teach science, particularly at the undergraduate level. This course will involve readings, discussion, and application of the ideas through the creation of learning activities. It is suitable for advanced undergraduates and graduate students with some science background.

PHYS 5300 OPTICS (3) LEC. 2. LAB. 2. Pr. PHYS 1617 or PHYS 1610. An overview of optics to include geometrical optics, electromagnetic waves, interference of light, diffraction of light, optical detectors, instrumentation and displays.

PHYS 5500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 5600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.

PHYS 5610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 5620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Pr. PHYS 3100. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 5900 PHYSICS TEACHING SEMINAR (1) LEC. 1. LAB. 0. SU. Introduction to issues, resources and best practices related to the teaching of physics. Physics undergraduate student or instructor approval required.

PHYS 6100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 6200 TEACHING AND LEARNING OF STEM (3) LEC. 3. This course will provide students with a basic knowledge of the relevant research in cognitive psychology and science education and the ability to apply that knowledge to enhance their ability to learn and teach science, particularly at the undergraduate level. The course will involve readings, discussion, and application of the ideas through the creation of learning activities. It is suitable for advanced undergraduates and graduate students with some science background. Prerequisite: B.S. in a STEM discipline or 20+ credit hours of STEM coursework.

PHYS 6300 OPTICS (3) LEC. 2. LAB. 2. An overview of optics to include geometrical optics, electromagnetic waves, interference of light, diffraction of light, optical detectors, instrumentation and displays.

PHYS 6500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 6600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.

PHYS 6610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 6620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 6900 PHYSICS TEACHING SEMINAR (1) LEC. 1. LAB. 0. SU. Graduate Students in Physics or Departmental Approval. Introduction to issues, resources and best practices related to the teaching of physics.

PHYS 7100 CLASSICAL MECHANICS (3) LEC. 3. Lagrangian and Hamiltonian formulations of mechanics, canonical transforms. Hamilton-Jacobi theories, action angle variables, rigid rotators, normal modes, and mechanics of continuous media.

PHYS 7200 ELECTRICITY AND MAGNETISM I (3) LEC. 3. Electrostatics, special function expansions, magnetostatics, linear media and Maxwell's equations.

PHYS 7250 ELECTRICITY AND MAGNETISM II (3) LEC. 3. Time dependent Maxwell theory, wave propagation and dispersion, diffraction, scattering, radiation, relativistic covariance and applications.

PHYS 7300 QUANTUM MECHANICS I (3) LEC. 3. Schrodinger wave equation, discrete and continuous spectra, matrix formulation, perturbation theory.

PHYS 7350 QUANTUM MECHANICS II (3) LEC. 3. Time-dependent approximation methods, relativistic wave equations, and second quantization.

PHYS 7400 STATISTICAL PHYSICS (3) LEC. 3. Thermodynamic quantities, equilibrium ensembles for classical and quantum systems, fluctuations, phase transitions and critical phenomena.

PHYS 7850 GRADUATE PHYSICS RESEARCH SEMINAR (1) LEC. 1. LAB. 0. SU. This course is designed to develop and expand incoming graduate student's knowledge and experience with state-of-the-art research as it is done in the Auburn University Department of Physics.

PHYS 7900 DIRECTED STUDIES (1-5) IND. SU. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7930 DIRECTED STUDIES (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7950 PHYSICS COLLOQUIUM (1) SEM. SU. Offers a series of talks presented by invited speakers on broad fields of physics. Check with graduate advisor for credit allowed. Course may be repeated for a maximum of 6 credit hours.

PHYS 7970 SPECIAL TOPICS IN PHYSICS (1-5) SEM. Seminar or lecture series in a rapidly advancing specialty of physics. Course may be repeated for a maximum of 6 credit hours.

PHYS 7990 RESEARCH AND THESIS (1-10) MST. May be repeated as often as is appropriate. Course may be repeated with change in topics.

PHYS 8100 RELATIVISTIC QUANTUM MECHANICS (3) LEC. 3. Dirac equation, 1D barrier scattering, 3D central potentials, S-matrix theory, Feynman diagrams, quantum electrodynamics, renormalization, tree and loop level problems.

PHYS 8200 INTRODUCTION TO ATOMIC PHYSICS (3) LEC. 3. Hydrogen atom, Hartree-Fock theory, radiative transitions, photoionization, autoionization, electron-atom scattering.

PHYS 8600 PLASMA PHYSICS (3) LEC. 3. A detailed study of plasma physics including particle orbit theory, magnetohydrodynamics, plasma waves and transport phenomena.

PHYS 8700 SOLID STATE PHYSICS (3) LEC. 3. Atomic and electronic structures of solids and the associated electical, optical and transport properties.

PHYS 8900 DIRECTED STUDIES (1-5) IND. SU. Students will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8930 DIRECTED STUDIES IN ADVANCED PHYSICS (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8970 SPECIAL TOPICS IN ADVANCED PHYSICS (1-5) LEC. Departmental approval. Topic at the forefront of physics research will be chosen by the lecturer. Course may be repeated for a maximum of 10 credit hours.

PHYS 8990 RESEARCH AND DISSERTATION (1-10) DSR. May be repeated as often as is appropriate. Course may be repeated with change in topics.

Sciences Math Courses

SCMH 1010 CONCEPTS OF SCIENCE (4) LEC. 3. LAB. 2. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. After taking SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science Core. May count either SCMH 1010 or SCHM 1013 or SCHM 1017.

SCMH 1017 HONORS CONCEPTS OF SCIENCE (4) LEC. 3. LAB. 2. Pr. Honors College. Interdisciplinary course for Honors students which presents major scientific concepts in physical and biological sciences. After taking SCMH 1017, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, GEOL 1107, PHYS 1000, or PHYS 1150. Science core. Credit will not be given for both SCMH 1017 and SCMH 1010.

SCMH 1100 COSAM ORIENTATION (1) LEC. 1. Introduction to the College of Sciences and Mathematics and its resources, exploration of STEM careers, orientation to campus resources and facilities, and assistance with academics and transition to Auburn.

SCMH 1890 PRE-HEALTH PROFESSIONS ORIENTATION (1) LEC. 1. SU. Orientation and guidance tailored for non-freshmen and transfer students planning to seek admission into health professions schools and programs such as dentistry, medicine, optometry, pharmacy, physician assistant, and physical therapy.

SCMH 1897 HONORS PRE-HEALTH PROFESSIONS ORIENTATION (1) LEC. 1. SU. Pr. Honors College. Orientation and guidance tailored for non-freshmen and transfer students planning to seek admission into health professions schools and programs such as dentistry, medicine, optometry, pharmacy, physician assistant, and physical therapy.

SCMH 1950 COSAM MAJOR AND CAREER EXPLORATION (1) LEC. 1. Introduction to majors offered by the College of Sciences and Mathematics, motivation and skills for academic success, departmental resources and facilities, and exploration of careers in Sciences and Mathematics.

SCMH 3010 INQUIRY EXPERIENCES FOR SCIENCE TEACHERS (3) LEC. 2. LAB. 2, LLB. 0. This course introduces students to the nature and process of science through project-based instruction. It highlights experimental design, data analysis, and presenting scientific work both orally and in writing. This is a writing enriched course in the required AUTeach course sequence.

SCMH 3050 SERVICE-LEARNING EXPERIENCES IN UNDERSERVED POPULATIONS (3) LEC/PRA. 2. Service learning with a focus on underserved populations. Students engage in experiential learning to meet community needs, enhancing their cultural competence and civic responsibility. Ideal for those in helping professions, STEM, and Pre-Health, it strengthens community partnerships and understanding of complex social issues. Departmental approval required.

SCMH 3810 PRE-PHYSICAL THERAPY PRACTICUM (1) PRA. 2. SU. Departmental approval. Direct observation of physical therapists at an approved facility in the Auburn-Opelika area.

SCMH 3890 PRE-MEDICAL PRECEPTORSHIP (1) LAB. 2. SU. Departmental approval. Direct observation and interaction with physicians at East Medical Center and in individual medical offices.

SCMH 3950 SEMINAR ON MCAT AND DAT SCIENTIFIC FOUNDATIONS (2) LEC. 2. SU. Pr. SCMH 1890 and BIOL 1030 and CHEM 2070. A deep dive into the foundational scientific concepts required for the Medical College Admission Test (MCAT) and the Dental Admission Test (DAT). The course emphasizes interactive discussions and practice of the core science subjects pertinent to the tests, supplemented by problem-solving sessions and mock exams to ensure comprehensive preparation. Department approval.

SCMH 4700 PEDAGOGY OF PEER-LED INSTRUCTION (1) LEC. 1. Pedagogical training course on effective instructional strategies in the STEM disciplines integrating educational theory, pedagogy, content, and practice. Departmental approval required.

SCMH 4920 SCIENCES AND MATHEMATICS INTERNSHIP (1-4) DSL. 8-16. SU. Practical on-the-job training in some area related to Sciences and Mathematics. Course may be repeated for a maximum of 6 credit hours.

SCMH 4970 UNDERGRADUATE SPECIAL TOPICS IN SCIENCES AND MATHEMATICS (1-4) LEC. 1-4. Undergraduate study of specialized topics related to Sciences and Mathematics. Departmental approval required. Course may be repeated for a maximum of 8 credit hours.

SCMH 4980 SCIENCES AND MATHEMATICS UNDERGRADUATE RESEARCH (1-5) IND/RES. Departmental approval. Directed research in an area of specialty within Sciences and Mathematics and interdisciplinary fields. Course may be repeated for a maximum of 6 credit hours.

SCMH 5010 CLINICAL APPLICATIONS I (3) LEC. 2. A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 5020 CLINICAL APPLICATIONS II (3) LEC. 2, CLN/LEC. 1. Pr. SCMH 5010. A continuation of SCMH 5010.

SCMH 5050 PHYSICAL EXAMINATION TECHNIQUES FOR CLINICAL APPLICATIONS (1) LEC. 1. Undergraduate-level course focused on mastering physical examination techniques for medical clinic applications; enhances students' understanding of anatomy and physiology through hands-on patient interactions; develops critical professionalism and communication skills necessary for effective patient care. Departmental approval required.

SCMH 5940 GLOBAL STUDY/TRAVEL IN SCIENCES AND MATHEMATICS (1-12) AAB. Departmental approval. Application required. Students international study travel on topics relevant to Sciences and Mathematics. Course may be repeated for a maximum of 12 credit hours.

SCMH 5970 ADVANCED SPECIAL TOPICS IN SCIENCES AND MATHEMATICS (1-3) LEC. 1-3. Advanced study of specialized topics related to Sciences and Mathematics. Departmental approval required. Course may be repeated for a maximum of 6 credit hours.

SCMH 6010 CLINICAL APPLICATIONS I (3) LEC. 2, CLN/LEC. 2. Departmental approval. A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 6020 CLINICAL APPLICATIONS II (3) LEC. 2, CLN/LEC. 2. Pr. SCMH 6010. Departmental approval. A study of the clinical/ societal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 6050 PHYSICAL EXAMINATION TECHNIQUES FOR CLINICAL APPLICATIONS (1) LEC. 1. Graduate-level course focused on mastering physical examination techniques for medical clinic applications; enhances students' understanding of anatomy and physiology through hands-on patient interactions; develops critical professionalism and communication skills necessary for effective patient care. Departmental approval required.

SCMH 6970 ADVANCED SPECIAL TOPICS IN SCIENCES AND MATHEMATICS (1-3) LEC. 1-3. Departmental approval. Advanced study of specialized topics related to Sciences and Mathematics. Course may be repeated for a maximum of 6 credit hours.

SCMH 8150 DOCTORAL SEMINAR ON CURRENT TOPICS IN SCM RESEARCH (3) LEC. 3. The class is a rigorous, seminar style course on Current Topics in SCM Research. Each class will familiarize you with the key insights in a current research topic (i.e., the “hot topics”) in the SCM area. The instructor has chosen to cover a broad range of active research to give you an overview of topics that people are working on currently and are likely to work on in the future.

Statistics Courses

STAT 1010 DATA EPISTEMOLOGY (3) LEC. 3. This course will provide the basic tools to understand, interpret and reason with data in order to critically think about data-driven knowledge. Acquiring notions of logical reasoning and data literacy, the students will know how to analyze and ask the correct questions regarding data collection, representation and interpretation.

STAT 2010 STATISTICS FOR SOCIAL AND BEHAVIOR SCIENCES (4) LEC. 3. LAB. 2. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617. Introduction to basic principles of statistical reasoning and statistical procedures used in data analysis in the social and behavioral sciences.

STAT 2017 HONORS STATISTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (4) LEC. 3. LAB. 2. Pr. Honors College. Introduction to statistical data analysis, statistical packages, and APA-style statistical reporting use in research in Psychology and other social and behavioral sciences.

STAT 2510 STATISTICS FOR BIOLOGICAL AND HEALTH SCIENCES (3) LEC. 3. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683. Introduction to statistical concepts, reasoning and methods used in data analysis, descriptive statistics, sampling distributions, statistical inference, confidence intervals, regression or correlation, contingency tables. Students who have previous credit in any higher-numbered math course may not receive credit.

STAT 2600 BUSINESS ANALYTICS I (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or P/C COMP 1000 or COMP 1003. Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results. Minimum 2.0 overall cumulative undergraduate GPA.

STAT 2610 STATISTICS FOR BUSINESS AND ECONOMICS (3) LEC. 3. Pr. MATH 1690. Introduction to statistical analysis, theory, and interpretation used in business and economics.

STAT 2710 STATISTICAL COMPUTING (1) LEC. 1. Pr. (P/C STAT 2010 or P/C STAT 2017) and (P/C STAT 2510 or STAT 2513) and P/C STAT 2610 and P/C STAT 3010. Introduction to basic statistical computing programs and methods..

STAT 3010 STATISTICS FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr. MATH 1610 or MATH 1613 or MATH 1617 or MATH 1710. Introduction to statistical methods and analysis used in engineering and science.

STAT 3600 PROBABILITY AND STATISTICS I (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Calculus-based introduction to probability and statistics with an emphasis on practical problem-solving.

STAT 3610 PROBABILITY AND STATISTICS II (3) LEC. 3. Pr. STAT 3600. Departmental approval. Continuation of STAT 3600.

STAT 3611 PROBABILITY AND STATISTICS II LABORATORY (1) LAB. 2. Departmental approval. Coreq. STAT 3610. The application of statistical techniques from STAT 3610.

STAT 4000 INTRODUCTION TO DATA SCIENCE (3) LEC. 3. Pr. STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2600 or STAT 3010 or STAT 3600 or STAT 3603. Departmental approval. This course will provide an entry level introduction to the field of data science. The course will cover the essential statistical and computational tools including programming and analytical models, as well as teamwork, communication, and critical thinking.

STAT 4610 APPLIED REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 3610 or STAT 3010. Least squares estimation, hypothesis testing and confidence interval estimation in regression; simple, polynomial and multiple linear regression; residual and lack-of-fit analysis; use of dummy variables; multiple and partial correlation analysis; model building algorithms and model comparisons; transformations.

STAT 4620 APPLIED NONPARAMETRIC STATISTICS (3) LEC. 3. Review of elementary probability; goodness-of-fit tests; for singles and several location parameters; tests for scale parameters; distribution tests; measures of association; bootstrap and permutation tests.

STAT 4630 APPLIED TIME-SERIES ANALYSIS (3) LEC. 3. ARIMA models: the autoregressive process, the moving average process, and the ARMA process; forecasting, errors and confidence intervals, updating forecast models; estimation; model building and assessment; applications in econometrics.

STAT 4650 INTRODUCTION TO BAYESIAN STATISTICS (3) LEC. 3. LAB. 0. Pr. STAT 3610. This course will develop an introduction to the Bayesian thinking and the Fundamental Concepts in Bayesian Statistics.

STAT 4970 SPECIAL TOPICS IN STATISTICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interest of students. Course may be repeated for a maximum of 6 credit hours.

STAT 4980 UNDERGRADUATE RESEARCH IN STATISTICS AND DATA SCIENCE (1-3) IND/RES. Directed research in Statistics and Data Science. Departmental Approval. Course may be repeated for a maximum of 3 credit hours.

STAT 5000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT3610 or STAT3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time dependent data with a focus on Data Science.

STAT 5110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 5210 R PROGRAMMING FOR DATA SCIENCE (3) LEC. 3, LEC. 3. Pr. STAT 2510 or STAT 3010 or STAT 3610. Fundamental concepts on R programming language and popular R packages. Topics include basic syntax, R objects, control flow, file input and output, building R packages, data manipulation, visualization, interface to C, parallel computing, building web apps.

STAT 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/ 6336.

STAT 5600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or (STAT 3010 and MATH 1620) or (STAT 3010 and MATH 1627). Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, maximum likelihood estimation, Bayesian statistics, hypothesis testing, prediction, sampling and resampling methods, multivariate statistics.

STAT 5610 FUNDAMENTALS OF STATISTICAL INFERENCE I (3) LEC. 3. Pr. STAT 3600 and STAT 3610. Probability and independence; discrete and continuous distributions, random variable, moments; joint, marginal, conditional distributions; exponential families; bivariate transformations, covariance and correlation; multivariate distributions, sums of random variables, sampling distributions for normal data, order statistics; convergence of random variables, principles of data reduction; the likelihood principle.

STAT 5620 FUNDAMENTALS OF STATISTICAL INFERENCE II (3) LEC. 3. Pr. STAT 5610. Properties of random samples; generating a random sample; point and interval estimation; hypothesis testing; Analysis of Variance: one-way ANOVA, multi-way ANOVA and ANCOVA; linear regression, multiple regression and GLM methods, logistic regression.

STAT 5630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling, systematic sampling ratio estimations.

STAT 5650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 5000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT 5670 and MATH 5670.

STAT 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 5670 or MATH 5670. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 5680 and MATH 5680.

STAT 5690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 5690 and MATH 5690.

STAT 6000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT 3610 or STAT 3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time-dependent data.

STAT 6110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610 or P/C STAT 7000. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 6210 R PROGRAMMING FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 2510 or STAT 3010 or STAT 3610. Fundamental concepts on R programming language and popular R packages. Topics include basic syntax, R objects, control flow, file input and output, building R packages, data manipulation, visualization, interface to C, parallel computing, building web apps.

STAT 6330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/ 6336.

STAT 6600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or (STAT 3010 and MATH 1620) or (STAT 3010 and MATH 1627). Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, Maximum Likelihood Estimation, Bayesian statistics, hypothesis testing, prediction, Sampling and Resampling methods, multivariate statistics.

STAT 6610 FUNDAMENTALS OF STATISTICAL INFERENCE I (3) LEC. 3. Pr. STAT 3600 and STAT 3610. This class is first of a two-semester sequence in probability and statistics taught at a calculus-based level. Students should gain an understanding of probability and random variables in order to have the foundation to conduct statistical inference in STAT 5620/6620.

STAT 6620 FUNDAMENTALS OF STATISTICAL INFERENCE II (3) LEC. 3. Pr. STAT 6610. This class is second of a two-semester sequence in probability and statistics taught at a calculus-based level. Students should gain an understanding of inference for the practice of statistics.

STAT 6630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling systematic sampling ratio estimations.

STAT 6650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 6000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 6670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT and MATH 6670.

STAT 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 6680 and MATH 6680.

STAT 6690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 6690 and MATH 6690.

STAT 6830 STATISTICS AND PROBABILITY FOR TEACHERS (3) LEC. 3. Pr. STAT 3010 or STAT 3600 or STAT 3603. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on statistics and probability, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving. Admission to a program in Secondary Mathematics Education or department approval required.

STAT 7000 EXPERIMENTAL STATISTICS I (4) LEC. 4. Departmental approval. Paired and independent sample t-tests, ANOVA, F-tests, contrasts, tests for trends, multiple comparisons, CR and RCB designs of experiments, regression.

STAT 7010 EXPERIMENTAL STATISTICS II (3) LEC. 3. Pr. STAT 7000. Advanced topics in experimental design: writing linear models for experiment-expected mean squares, variance components, nested designs, Latin Square Designs, split plot designs, ANOVA and multiple regression.

STAT 7020 REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Introduction to the method of least squares as it applies to regression and analysis of variance. Simple linear regression, multiple regression, model selection and diagnostics.

STAT 7030 CATEGORICAL DATA ANALYSIS (3) LEC. 3. Pr. STAT 3600 or MATH 3600 or STAT 7000. Departmental approval. Methods for analysis or categorical response data. Topics include Chi-square tests, Likelihood Ratio tests, Logistic Regression, and Loglinear Modeling.

STAT 7040 BIOSTATISTICS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Epidemiology, biometry, methods of survival analysis.

STAT 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017. Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for STAT 7100 and SOCY 7100.

STAT 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 1. Pr. STAT 7020 or WILD 7150. Data from the life sciences and advanced statistical techniques for data analyses and computaMon are brought together through a cross-fertilization of graduate students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects.

STAT 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Pr. STAT 7000 and STAT 7020. Introduction to the analysis of data collected under differential experimental designs. Credit will not be given for both STAT 7270 and PSYC 7270.

STAT 7300 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Pr. STAT 3610. Departmental approval. Advanced concepts of experimental design including blocking, regression approach to analysis of variance, fractional factorials in base-2, and base-3 designs. Emphasis throughout is on improving industrial products and processes. Credit will not be given for both STAT 7300 and INSY 7300.

STAT 7310 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3. Pr. STAT 7300 or STAT 7306 or INSY 7300 or INSY 7306. Fractional factorial experimentation applied for the purpose of process and quality improvement and optimization, introduction to analysis of covariance, multiple regression analysis, and response surface analysis. Credit will not be given for both STAT 7310 and INSY 7310.

STAT 7600 STATISTICAL THEORY AND METHODS I (3) LEC. 3. Pr. STAT 3600. Departmental approval. Random variables, probability theory, random variables, probability distributions, sampling distributions, convergence.

STAT 7610 STATISTICAL THEORY AND METHODS II (3) LEC. 3. Pr. STAT 7600. Likelihood ratio, regression, ANOVA, categorical data, non-parametric methods, decision theory.

STAT 7620 NONPARAMETRIC STATISTICS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Distribution-free methods of statistical inference. Sign, Wilcoxon signed-rank, and Mann-Whitney tests for location, the Chi-Square and Kolmogorov-Smirnov tests for goodness-of-fit. Measures of association.

STAT 7630 BAYESIAN STATISTICS (3) LEC. 3. LAB. 0. Pr. STAT 6620 or STAT 7610. This course will develop an understanding of Bayesian principles and methodologies and cover the modeling and computation required to perform advanced data analysis from the Bayesian perspective.

STAT 7650 COMPUTATIONAL STATISTICS (3) LEC. 3. Pr. STAT 7020 and STAT 7610. This course covers the theory and practice of common algorithms used for simulation, computing, and optimization in Statistics.

STAT 7670 APPLIED LONGITUDINAL DATA ANALYSIS (3) LEC. 3. To introduce students to statistical models and methods for the analysis of longitudinal date, i.e. data collected repeatedly on individuals (humans, animals, etc) over time (or other conditions).

STAT 7700 GENERALIZED LINEAR MODELS (3) LEC. 3. Pr. STAT 7600. Departmental approval. Exponential families and links functions, model fitting, likelihood methods, residual diagnostics, count data, estimating equations.

STAT 7780 SURVIVAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Kaplan-Meier estimator, log-rank tests, Cox proportional hazard model, fully parametric models.

STAT 7800 LINEAR MODELS (3) LEC. 3. Pr. STAT 7610 and MATH 2660. Departmental approval. A rigorous development of some of the important topics of applied statistics: the multivariate normal distribution analysis of variance, regression, aspects of experimental design.

STAT 7810 MODERN STOCHASTIC PROCESSES I (3) LEC. 3. Pr. (MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676) and MATH 6210. Classical and Modern Topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both STAT 7810 and MATH 7810.

STAT 7820 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 7810 or MATH 7816 or STAT 7810 or STAT 7816. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion.) Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances). Credit will not be given for both STAT 7820 and MATH 7820.

STAT 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 7810 or STAT 7816.

STAT 7840 APPLIED MULTIVARIATE STATISTICAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Multivariate normal distribution, Hotelling's T2, MANOVA, discriminate analysis, principal components.

STAT 7850 THEORY OF STATISTICAL INFERENCE (3) LEC. 3. Pr. STAT 7610. Central limit theorem, Convergence, M-estimate, Statistical functional, U-statistics

STAT 7860 APPLIED TIME SERIES ANALYSIS (3) LEC. 3. Pr. STAT 3610. Departmental approval. Autoregressive and moving average models, differencing, estimation and forecasting, spectral theory.

STAT 7930 STATISTICAL CONSULTING PRACTICUM (3) PRA. 3. Pr. STAT 7000 and STAT 7010 and STAT 7020. This is a course in applied statistics, providing training in statistical consulting. Applications of commonly encountered statistical methods are explored in the consulting environment. Written and oral communication skills are emphasized, and ethical aspects of consulting are introduced. This course provides students with an opportunity to gain practical experience in consulting through various projects with clients, through the AU Statistical Consulting Center.

STAT 7940 CAPSTONE PROJECT (3) LEC. 3. Discuss various topics while working on an industry-level project. Students will complete a semester-long project under the supervision of instructors.

STAT 7950 SEMINAR (1) SEM. SU. Exploration of statistical concepts, fostering active learning through presentations, guest lectures, discussions, and student-led research presentations. Course may be repeated for a maximum of 2 credit hours.

STAT 7960 SPECIAL PROBLEMS IN STATISTICS (1-10) RES. Credit will not be given for both MATH 7960 and STAT 7960. Course may be repeated for a maximum of 10 credit hours.

STAT 7970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interests of students. Course may be repeated for a maximum of 6 credit hours.

STAT 7980 SPECIAL PROJECT (3) LEC. 3. SU. Departmental approval. Non-thesis project in Statistics for Master's degree in Statistics (non-thesis option).

STAT 7990 RESEARCH AND THESIS (1-10) DSR. Research for Master's thesis in Statistics. Course may be repeated with change in topic.

STAT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (3) LEC. 3. Pr. STAT 7000. or approved equivalent. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models.

STAT 8410 ADVANCED QUANTITATIVE METHODS MANAGEMENT II (3) LEC. 3. or approved equivalent. Introduction to multivariate techniques in business research. Study of the theory and applications of ANOVA, ANCOVA, MANOVA, MANCOVE, Discriminate Analysis & Polytomous Logistic Regression.

STAT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3. Pr. STAT 7100 and STAT 8400 and STAT 8410. or approved equivalent. Third course in statistical modeling. Emphasis on applications of Principal Components Analysis, and Structural Equation Modeling to management research.

STAT 8990 RESEARCH AND DISSERTATION (1-10) LEC. 1-10. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics. Course may be repeated for a maximum of 30 credit hours.

Department of Biological Sciences

Marine Biology

The Marine Biology major provides students with a strong foundation in basic biological concepts such as genetics, ecology, cell biology and marine systems as well as chemistry and mathematics. The plan of study provides the opportunity to choose elective courses from a wide variety of courses offered at Auburn University. In addition, students are required to take summer courses offered at marine labs around the United States, including Dauphin Island Sea Lab and Gulf Coast Research Lab. Students are also encouraged to consider internships and undergraduate research. Marine Biology graduates are well-prepared for advanced study in any marine science area or employment with marine labs, various governmental and nongovernmental agencies involved with coastal management and conservation, and tourism.

Microbial, Cellular and Molecular Biology

The Microbial, Cellular and Molecular Biology major provides students with an excellent foundation in the areas of microbiology, cellular and molecular biology that emphasizes the understanding of life at the cellular and molecular level. The choice of a formal option within the major allows students to concentrate on a particular area of interest. Each option provides a wide variety of courses and opportunities for undergraduate research. Students selecting the Microbiology option will be well prepared for postgraduate work or career advancement in a number of areas including food, environmental and medical microbiology. Students selecting the Cell and Molecular Biology option would also be well prepared for postgraduate study or career advancement in any area of eukaryotic cell or molecular biology. Both options provide excellent preparation for students interested in biotechnology or professional programs in the health sciences.

Organismal Biology

The Organismal Biology major provides students with a solid foundation in basic biological concepts, such as evolution, ecology, genetics and cell biology and also provides a foundation in physics, chemistry and mathematics. The three formal options within the major allow students to specialize in various ways, while focusing on the study of plants or animals through the choice of elective courses. The major provides a solid foundation for pursuing graduate degrees (M.S. or Ph.D.) in biological fields, but also prepares students for a wide range of laboratory and field-based research positions in environmental resource assessment, management and conservation within federal, state and private agencies or organizations.

Majors

- Genetics (p. 1258)
- Genetics — Pre-professional concentrations in:

  - Pre-Medicine, Pre-Dental, Pre-Optometry (p. 1348)
  - Pre-Veterinary Medicine (p. 1350)
- Marine Biology (p. 1260)
- Microbiology — Pre-professional concentrations in:
- - Pre-Medicine, Pre-Dental, Pre-Optometry (p. 1264)
  - Pre-Physical Therapy, Pre-Physician Assistant (p. 1265)
  - Pre-Veterinary (p. 1352)
- Microbial, Cellular and Molecular Biology — Microbiology Option (MCMB) (p. 1263)
- Microbial, Cellular and Molecular Biology — Cell & Molecular Biology Option (MCCM) (p. 1262)
- Organismal Biology — Conservation & Biodiversity Option (p. 1269)
- Organismal Biology — Ecology, Evolution & Behavior Option (p. 1271)
- Organismal Biology — Integrative Biology Option (p. 1272)
- Organismal Biology — Pre-professional concentrations in:
  - Pre-Medicine, Pre-Dental, Pre-Optometry (p. 1267)
  - Pre-Physcal Therapy, Pre-Physician Assistant (p. 1268)
  - Pre-Veterinary (p. 1353)

Minors

- Biological Sciences (p. 1258)

Courses

BIOL 1000 INTRODUCTION TO BIOLOGY (3) LEC. 3. Science Core. Introduction to biological principles relevant to human society. Designed for non-science majors. Credit will not be given for both BIOL 1000 and BIOL 1020 or BIOL 1027.

BIOL 1001 INTRODUCTION TO BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1000 or P/C BIOL 1003. Laboratory course for BIOL 1000 or BIOL 1003.

BIOL 1010 A SURVEY OF LIFE (3) LEC. 3. Pr. BIOL 1000 or BIOL 1020 or BIOL 1023 or BIOL 1027 or SCMH 1010 or SCMH 1013 or SCMH 1017 or SCMH 1020 or SCMH 1023 or SCMH 1027. Science Core. Emphasis on contrasting strategies employed by organisms to meet similar biological needs. Credit will not be given for both BIOL 1010 and BIOL 1030 or BIOL 1037.

BIOL 1011 A SURVEY OF LIFE LABORATORY (1) LAB. 2. Pr. P/C BIOL 1010 or P/C BIOL 1013. Laboratory course for BIOL 1010.

BIOL 1020 PRINCIPLES OF BIOLOGY (3) LEC. 3. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1020 and BIOL 1000 or BIOL 1027.

BIOL 1021 PRINCIPLES OF BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1020 or P/C BIOL 1023 or P/C BIOL 1027. Laboratory Course for BIOL 1020.

BIOL 1027 HONORS BIOLOGY (4) LEC. 3. LAB. 2. Pr. Honors College. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1027 and BIOL 1000 or BIOL 1020.

BIOL 1030 ORGANISMAL BIOLOGY (3) LEC. 3. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1030 and BIOL 1010 or BIOL 1037.

BIOL 1031 ORGANISMAL BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1030. Laboratory Course for BIOL 1030.

BIOL 1037 HONORS ORGANISMAL BIOLOGY (4) LEC. 3. LAB. 1. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1037 and BIOL 1010 or BIOL 1030.

BIOL 2100 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities and student development options for majors in biological sciences. Students will investigate post-graduation academic and professional options, develop writing skills by creating resumes and ePortfolios, and explore course and research options with the department. Biology majors only.

BIOL 2425 MARINE BIOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. The invertebrates, vertebrates and marine plants as communities with emphasis on local examples. Taught only at Dauphin Island Sea Lab. (DISL).

BIOL 2500 HUMAN ANATOMY AND PHYSIOLOGY I (3) LEC. 3. Pr. BIOL 1000 or BIOL 1020 or BIOL 1023 or BIOL 1027. Study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2501 HUMAN ANATOMY AND PHYSIOLOGY I LABORATORY (1) LAB. 1. Pr. (BIOL 1000 or BIOL 1020 or BIOL 1027) and (P/C BIOL 2500 or P/C BIOL 2503 or P/C BIOL 2507). Lab course for study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2507 HONORS HUMAN ANATOMY AND PHYSIOLOGY I (3) LEC. 3. Pr. Honors College. BIOL 1000 or BIOL 1020 or BIOL 1023 or BIOL 1027. Study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2510 HUMAN ANATOMY AND PHYSIOLOGY II (3) LEC. 3. Pr. (BIOL 2500 or BIOL 2503 or BIOL 2507) and BIOL 2501. Study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500/2501, concentrating on cardiovascular, respiratory, digestive, urinary, reproductive, and endocrine systems.

BIOL 2511 HUMAN ANATOMY AND PHYSIOLOGY II LABORATORY (1) LAB. 1. Pr. (BIOL 2500 or BIOL 2503 or BIOL 2507) and BIOL 2501 and (P/C BIOL 2510 or P/C BIOL 2517). Lab course for study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500, concentrating on the individual organ systems.

BIOL 2517 HONORS HUMAN ANATOMY AND PHYSIOLOGY II (3) LEC. 3. Pr. Honors College. BIOL 2501 and BIOL 2500 or BIOL 2503 or BIOL 2507. Study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500/2501, concentrating on cardiovascular, respiratory, digestive, urinary, reproductive, and endocrine systems.

BIOL 3000 GENETICS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027). An overview of theoretical principles of transmission, cytological, molecular, and population genetics. Problem solving will be emphasized. May count either BIOL 3000 or BIOL 3003 or AGRI 3000.

BIOL 3001 GENERAL GENETICS LABORATORY (1) LAB. 2. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (P/C BIOL 3000 or P/C BIOL 3003). Laboratory provides practical experience in the areas of transmission, cytological, molecular, and population genetics. Problem solving is emphasized though analysis of simulated and real genetics data sets.

BIOL 3010 COMPARATIVE ANATOMY (4) LEC. 3. LAB. 1. Pr. BIOL 1030 or BIOL 1037. We will examine evolution of anatomical structures from early chordates through vertebrates (both living and extinct). Students will learn the main vertebrate taxa and how each anatomical system appears in them. Students will also examine the linkage of these systems through all vertebrates. The phylogenetic tree (evolutionary relationships of the vertebrates) will be the backbone on which we explore the diversity of anatomy. In lab, students will use and develop their integrative skills by examining the anatomy of a wide variety of organisms.

BIOL 3011 COMPARATIVE ANATOMY LABORATORY (1) LAB. 1. Pr. P/C BIOL 1030 or BIOL 1037. Laboratory to accompany Comparative Anatomy Lecture. This lab course will explore the diverse morphologies of vertebrates.

BIOL 3020 GENOMIC BIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000. An overview of genes, genomes, and genomic and proteomic approaches and methodology. Application of principles of biology at the genomic level. Includes an introduction to bioinformatic approaches to genomic problems in a computer laboratory setting.

BIOL 3030 EVOLUTION AND SYSTEMATICS (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. An introduction to evolutionary processes, classification, of organisms and scientific nomenclature.

BIOL 3040 BIOLOGY OF MARINE SYSTEMS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Introduction to marine systems and biological investigations of coastal, near shore and open ocean organisms and processes.

BIOL 3060 ECOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems. 8 hours of Biology.

BIOL 3075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 4. Pr. (MATH 1150 or MATH 1153) and (CHEM 1110 or CHEM 1117 or CHEM 1030 or CHEM 1033) and PHYS 1500. Departmental approval. The physics, chemistry, biology, and geology of the oceans. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 3100 PLANT BIOLOGY (4) LEC. 4. LAB. 1. Pr. (BIOL 1030 or BIOL 1037) and (CHEM 1010 or CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117). Introduction to the morphology, anatomy, physiology and classification of plants with laboratory.

BIOL 3200 GENERAL MICROBIOLOGY (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and P/C BIOL 3201. Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, and the role in human affairs.

BIOL 3201 GENERAL MICROBIOLOGY LABORATORY (1) LAB. 2. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and (P/C BIOL 3200 or P/C BIOL 3203 or P/C BIOL 3207). Fundamental laboratory techniques required to safely handle, enumerate, identify, and provide basic biochemical characterization of microorganisms.

BIOL 3207 HONORS GENERAL MICROBIOLOGY (3) LEC. 3. Pr. Honors College. CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and BIOL 3201. and BIOL 1020 or BIOL 1023 or BIOL 1027. Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, and the role in human affairs.

BIOL 4000 HISTOLOGY (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 1031 and (BIOL 2500 or BIOL 2507 or BIOL 2510 or BIOL 2517 or BIOL 3010 or BIOL 5240). Coreq. BIOL 4001. Morphology and classification of tissues; arrangement of tissues in organs and systems of vertebrate animals.

BIOL 4001 HISTOLOGY LABORATORY (1) LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Coreq. BIOL 4000. Laboratory investigation of the morphology and classification of tissues using prepared slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

BIOL 4010 INVERTEBRATE BIODIVERSITY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Survey of the phyla of invertebrates with emphasis on morphology, anatomy, ecology, evolution, and systematics.

BIOL 4015 BIOLOGY AND CONSERVATION OF MARINE TURTLES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. OR permission of Marine Biology coordinator. An introductory overview of the biology of marine turtles. Topics include: identification, distribution, nesting & migratory behavior, feeding, population biology, development, paleontology and conservation. Extensive laboratory and field studies of multiple species of turtles. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4020 VERTEBRATE BIODIVERSITY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Ecology and evolution of living vertebrates of the world.

BIOL 4025 ECOLOGY OF THE FLORIDA EVERGLADES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Examines the natural history, ecology and evolution, and human impact on the Everglades. Includes intensive lectures and a more than 1-week long campsite based field trip in the Everglades. Multiple short trips to various locales within the Everglades. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4035 INTRODUCTION TO MARINE ANIMAL NEUROBIOLOGY (3) LEC. 15. LAB. 60. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037. The neuroanatomy and neurophysiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses and neurotransmitters, muscle contraction, sensorimotor integration; neurophysiological bases of behavior; labs include computer simulation of cellular neurobiology. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4045 MARINE MAMMAL BIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Introduction to the evolution, taxonomy and classification, anatomy, physiology, behavior, conservation and management issues of marine mammals, including cetaceans, pinnipeds, mustelids, sirenians and the polar bear. Lab and field research methods used to study marine mammals will be covered. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4065 MARINE CONSERVATION BIOLOGY (4) LEC. 45. LAB. 30. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and (BIOL 3040 or BIOL 3060). Study of major threats to marine biodiversity as and potential solutions to the threats. Students discuss current topics in marine conservation biology and critically debate marine conservation literature. Field trips to impacted and pristine sites will demonstrate principles. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4085 HURRICANES OF THE GULF OF MEXICO (2) LEC. 30. An introductory survey with emphasis on Gulf of Mexico hurricanes. Hurricane features. Basic principles of the atmosphere, review of Gulf, Atlantic and Caribbean hurricanes, El Nino, changes in the Atlantic circulation, hurricane formation, development, features, movement, steering and forecasting. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4095 COASTAL BIRDS OF ALABAMA (2) LEC. 15. LAB. 30. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Behavior and ecology-oriented avian field biology. Identification, banding, record/broadcast, other survey methods. Emphasis on behavioral ecology. Extensive field effort along the Gulf Coast and in the Mobile/Alabama/Tombigbee/Tensaw River Delta, other riparian environments, and salt marshes. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4100 CELL BIOLOGY (3) LEC. 3. Pr. CHEM 2030 or (CHEM 2070 or CHEM 2077) and (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 1030 or BIOL 1037). Introduction to cellular structure and processes, including evolution, organization, physiology, molecular biology of cells, membranes, cytoplasm, and organelles as well as energy, transport, motility, cell division, signaling, transcription, and translation.

BIOL 4101 CELL BIOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 4100 or P/C BIOL 4103. Light/electron microscopy, cell structure, origins of life, centrifugation, protein/nucleic acid electrophoresis, and blotting, motility, DNA purification, chromatography, pH, fluorescence microscopy.

BIOL 4135 MARINE BEHAVIORAL ECOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Animal behavior in the context of the marine environment. Students study the ecological and evolutionary significance of behavior in a marine setting. Topics include principles of marine behavioral ecology, techniques for observing behavior, conducting behavior experiments, and data collection. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4150 HUMAN GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000 and BIOL 4100 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

BIOL 4410 VERTEBRATE DEVELOPMENT (5) LEC. 3. LAB. 4. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Morphogenesis and organogenesis of frog, chick, pig, and human from a descriptive and analytical viewpoint.

BIOL 4415 SHARK AND RAY BIOLOGY (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. An introduction to the biology of sharks and rays with special emphasis on regional shark fauna and field technique. Topics: chondrichthyan origin, systematics, sensory biology, trophic ecology, reproductive biology, life history, ecology, fisheries and conservation. Extensive lab and field work. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4445 SPECIAL PROBLEMS IN MARINE SCIENCE (1-6) AAB/LEC. Departmental approval. Individualized research-oriented experience. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours.

BIOL 4455 MARINE INVERTEBRATE ZOOLOGY (6) LEC. 6. Departmental approval. Structure, classification, phyogenetics, larval development and functional processes of marine and estuarine invertebrates. Taught at Gulf Coast Research Laboratory.

BIOL 4475 MARINE ICHTHYOLOGY (6) LEC. 6. Departmental approval. Biology of the major piscine taxa in Mississippi Sound. Principles involved in classification and evolutionary relationships of these organisms. Taught at Gulf Coast Research Laboratory.

BIOL 4515 MARINE INVERTEBRATE ZOOLOGY (4) LEC. 4. Pr. At least 10 credits in BIOL 2000-8990. Departmental approval. The natural history, systematics, and morphology of marine invertebrates from the Gulf of Mexico; oriented toward a field and laboratory approach. Participation in extended field trips is part of the course. Taught at DISL.

BIOL 4525 DOLPHINS AND WHALES (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Classification, anatomy, and ecology of the cetaceans. Taught at DISL.

BIOL 4565 MARINE VERTEBRATE ZOOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Systematics, zoogeography and ecology of marine fishes, reptiles, and mammals. Taught at DISL. May not be substituted for BIOL 4020.

BIOL 4575 MARINE ECOLOGY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Prerequisites: BIOL1020 or marine biology. Departmental approval. Experimental ecological theory and its application to interactions of marine organisms with each other and the environment. Includes laboratory, extensive field trip experience. Taught at DISL.

BIOL 4585 PLANKTON BIOLOGY (2) LEC. 15. LAB. 15. Pr. ((BIOL 1020 and BIOL 1021) or BIOL 1027) and ((BIOL 1030 and BIOL 1031) or BIOL 1037). Students will learn about the biology of all forms of plankton and the methods for their study including optical and chemical techniques. Students will understand the basic methods of study and be able to sight-identify major groups. Taught at Dauphin Island Sea Lab (DISL).

BIOL 4700 PEDAGOGY OF PEER-LED INSTRUCTION (1) LEC. 1. Departmental approval. This is the pedagogical training course designed for students serving as peer instructors who are interested in effective instructional strategies in the STEM disciplines. This course helps peer instructors integrate educational theory, pedagogy, content, and practice. Course meetings will focus on practical concerns as well as associated theoretical models. This is a seminar course where students are responsible for weekly readings, in-class discussions, reflections and projects which are coordinated with students' practice.

BIOL 4920 INTERNSHIP IN BIOLOGY (1-4) INT. SU. Application of biology concepts and skills in a professional experience. 12 credit hours in 3000-level or higher BIOL courses. Departmental approval. Student must be enrolled in a major offered by the Department of Biological Sciences. Course may be repeated for a maximum of 4 credit hours.

BIOL 4950 SENIOR SEMINAR (1) LEC. 1. Oral presentation and discussion of recent scientific publications from a selected area of biological sciences. One hour is required for all majors. Course may be repeated for a maximum of 3 credit hours.

BIOL 4967 HONORS SPECIAL PROBLEMS (1-3) DSL/LEC. Pr. Honors College. Departmental approval and membership in the Honor College. Course may be repeated for a maximum of 3 credit hours.

BIOL 4970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in Biological Sciences. Course may be repeated for a maximum of 8 credit hours.

BIOL 4980 UNDERGRADUATE RESEARCH (2-4) AAB/IND. Directed research in an area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BIOL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Undergraduate research and thesis. Course may be repeated for a maximum of 3 credit hours.

BIOL 4AA0 PROFESSIONAL DEVELOPMENT II (0) PRA. SU. Students enrolled in this course will complete the ePortfolio that they began developing as Freshmen, in BIOL 2100 - Professional Development I. Successfully designing and completing a professional ePortfolio will provide students with: 1. An opportunity to create a unified, polished and coherent educational and professional history of themselves. 2. A platform to organize their thinking about skills and experiences and the opportunity to connect them to the next step in career development. 3. A place to collect, present and reflect on evidence of professional development and growth during the undergraduate experience.

BIOL 5000 HUMAN CARDIOVASCULAR PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 2510 or BIOL 2517 or BIOL 5240 or BIOL 5600. An in-depth exploration of molecular events and mechanisms governing heart and vascular function in health and disease. Laboratory will provide hands-on experiences with ECG, local blood flow, and case study examples.

BIOL 5020 EMBRYONIC DEVELOPMENT (3) LEC. 3. Pr. (BIOL 4100 or BIOL 4103). This course is designed to teach students the evolution of the molecular mechanisms used by developing embryos to form the adult body plan with a focus on the vertebrate model systems used to understand human developmental biology. In addition, the course will expose students to current research on these processes and the techniques used to carry out these studies.

BIOL 5050 FUNDAMENTALS OF BIOPHYSICS (2) LEC. 2. Pr. PHYS 1510 or BIOL 4100. Introduction to use of theories and methods of physics in biology, illustrated by discussion of organism size, metabolism, physiology, vision, hearing, cell cellular and molecular processesern medicine, physiology and molecular biology.

BIOL 5090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

BIOL 5110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037 or BIOL 2500 or BIOL 2503 or BIOL 2507. Students must have Junior or Senior standing. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals and wildlife. May count either BIOL 5110 or LABT 4050.

BIOL 5120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 5130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 5131 ADVANCED PLANT PHYSIOLOGY LABORATORY (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or BIOL 5130). Laboratory exercises in plant physiology. Including water relations, metabolism and growth, and development.

BIOL 5140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 5150 POPULATION AND COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Quantitative study of natural population and ecological communities. Selected topics include density-dependent population growth, life-history theory, mark-recapture analysis, eco-evolutionary dynamics, and species interactions especially how they relate to questions of species distributions in time and space.

BIOL 5160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3. Prereq. 15 hours of biology. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours.

BIOL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 5200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. (BIOL 3200 or BIOL 3203 or BIOL 3207) and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 5210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 5220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Principles of gene expression including replication, transcription, and translation; structure and regulation of genes; concepts and techniques in recombinant DNA.

BIOL 5230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 5240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or (CHEM 2030 or CHEM 2070 or CHEM 2077). General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 5250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 5260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Credit will not be given for both BIOL 5260 and BIOL 6260.

BIOL 5270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and (BIOL 3201) and (BIOL 5220 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and 6270.

BIOL 5280 GENETHICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Twenty-first century biotechnology and related ethical issues, including human cloning, stem cells, neuroenhancement, age retardation, genetic enhancement, and nanobiology. May count BIOL 5280 or 6280.

BIOL 5290 CASE STUDIES IN INFECTION AND IMMUNITY (3) LEC. 3. Pr. BIOL 5500. This course is designed to enrich student understanding of infection and immunity in the context of clinical presentations. Students will learn to use deductive reasoning to narrow down potential causes of symptoms and then use scientific literature to gain a detailed understanding of the mechanisms underlying disease. Cases covered will include infectious disease, immunodeficiency, neoplasms and/or autoimmunity.

BIOL 5300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 3. LAB. 4. Pr. BIOL 3100. Investigation of the various levels of plant organization from subcellular to organ through use of light and scanning electron microscopes.

BIOL 5320 PLANT GENE EXPRESSION (3) LEC. 3. Pr. BIOL 3100. Departmental approval. Genetic expression of genetic elements in plants from the recent literature.

BIOL 5330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 5330 or BIOL 6330.

BIOL 5340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 5350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 5370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3060. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 5380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 5425 MARINE BOTANY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Departmental approval. Pr. BIOL 1020 or equiv. Survey of microscopic and macroscopic algae, salt marsh vegetation, sea grasses, mangroves and maritime forests with regard to identification, distribution, structure, ecology and physiology. Field trips and laboratory work. Taught at DISL.

BIOL 5440 CLIMATE CHANGE PHYSIOLOGY AND EVOLUTION (3) LEC. 3. LAB. 0. This class investigates on the basic mechanisms of climate change and its impact on living organisms, focusing on their physiological, evolutionary, behavioral and molecular responses. Special interest is given to plants and marine organisms.

BIOL 5500 IMMUNOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203 or BIOL 3207) and BIOL 3201 and (BIOL 3000 or BIOL 3003 or BIOL 3020). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology. May count either BIOL 3500 or BIOL 5500.

BIOL 5501 IMMUNOLOGY LAB (2) LAB. 2. Pr. P/C BIOL 5500 or P/C BIOL 3500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 5521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or P/C BIOL 5260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 5550 NANOMEDICINE (2) LEC. 2. Pr. PHYS 1510 and CHEM 2080 and (P/C BCHE 5180 or P/C BIOL 4100). Nanomedicine is a branch of medicine that applies the knowledge and tools of nanotechnology to the prevention and treatment of disease. It involves the use of nanoscale materials, such as biocompatible nanoparticles, nanorobots and nanosensors, for diagnosis, drug delivery, and sensing in living organisms.

BIOL 5560 RNA IN BIOMEDICINE (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003. This course introduces the basic and novel types and functions of RNAs, as well as the integration of these molecules in biomedical contexts. Students will learn about the ‘RNA World’ theory, the diverse roles of RNA in cellular processes, and pathogenesis. Technological approaches to RNA research will be covered, as well as the application of this research to the diagnosis and therapy of genetic diseases.

BIOL 5600 BIOMEDICAL PHYSIOLOGY (5) LEC. 4. LAB. 3. Pr. ((BIOL 1030 or BIOL 1037) or ((BIOL 2500 or BIOL 2507) and BIOL 2501)) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation into the physiology of major mammalian organ systems, with a special focus on their biomedical functions and applications.

BIOL 5650 ANIMAL BEHAVIOR (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 5660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6600, or BIOL 6600.

BIOL 5700 APPLIED AND ENVIRONMENTAL MICROBIOLOGY (4) LEC. 3. LAB. 2. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Introduction to the ecology, systematics, interrelationships, and role of micro-organisms in geochemical cycles, bioremediation and pharmaceutical production.

BIOL 5740 HERPETOLOGY (4) LEC. 3. LAB. 3. Ecology and evolution of living amphibians and reptiles of the world.

BIOL 5750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Taxonomy, evolution, ecology, and behavior of birds.

BIOL 5760 MAMMALOGY (4) LEC. 3. LAB. 3. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, field trips, data analysis, and report preparation.

BIOL 5800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510 or STAT 2513. Overview of computational approaches to biological data analysis. Additionally, students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.

BIOL 5850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. An active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 5860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging 'omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 6020 EMBRYONIC DEVELOPMENT (3) LEC. 3. Pr. BIOL 4100 or BIOL 4103. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

BIOL 6050 FUNDAMENTALS OF BIOPHYSICS (2) LEC. 2. Pr. PHYS 1510 or BIOL 4100. Introduction to use of theories and methods of physics in biology, illustrated by discussion of organism size, metabolism, physiology, vision, hearing, cell cellular and molecular processesern medicine, physiology and molecular biology.

BIOL 6090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

BIOL 6110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) or (BIOL 2500 or BIOL 2503) and BIOL 2501. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals, and wildlife.

BIOL 6120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 6130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 6131 ADV PLANT PHYSIOLOGY LAB (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or CHEM 2088). Laboratory exercises in plant physiology. Including water relations, metabolism, and growth and development.

BIOL 6140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Departmental approval. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 6150 POPULATION AND COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Quantitative study of natural population and ecological communities. Selected topics include density-dependent population growth, life-history theory, mark-recapture analysis, eco-evolutionary dynamics, and species interactions especially how they relate to questions of species distributions in time and space.

BIOL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220 and (CHEM 2080 or CHEM 2087). Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 6200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 6210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 6220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both BIOL 6220 and CMBL 6220.

BIOL 6230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 6240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or CHEM 2030 or CHEM 2070 or CHEM 2077. General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 6250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 6260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Course will not be given for both BIOL 5260 and BIOL 6260.

BIOL 6270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203) and (BIOL 3201) and (BIOL 5200 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and BIOL 6270.

BIOL 6290 CASE STUDIES IN INFECTION AND IMMUNITY (3) LEC. 3. Pr. BIOL 6500. This course is designed to enrich student understanding of infection and immunity in the context of clinical presentations. Students will learn to use deductive reasoning to narrow down potential causes of symptoms and then use scientific literature to gain a detailed understanding of the mechanisms underlying disease. Cases covered will include infectious disease, immunodeficiency, neoplasms and/or autoimmunity.

BIOL 6300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 2. LAB. 4. Pr. BIOL 6130. The study of the structure and ontogeny of plant cells, tissues, and organs. Fall.

BIOL 6320 PLANT GENE EXPRESSION (3) LEC. 3. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL 6320 and CMBL 6320.

BIOL 6330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 6330 or BIOL 5330.

BIOL 6340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 6350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 6370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3060 and BIOL 6800. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 6440 CLIMATE CHANGE PHYSIOLOGY AND EVOLUTION (3) LEC. 3. LAB. 0. Pr. BIOL 1030. This class investigates on the basic mechanisms of climate change and its impact on living organisms, focusing on their physiological, evolutionary, behavioral and molecular responses. Special interest is given to plants and marine organisms.

BIOL 6500 IMMUNOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201 and (BIOL 3000 or BIOL 3003 or FISH 3000 or BIOL 3020) and P/C BIOL 6501. The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

BIOL 6501 IMMUNOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 5500 or P/C BIOL 6500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 6521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or BIOL 6220 or BIOL 5260 or BIOL 6260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 6525 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Vertebrate and Invertebrate Zoology required. Taught at DISL.

BIOL 6550 NANOMEDICINE (2) LEC. 2. Pr. PHYS 1510 and CHEM 2080 and BCHE 5180. Nanomedicine is a branch of medicine that applies the knowledge and tools of nanotechnology to the prevention and treatment of disease. It involves the use of nanoscale materials, such as biocompatible nanoparticles, nanorobots and nanosensors, for diagnosis, drug delivery, and sensing in living organisms.

BIOL 6560 RNA IN BIOMEDICINE (3) LEC. 3. This course introduces the basic and novel types and functions of RNAs, as well as the integration of these molecules in biomedical contexts. Students will learn about the ‘RNA World’ theory, the diverse roles of RNA in cellular processes, and pathogenesis. Technological approaches to RNA research will be covered, as well as the application of this research to the diagnosis and therapy of genetic diseases.

BIOL 6600 BIOMEDICAL PHYSIOLOGY (5) LEC. 4. LAB. 3. Pr. ((BIOL 1030 or BIOL 1037) or (BIOL 2500 and BIOL 2501)) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation into the physiology of major mammalian organ systems, with a special focus on their biomedical functions and applications.

BIOL 6650 ANIMAL BEHAVIOR (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6600, or BIOL 6600.

BIOL 6700 APPLIED AND ENVIRONMENTAL MICROBIOLOGY (4) LEC. 3. LAB. 2. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201. An advanced treatment of bacteria comprising the Kingdom Prokaryotae, emphasizing ecology, systematics, interrelationships, geochemical cycles, and bioremediation.

BIOL 6740 HERPETOLOGY (4) LEC. 3. LAB. 3. Ecology and evolution of living amphibians and reptiles of the world.

BIOL 6750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Departmental approval. An intensive investigation of the current literature and relevant research dealing with birds.

BIOL 6760 MAMMALOGY (4) LEC. 3. LAB. 3. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, fieldtrips, data analysis and report preparation.

BIOL 6800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510 or STAT 2513. Overview of computational approaches to the analysis of biological data. Students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.

BIOL 6850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. Active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 6860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging 'omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 7035 MARINE ANIMAL NEUROBIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1023 and BIOL 1021 and BIOL 1030 and BIOL 1031 and BIOL 4100. Biophysical neurobiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses, neurotransmitters, muscle contraction, sensorimotor integration, computer simulation and extensive technical methods: extra-, intracellular, patch recording, molecular neuroimmunology, confocal fluorescence microscopy. Evening/Saturday classes.

BIOL 7075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 30. LAB. 60. Pr. MATH 1150 or MATH 1153 and CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and PHYS 1500 and BIOL 3040. An in-depth examination of the physics, chemistry, geology and biology of the oceans. Lectures cover the interrelationships of these components to each other. Field and lab work will introduce students to research on oceanographic processes of the Gulf of Mexico. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 7170 POPULATION GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Examination of the theories relating to maintenance of variation in natural populations of plants and animals.

BIOL 7180 SCRIPTING FOR BIOLOGISTS (3) LEC. 2. LAB. 1. Pr. BIOL 6800 and STAT 7000. or Instructor approval. A hands-on course to teach students concepts, applications, and best practices of utilizing computer scripting languages in the life sciences.

BIOL 7200 EVOLUTIONARY BIOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Topics of current interest in evolution. Readings and presentation required.

BIOL 7210 EVOLUTIONARY ECOLOGY (3) LEC. 3. The Evolutionary Ecology research paradigm is a key approach to the study of behavioral, evolutionary, and ecological processes in the context of realistic or natural environmental settings. We will investigate a number of current "hot" research topics in Evolutionary Ecology, discuss the leading hypotheses being developed and how they are cast as statistica.

BIOL 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 3. Pr. STAT 7020 or WILD 7150. or equivalent; or permission of the instructor. Data from the life sciences and advanced statistical techniques for data analyses and computation are brought together through a cross-fertilization of graduate student students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects. May count either BIOL 7250 or STAT 7250.

BIOL 7290 EVOLUTIONARY GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 6170. Departmental approval. The role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both BIOL 7290 and CMBL 7290.

BIOL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both BIOL 7440 and CMBL 7440.

BIOL 7470 GENOME EVOLUTION (3) LEC. 3. Provides a broad evolutionary perspective on the origin, composition, and architecture of eukaryotic genomes. Students will participate in a literature-driven discussion format and will complete weekly writing assignments.

BIOL 7485 ADVANCED MARINE ECOLOGY (4) LEC. 2. LAB. 2. Pr. (BIOL 1020 or BIOL 1023) and BIOL 1021 and BIOL 1030 and BIOL 1031 and (BIOL 3060 or BIOL 3040). An advanced course open only to MS or PhD students. Interactions between marine organisms and the environment. In-depth discussion of ecological theory with emphasis on the latest research, using extensive reference to the literature. Lecture, lab and overnight field trips.

BIOL 7490 PHYSIOLOGICAL ECOLOGY (3) LEC. 3. Pr. BIOL 3060. A study of the physiological adaptations that allow animals to survive in unusual environments. A course in ecology required.

BIOL 7500 STRESS PHYSIOLOGY (2) LEC. 2. Pr. (BIOL 4100 or BIOL 5240 or BIOL 5600). This course is a discussion-based course focusing on physiological stress responses at various levels of organization and communication among them, from molecules, cells, organ, to whole organism.

BIOL 7510 NATURAL HISTORY MUSEUM PRACTICUM (1) LAB. 3. Practical methods in natural history museum curation. Students will assist in curating collections at the Auburn University Museum of Natural History. Course may be repeated for a maximum of 4 credit hours.

BIOL 7525 MARINE INVERTEBRATES (4) LEC. 2. LAB. 2. Morphology, natural history, physiology, evolution and ecology. Students examine modern literature and develop an advanced presentation on invertebrate biology involving problem solving in an area such as sensory biology, molecular evolution or management. Term paper, classroom presentation and lecture.

BIOL 7540 PROFESSIONAL ASPECTS OF BIOLOGY (3) LEC. 3. Departmental approval. Instruction on practical aspects of a career in biological sciences.

BIOL 7550 PHYSIOLOGICAL ECOLOGY OF REPRODUCTION (3) LEC. 3. This course focuses on physiological ecology of reproduction by identifying key physiological mechanisms linking the environmental change, reproductive constraints, and reproductive performance and describing how variation in reproductive performance are impacted by ecological and evolutionary processes.

BIOL 7800 COMPUTATIONAL BIOLOGY COLLOQUIUM (2) LEC. 0. LAB. 0, LEC. 0. Pr. (BIOL 7180) or (PLPA 6820). Oral presentations and discussions of recent scientific publications, challenges, and opportunities within the field of computational biology. Hands-on experience in data analysis and presentation.

BIOL 7880 MITONUCLEAR ECOLOGY (2) LEC. 2. Pr. BIOL 3030. This course will explore the implications of the necessity of mitonuclear coadaptation for the evolution of quintessential eukaryotic characteristics, including sex and two sexes, a sequestered germ line, senescence, discrete species, mate choice, and adaptation. Permission of instructor may be needed.

BIOL 7950 MASTERS THESIS SEMINAR (1) LEC. 1. SU. Departmental approval. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 2 credit hours.

BIOL 7960 SPECIAL PROBLEMS (1-4) DSL/LEC. Pr. P/C BIOL 6220. Oral presentation and discussion of recent scientific publications from a selected area molecular biology. Credit will not be given for both BIOL 7960 and CMBL 7960. Course may be repeated for a maximum of 4 credit hours.

BIOL 7970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in botany, microbiology, molecular biology, or zoology. A different topic for advanced study will be selected each semester this course is offered. Course may be repeated for a maximum of 8 credit hours.

BIOL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BIOL 8950 DOCTORAL SEMINAR (1) SEM. 1. SU. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 3 credit hours.

BIOL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

Biological Sciences Minor

Students must complete fifteen hours of coursework at the 3000 level and above. In order to enroll in these courses, students must first complete BIOL 1020, BIOL 1021, BIOL 1030, BIOL 1031, as pre-requisites for the upper level courses.

Code	Title	Hours
Required Course		
BIOL 3000	Genetics	3
Elective Courses		
Select 12 hours of BIOL courses at the 3000 level or higher		12
Total Hours		**15**

Genetics (GENE)

The genetics major provides a broad perspective on the biological and physical sciences that are fundamental to the study of heredity and evolution. Courses cover the molecular mechanisms that underpin genetic changes as well as cutting-edge analysis of genome-scale data. This flexible major is designed to serve students interested in a broad range of careers related to genetics, including basic research as well as applications in biotechnology, agriculture, and the environment. The introductory coursework provides students with a strong foundation in biology, while upper-level courses can be tailored to include invaluable computational skills. The Genetics major provides students with a strong foundation for careers in healthcare including medicine, pharmacy and genetic counseling.

The genetics major provides a broad foundation in the biological, physical, and mathematical sciences fundamental to the study of heredity and evolution. The major is flexible in order to serve students interested in genetics, either as a basic discipline or in its application in biotechnology, agriculture, environment/conservation, and medicine.

Freshman				
Fall	**Hours**		**Spring**	**Hours**
ENGL 1100 English Composition I	3		ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4		CHEM 1040 Fundamental Chemistry II[1]	3
CHEM 1030 Fundamentals Chemistry I[1]	3		Core History I	3

CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
BIOL 2100 Professional Development	1		
	16		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
Core Hist or Literature	3	**BIOL 3030 Evolution and Systematics**	**3**
Core Humanities or Social Sci	3	**BIOL 3020 Genomic Biology *or* 3200 General Microbiology**	**4**
BIOL 3000 Genetics	**3**	STAT 2510 Statistics for Biological and Health Sciences	3
BIOL 3001 General Genetics Laboratory	**1**		
	14		**14**

Junior

Fall	Hours	Spring	Hours
Core Literature	3	**BIOL 5220 Introductory Molecular Genetics**	**3**
BIOL 5800 Introduction to Computational Biology	**3**	**BIOL 4100 Cell Biology**	**3**
Core Social Science	3	**BIOL 4101 Cell Biology Laboratory**	**2**
PHYS 1500 General Physics I	4	Core Fine Arts	3
BCHE 5180 Biochemistry I	**3**	Core Social Science	3
	16		**14**

Senior

Fall	Hours	Spring	Hours
GENE CORE Elective	**5**	**BIOL 5330 Developmental Genetics**	**3**
GENE SUPP Elective	**5**	**GENE CORE Elective**	**3**
Core Humanities	3	**GENE SUPP Electives**	**5**
Free Electives	3	**BIOL 4950 Senior Seminar**	**1**
BIOL 4AA0 Professional Development II	0	Free Electives	4
	16		**16**

Total Hours: 120

Long range schedules for COSAM courses are online at http://aub.ie/cosamlrs
Courses in BOLD will be used to calculate GPA in major.
Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.

[1] The Chemistry 1110/1111-1120/1121 sequence can substitute for CHEM 1030/CHEM 1031-CHEM 1040/CHEM 1041. See advisor for details.

Genetics Electives

GENE CORE Electives

- BIOL 3020 Genomic Biology (4)
- BIOL 4150 Human Genetics (3)

- BIOL 5260 Prokaryotic Molecular Genetics (3)
- BIOL 5320 Plant Gene Expression (3)
- BIOL 5521 Gene Expression and Recombinant DNA Laboratory (2)
- BIOL 5850 Functional Genomics (3)
- BIOL 5860 Bioinformatics and Genome Analysis (3)

GENE SUPP Electives

Any additional GENE CORE Elective

- BIOL 3200/BIOL 3201 Microbiology (4)
- BIOL 4410 Vertebrate Development (5)
- BIOL 4920 Internship in Biology (up to 4)
- BIOL 4970 Special Topics (as appropriate: i.e., Genetics of Mammalian Disease)
- BIOL 4980 Undergraduate Research (up to 6)
- BIOL 5050 Fundamentals of Biophysics (2)
- BIOL 5230 Virology (3)
- BIOL 5500 Immunology (3)
- BIOL 5550 Nanomedicine (2)
- BIOL 5600 Biomedical Physiology (5)
- BCHE 5190 Biochemistry II (3)
- PHYS 1510 General Physics II (4)
- AGRI 3000 Agricultural Genetics (4)
- ANSC 3500 Animal Breeding (3)
- APBT 1000 Introduction to Applied Biotechnology (1)
- APBT 3100 Methods of Synthetic Biology (4)
- APBT 4100 Applied Biotechnology (4)
- CSES 5100 Plant Genetics and Crop Improvement (3)
- FORY 3200 Forest Tree Physiology (3)

Marine Biology (MARB)

The Marine Biology major provides students with a broad perspective on marine systems ranging from molecular and cellular biology to organismal and ecological systems. Introductory courses cover concepts in marine biology, ecology and evolution. These courses lay a strong foundation for more specialized coursework that takes place at the Dauphin Island Sea Lab in Mobile, AL. This major is designed to serve students interested in careers related to marine biology, including basic research as well as applications in biotechnology, agriculture, and the environment.

Freshman			
Fall	**Hours**	**Spring**	**Hours**
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	Core Social Science[2]	3
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1

		BIOL 2100 Professional Development	1		
	15		**15**		

Sophomore

Fall	**Hours**	**Spring**	**Hours**	**Summer**	**Hours**
Core Literature	3	**BIOL 3040 Biology of Marine Systems**	**3**	**SUMMER MARINE LAB**[4]	**8**
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4		
Core History	3	**BIOL 3060 Ecology**	**4**		
BIOL 3000 Genetics	**3**	CHEM 2030 Survey of Organic Chemistry	3		
BIOL 3001 General Genetics Laboratory	**1**				
	14		**14**		**8**

Junior

Fall	**Hours**	**Spring**	**Hours**	**Summer**	**Hours**
Core History or Literature[1]	3	**BIOL 3200 General Microbiology**	**3**	**SUMMER MARINE LAB**[4]	**8**
BIOL 3030 Evolution and Systematics	**3**	**BIOL 3201 General Microbiology Laboratory**	**1**		
BIOL 4010 Invertebrate Biodiversity	**4**	**BIOL 4100 Cell Biology**	**3**		
BCHE 3200 Principles of Biochemistry	3	STAT 2510 Statistics for Biological and Health Sciences	3		
		Core Social Science or Humanities[3]	3		
	13		**13**		**8**

Senior

Fall	**Hours**	**Spring**	**Hours**
Core Humanities	3	**BIOL 4950 Senior Seminar**	**1**
Core Fine Arts	3	**Biology Elective**	**3**
Physiology Elective	**3**	**MMCB Elective**	**3**
Eco/Evo/Diversity Elective	**3**	Core Social Science[2]	3
BIOL 4AA0 Professional Development II	0	UNIV 4AA0 Achieve the Creed	0
	12		**10**

Total Hours: 122

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

2 Students who complete a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3 If a LIT sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

4 All courses taken at a Summer Marine Lab must receive departmental approval.

Microbial, Cellular & Molecular Biology — Cell & Molecular Biology Option (MCCM)

The Microbial, Cellular and Molecular Biology major provides students with a strong foundation in coursework that emphasizes understanding life at the cellular and molecular level. Students that select the Cell and Molecular Biology concentration will focus primarily on eukaryotic life. Students in this major will be well-prepared for postgraduate work or careers in both basic and applied biology, including biotechnology, pharmaceutical discovery and biomedical research. This major can be tailored to students interested in pursuing careers in healthcare including medicine, dentistry and optometry.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CORE HISTORY	3	CORE FINE ARTS	3
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
BIOL 2100 Professional Development	1		
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
MATH 1610 Calculus I	4	**BIOL 3200 General Microbiology**	**3**
CORE LITERATURE	3	**BIOL 3201 General Microbiology Laboratory**	**1**
BIOL 3000 Genetics	**3**	CORE HISTORY or LIT[1]	3
BIOL 3001 General Genetics Laboratory	**1**	MATH 1620 Calculus II ***or*** STAT 2510 Statistics for Biological and Health Sciences	4 or 3
	15		**15-14**

Junior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**BCHE 5190 Biochemistry II**	**3**
BCHE 5181 Biochemistry I Laboratory	**1**	**BIOL 4100 Cell Biology**	**3**
BIOL 5220 Introductory Molecular Genetics	**3**	**BIOL 4101 Cell Biology Laboratory**	**2**
BIOL 5521 Gene Expression and Recombinant DNA Laboratory	**2**	PHYS 1510 General Physics II	4
MMCB Elective	**3**	Core Social Science or Humanities	3
PHYS 1500 General Physics I	4	Free Elective	2
	16		**17**

Senior

Fall	Hours	Spring	Hours
Evolution Elective	**3**	**Physiology Elective**	**3**
Biology Elective	**3**	**MMCB Elective**	**4**
Biodiversity Elective	**3**	**Biology Elective**	**4 or 5**

CORE HUMANTIES	3	CORE SOCIAL SCIENCES[2]	3
CORE SOCIAL SCIENCE[2]	3	**BIOL 4950 Senior Seminar**	**1**
BIOL 4AA0 Professional Development II	0	UNIV 4AA0 Achieve the Creed	0
	15		**15-16**

Total Hours: 122

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

2 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

Microbial, Cellular & Molecular Biology — Microbiology Option (MCMB)

The Microbial, Cellular and Molecular Biology major provides students with a strong foundation in coursework that emphasizes understanding life at the cellular and molecular level. Within this major, students can formally select the Microbiology concentration, in which upper-level coursework focuses primarily on aspects of bacterial life. Students in this major will be well-prepared for postgraduate work, careers in basic or applied microbiology (including food and environmental microbiology) or research in biomedical science. This major can be tailored to students interested in pursuing careers in healthcare including medicine, dentistry and optometry.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CHEM 1030 Fundamentals Chemistry I	3	CORE SOCIAL SCIENCE	3
CORE HISTORY	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
BIOL 2100 Professional Development	1		
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
CORE LITERATURE	3	**BIOL 3200 General Microbiology**	**3**
BIOL 3000 Genetics	**3**	**BIOL 3201 General Microbiology Laboratory**	**1**
BIOL 3001 General Genetics Laboratory	**1**	CORE HISTORY or LIT[1]	3
	15		**15**

Junior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**BCHE 5190 Biochemistry II**	**3**
BCHE 5181 Biochemistry I Laboratory	**1**	**MMCB Elective**	**2 or 3**
BIOL 5200 Clinical Microbiology	**5**	**BIOL 4100 Cell Biology**	**3**

BIOL 5250 Microbial Evolution and Diversity		**4**	CORE FINE ARTS	3
MATH 1610 Calculus I		4	MATH 1620 Calculus II ***or*** STAT 2510 Statistics for Biological and Health Sciences[3]	4 or 3
		17		**15**

Senior

Fall	Hours		Spring	Hours
BIOL 5260 Prokaryotic Molecular Genetics		**3**	**BIOL 5210 Microbial Physiology**	**3**
BIOL 5521 Gene Expression and Recombinant DNA Laboratory		**2**	**MMCB Elective**	**4**
Biology Elective		**3**	**Biology Electives**	**4**
CORE SOC SCI or HUM[2]		3	Core Social Science	3
Free Elective		2	**BIOL 4950 Senior Seminar**	**1**
CORE HUMANITIES		3	UNIV 4AA0 Achieve the Creed	0
BIOL 4AA0 Professional Development II		0		
		16		**15**

Total Hours: 122

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

2 If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

3 If STAT 2510 is chosen, an extra hour of MMCB Elective must be completed.

Microbiology (MCMB) — Pre-Med (MMCB), Pre-Den (DMCB), Pre-Opt (OMCB)

The Microbiology major provides students with a strong foundation in coursework that emphasizes understanding life at the cellular and molecular level focusing on bacterial life. Students in this major will be well-prepared careers in basic or applied microbiology (including food and environmental microbiology) or research in biomedical science. This major has been tailored to meet the requirements for students interested in pursuing careers in healthcare including medicine, dentistry and optometry.

Freshman

Fall	Hours		Spring	Hours
ENGL 1100 English Composition I		3	ENGL 1120 English Composition II	3
CHEM 1030 Fundamentals Chemistry I[1]		3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory		1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology		**3**	MATH 1610 Calculus I	4
BIOL 1021 Principles of Biology Laboratory		**1**	**BIOL 1030 Organismal Biology**	**3**
SCMH 1890 Pre-Health Professions Orientation		1	**BIOL 1031 Organismal Biology Laboratory**	**1**
CORE HISTORY I		3	BIOL 2100 Professional Development	1
		15		**16**

Sophomore

Fall	Hours		Spring	Hours
CHEM 2070 Organic Chemistry I		3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory		1	CHEM 2081 Organic Chemistry II Laboratory	1

PHYS 1500 General Physics I	4		PHYS 1510 General Physics II	4
BIOL 3000 Genetics	**3**		COMM 1000 Public Speaking	3
BIOL 3001 General Genetics Laboratory	**1**		**BIOL 3200 General Microbiology**	**3**
STAT 2510 Statistics for Biological and Health Sciences	3		**BIOL 3201 General Microbiology Laboratory**	**1**
	15			**15**

Junior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**BIOL 4100 Cell Biology**	**3**
PSYC 2010 Introduction to Psychology	3	**BIOL 4101 Cell Biology Laboratory**	**2**
CORE FINE ARTS	3	**BCHE 5190 Biochemistry II**	**3**
CORE LITERATURE	3	PHIL 1030 Ethics and the Health Sciences	3
CORE HISTORY II	3	CORE SOCIAL SCIENCE[2]	3
	15		**14**

Senior

Fall	Hours	Spring	Hours
BIOL 5200 Clinical Microbiology	**5**	**MCMB Elective**	**10**
BIOL 5250 Microbial Evolution and Diversity	**4**	Elective[3]	6
BIOL 5500 Immunology	**3**	BIOL 4AA0 Professional Development II	0
BIOL 5260 Prokaryotic Molecular Genetics	**3**	**BIOL 4950 Senior Seminar**	**1**
	15		**17**

Total Hours: 122

Long range schedules for COSAM courses are online at http://aub.ie/cosamlrs

Courses in BOLD will be used to calculate GPA in major.

Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.

Students should declare a major in the semester they earn 60 hours.

Students must complete all requirements for that major prior to graduation.

Students planning a Physics major should consult with the pre-health advisor.

1 The Chemistry 1110/1111-1120/1121 sequence can substitute for CHEM 1030/1031-1040/1041. See advisor for details.
2 Students who have AP or transfer credit for US History should see an advisor for CORE SOC SCI choices.
3 Total electives required may change with choice of major.

Microbiology (MCMB) — Pre-Physical Therapy (TMCB), Pre-Physician Assistant (AMCB)

The Microbiology major provides students with a strong foundation in coursework that emphasizes understanding life at the cellular and molecular level focusing on bacterial life. Students in this major will be well-prepared careers in basic or applied microbiology (including food and environmental microbiology) or research in biomedical science. This major has been tailored to meet the requirements for students interested in pursuing careers in healthcare including physical therapy and physician assistants.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CHEM 1030 Fundamentals Chemistry I[1]	3	CHEM 1040 Fundamental Chemistry II[1]	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	MATH 1610 Calculus I	4
BIOL 1021 Principles of Biology Laboratory	**1**	CORE HISTORY II	3
SCMH 1890 Pre-Health Professions Orientation	1		
CORE HISTORY I	3		
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I[3]	3	**BIOL 3000 Genetics**	**3**
CHEM 2071 Organic Chemistry I Laboratory	1	**BIOL 3001 General Genetics Laboratory**	**1**
CORE LITERATURE	3	PSYC 2010 Introduction to Psychology	3
BIOL 1030 Organismal Biology	**3**	CORE SOCIAL SCIENCE[2]	3
BIOL 1031 Organismal Biology Laboratory	**1**	PHYS 1500 General Physics I	4
COMM 1000 Public Speaking	3		
	14		**14**

Junior

Fall	Hours	Spring	Hours
BIOL 2500 Human Anatomy and Physiology I	**3**	**BIOL 2510 Human Anatomy and Physiology II**	**3**
BIOL 2501 Human Anatomy and Physiology I Laboratory	**1**	**BIOL 2511 Human Anatomy and Physiology II Laboratory**	**1**
STAT 2510 Statistics for Biological and Health Sciences	3	Psychology Elective	3
BIOL 3200 General Microbiology	**3**	PHIL 1030 Ethics and the Health Sciences	3
BIOL 3201 General Microbiology Laboratory	**1**	HADM 2100 Medical Terminology	3
PSYC 3120 Developmental Psychology	3	Elective	3
CORE FINE ARTS	3		
	17		**16**

Senior

Fall	Hours	Spring	Hours
BIOL 5200 Clinical Microbiology	**5**	**BIOL 5230 Virology**	**3**
BIOL 5500 Immunology	**3**	**MCMB Elective**	**12**
BIOL 5220 Introductory Molecular Genetics	**3**		
Elective	4		
	15		**15**

Total Hours: 120

Long range schedules for COSAM courses are online at http://aub.ie/cosamlrs
Courses in BOLD will be used for GPA in major.

Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.
Students must complete all requirements for the major prior to graduation.
Students planning a Physics major should consult with the pre-health advisor.

1 The Chemistry CHEM 1110/CHEM 1111-CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031-CHEM 1040/CHEM 1041. See advisor for details.
2 Students who have AP or transfer credit for US History should see an advisor for CORE SOC SCI choices.
3 Students planning a major in Biomedical Sciences should take CHEM 2080/CHEM 2081 as their professional elective in their sophomore or junior year.

Organismal Biology (IBIO) — Pre-Med (MIBO), Pre-Den (DIBO), Pre-Opt (OIBO)

The Integrative Biology option with the Organismal Biology major provides students with a broad perspective on biological sciences. Introductory courses cover concepts in biology and chemistry and lay a strong foundation for more specialized, upper-level coursework that spans the field of biology, including ecology, evolution, physiology, cell biology and microbiology. This flexible major can be fulfilled through a long list of elective courses and is designed to serve students interested in a broad range of careers related to biology, including basic research as well as applications in biotechnology, agriculture, and the environment. This major has been tailored to meet the requirements for students interested in pursuing careers in healthcare including medicine, dentistry and optometry.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CHEM 1030 Fundamentals Chemistry I[1]	3	CHEM 1040 Fundamental Chemistry II[1]	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	MATH 1610 Calculus I	4
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1030 Organismal Biology**	**3**
SCMH 1890 Pre-Health Professions Orientation	1	**BIOL 1031 Organismal Biology Laboratory**	**1**
CORE HISTORY I	3	BIOL 2100 Professional Development	1
	15		**16**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
CORE LITERATURE	3	COMM 1000 Public Speaking	3
STAT 2510 Statistics for Biological and Health Sciences	3	**BIOL 3000 Genetics**	**3**
		BIOL 3001 General Genetics Laboratory	**1**
	14		**15**

Junior

Fall	Hours	Spring	Hours
BIOL 3200 General Microbiology	**3**	**BIOL 4100 Cell Biology**	**3**
BIOL 3201 General Microbiology Laboratory	**1**	**BIOL 4101 Cell Biology Laboratory**	**2**
PSYC 2010 Introduction to Psychology	3	PHIL 1030 Ethics and the Health Sciences	3
CORE FINE ARTS	3	CORE SOCIAL SCIENCE[2]	3

BCHE 5180 Biochemistry I	3	BCHE 5190 Biochemistry II	3
CORE HISTORY II	3		
	16		**14**

Senior

Fall	Hours	Spring	Hours
BIOL 3010 Comparative Anatomy	**4**	**BIOL 5600 Biomedical Physiology**	**5**
BIOL 3011 Comparative Anatomy Laboratory	**1**	**IBIO Elective**	**4**
BIOL 3030 Evolution and Systematics	**3**	Elective[3]	7
BIOL 3060 Ecology	**4**		
IBIO Elective[3]	**4**		
BIOL 4AA0 Professional Development II	0		
	16		**16**

Total Hours: 122

Long range schedules for COSAM courses are online at http://aub.ie/cosamlrs
Courses in BOLD will be used to calculate GPA in major.
Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.
Students should declare a major in the semester they earn 60 hours.
Students must complete all requirements for that major prior to graduation.
Students planning a Physics major should consult with the pre-health advisor.

1 The Chemistry CHEM 1110/CHEM 1111-CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031-CHEM 1040/CHEM 1041. See advisor for details.
2 Students who have AP or transfer credit for US History should see an advisor for CORE SOC SCI choices.
3 Total electives required may change with choice of major.

Organismal Biology (IBIO) — Pre-Physical Therapy (TIBO), Pre-Physician Assistant (AIBO)

The Integrative Biology option with the Organismal Biology major provides students with a broad perspective on biological sciences. Introductory courses cover concepts in biology and chemistry and lay a strong foundation for more specialized, upper-level coursework that spans the field of biology, including ecology, evolution, physiology, cell biology and microbiology. This flexible major can be fulfilled through a long list of elective courses and is designed to serve students interested in a broad range of careers related to biology, including basic research as well as applications in biotechnology, agriculture, and the environment. This major has been tailored to meet the requirements for students interested in pursuing careers in healthcare including physical therapy and physician assistants.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CHEM 1030 Fundamentals Chemistry I[1]	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1040 Fundamental Chemistry II	3
BIOL 1020 Principles of Biology	**3**	CORE HISTORY II	3
BIOL 1021 Principles of Biology Laboratory	**1**	MATH 1610 Calculus I	4
SCMH 1890 Pre-Health Professions Orientation	1		
CORE HISTORY I	3		
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I[3]	3	**BIOL 3000 Genetics**	**3**
CHEM 2071 Organic Chemistry I Laboratory	1	**BIOL 3001 General Genetics Laboratory**	**1**
CORE LITERATURE	3	PSYC 2010 Introduction to Psychology	3
BIOL 1030 Organismal Biology	**3**	CORE SOCIAL SCIENCE[2]	3
BIOL 1031 Organismal Biology Laboratory	**1**	PHYS 1500 General Physics I	4
COMM 1000 Public Speaking	3		
	14		**14**

Junior

Fall	Hours	Spring	Hours
BIOL 2500 Human Anatomy and Physiology I	**3**	**BIOL 2510 Human Anatomy and Physiology II**	**3**
BIOL 2501 Human Anatomy and Physiology I Laboratory	**1**	**BIOL 2511 Human Anatomy and Physiology II Laboratory**	**1**
STAT 2510 Statistics for Biological and Health Sciences	3	Psychology Elective	3
BIOL 3200 General Microbiology	**3**	PHIL 1030 Ethics and the Health Sciences	3
BIOL 3201 General Microbiology Laboratory	**1**	**IBIO Elective**	**3**
PSYC 3120 Developmental Psychology	3	HADM 2100 Medical Terminology ***or*** KINE 3000 Medical Terminology for Allied Health Professions	3
CORE FINE ARTS	3		
	17		**16**

Senior

Fall	Hours	Spring	Hours
IBIO Elective	**9**	**BIOL 5600 Biomedical Physiology**	**5**
Elective	5	**IBIO Elective**	**9**
		Elective	2
	14		**16**

Total Hours: 120

Long range schedules for COSAM courses are online at http://aub.ie/cosamlrs
Courses in BOLD will be used to calculate GPA in major.
Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.
Students must complete all requirements for that major prior to graduation.
Students planning a Physics major should consult with the pre-health advisor.

1 The Chemistry CHEM 1110/CHEM 1111-CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031-CHEM 1040/CHEM 1041. See advisor for details.
2 Students who have AP or transfer credit for US History should see an advisor for CORE SOC SCI choices.
3 Students planning a major in Biomedical Sciences should take CHEM 2080/81 as their professional elective in their sophomore or junior year.

Organismal Biology — Conservation and Biodiversity Option (CONS)

The Conservation and Biodiversity option within the Organismal Biology major provides students with a broad perspective on biological sciences. Specialized, upper-level coursework spans the field of ecology, evolution, physiology, with a focus on conservation and

biodiversity. This major is designed to serve students interested in a broad range of careers related to biology, including basic research as well as naturalist, policy makers and wildlife scientists.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CORE HISTORY	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
CHEM 1031 Fundamental Chemistry I Laboratory	1	MATH 1610 Calculus I	4
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
BIOL 2100 Professional Development	1		
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
STAT 2510 Statistics for Biological and Health Sciences	3	CHEM 2030 Survey of Organic Chemistry	3
Core Social Science	3	Core Humanities	3
Core Fine Arts	3	Core History or Literature[1]	3
Core Literature	3	**BIOL 3030 Evolution and Systematics**	**3**
BIOL 3000 Genetics	**3**	**BIOL 3060 Ecology**	**4**
BIOL 3001 Genetics Laboratory	**1**		
	16		**16**

Junior

Fall	Hours	Spring	Hours
WILD 3280 Wildlife Ecology, Conservation, and Management	3	PHYS 1000 Foundations of Physics	4
ENTM 3040 General Entomology	4	**BIOL 4100 Cell Biology**	**3**
BIOL 4020 Vertebrate Biodiversity	**4**	**BIOL ELEC Biology Elective**	**4**
BIOL 3100 Plant Biology	**4**	**Eco/Evo/Div Elective**	**3**
	15		**14**

Senior

Fall	Hours	Spring	Hours
BIOL 5090 Conservation Biology	**3**	Core Social Science or Humanity[2]	3
BIOL 4010 Invertebrate Biodiversity	**4**	**BIOL 4950 Senior Seminar**	**1**
Anatomy and Physiology Elective	**4**	**Biology Elective**	**3**
Core Social Science	3	**BIOL 5120 Systematic Botany**	**4**
Free Elective	2	**Eco/Evo/Div Elective**	**4**
BIOL 4AA0 Professional Development II	0	UNIV 4AA0 Achieve the Creed[*]	0
	16		**15**

Total Hours: 122

[1] Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

[2] If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

* This course must be taken the semester of graduation.

Organismal Biology — Ecology, Evolution, and Behavioral Option (ECEB)

The Ecology, Evolution and Behavior option within the Organismal Biology major provides students with a specialized view of how organisms interact, how natural selection acts on individuals and populations, and how organisms alter behavior in different ecosystems. This major provides students with a set of the elective courses are designed to serve students interested in basic biological research as well as applied environmental sciences.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CORE FINE ARTS	3	CORE HISTORY	3
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
BIOL 2100 Professional Development	1		
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Humanities	3	CHEM 2030 Survey of Organic Chemistry	3
MATH 1610 Calculus I	4	**BIOL 3030 Evolution and Systematics**	**3**
Core Literature	3	STAT 2510 Statistics for Biological and Health Sciences	3
Core Social Sciences	3	**BIOL 3060 Ecology**	**4**
BIOL 3000 Genetics	**3**		
BIOL 3001 Genetics Laboratory	**1**		
	17		**13**

Junior

Fall	Hours	Spring	Hours
PHYS 1000 Foundations of Physics	4	Core Social Science or Humanities[1]	3
Biology Elective	**4**	**BIOL 5130 Advanced Plant Physiology, 5131 Advanced Plant Physiology Laboratory, 5210 Microbial Physiology, *or* 5240 Animal Physiology[2]**	**4**
BIOL 3200/3201, BIOL 4010, BIOL 4020, or BIOL 3100	**4**	**Quantitative Biology Elective**	**3**
BIOL 4100 Cell Biology	**3**	**Biology Elective**	**4**

		Free Elective	3
	15		**17**

Senior

Fall	**Hours**	**Spring**	**Hours**
Cell/Mol/Micro Elective or Physiology Elective	**7**	**BIOL 5650 Animal Behavior**	**3**
Eco/Evo/Diversity Elective	**6**	**BIOL 4950 Senior Seminar**	**1**
Core Literature or History[3]	3	**Eco/Evo/Diversity Electives**	**4**
BIOL 4AA0 Professional Development II	0	**Quantitative Biology Elective**	**4**
		Core Social Science	3
		UNIV 4AA0 Achieve the Creed[4]	0
	16		**15**

Total Hours: 122

1 If a LIT sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

2 If BIOL 5210 is chosen, an additional 1 credit hour of Cell/Mol/Microbiology or Anatomy & Physiology or Eco/Evo/Diversity elective must be completed to fulfill the 4 hour requirement.

3 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

4 This course must be taken the semester of graduation.

Organismal Biology — Integrative Biology Option (IBIO)

The Integrative Biology option with the Organismal Biology major provides students with a broad perspective on biological sciences. Introductory courses cover concepts in biology and chemistry and lay a strong foundation for more specialized, upper-level coursework that spans the field of biology, including ecology, evolution, physiology, cell biology and microbiology. This flexible major can be fulfilled through a long list of elective courses and is designed to serve students interested in a broad range of careers related to biology, including basic research as well as applications in biotechnology, agriculture, and the environment. The Integrative Biology major can also be tailored for students interested in pursuing careers in healthcare including medicine, dentistry and optometry.

Freshman

Fall	**Hours**	**Spring**	**Hours**
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CHEM 1030 Fundamentals Chemistry I	3	Core History	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1040 Fundamental Chemistry II	3
MATH 1610 Calculus I	4	CHEM 1041 Fundamental Chemistry II Laboratory	1
	15		**14**

Sophomore

Fall	**Hours**	**Spring**	**Hours**
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
Core Social Science[2]	3	Core History Or Literature[1]	3
Core Literature	3	**BIOL 3030 Evolution and Systematics**	**3**

BIOL 3060 Ecology		**4**	**BIOL 3000 Genetics**	**3**
BIOL 2100 Professional Development		1	**BIOL 3001 Genetics Laboratory**	**1**
		15		**14**

Junior

Fall	**Hours**		**Spring**	**Hours**	
PHYS 1500 General Physics I		4	PHYS 1510 General Physics II		4
BCHE 5180 Biochemistry I		3	BCHE 5190 Biochemistry II		3
BCHE 5181 Biochemistry I Laboratory		1	BCHE 5191 Biochemistry II Laboratory		1
Core Social Science[2]		3	Core Humanities		3
BIOL 3100, 3200/3201, 4010, or 4020		**4**	Core Social Science or Humanities		3
			BIOL 4100 Cell Biology		**3**
		15			**17**

Senior

Fall	**Hours**		**Spring**	**Hours**	
Core Fine Arts		3	**Physiology Elective**		**4**
Eco/Evo/Diversity Electives		**6**	**Cell/Mol/Micro Electives**		**7**
Cell/Mol/Micro Electives		**4**	**BIOL 4950 Senior Seminar**		**1**
Biology Elective[4]		**3**	**Biology Elective[4]**		**4**
BIOL 4AA0 Professional Development II		0	UNIV 4AA0 Achieve the Creed[5]		0
		16			**16**

Total Hours: 122

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

2 Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

4 Any BIOL course listed on the Organismal Biology electives list may be used as a Biology elective.

5 This course must be taken the semester of graduation.

Department of Chemistry & Biochemistry

Curriculum in Chemistry – BA

This curriculum provides a strong background in chemistry while allowing students to specialize in areas of interest. It is especially well suited for students leaning towards medical sciences and allows for more flexibility in course selection than the American Chemical Society approved biochemistry curriculum. The program allows for great versatility in the junior and senior years, allowing the curriculum to be tailored to individual goals. The curriculum prepares students for professional careers in chemistry, biochemistry, or forensic chemistry and advanced degree programs in chemistry, biochemistry, and medically related fields.

Curriculum in Chemistry – BS

This American Chemical Society approved curriculum provides a rigorous background in chemistry and is well suited for students who wish to obtain a deep knowledge of all of the traditional subdisciplines of this field: analytical, inorganic, organic, and physical chemistry and biochemistry. The curriculum prepares students for professional careers in chemistry, biochemistry, or forensic chemistry and advanced degree programs in chemistry, biochemistry, and medically related fields.

Curriculum in Biochemistry – BS

This American Chemical Society approved curriculum provides a rigorous background in biochemistry and is well suited for students who wish to obtain a deep knowledge of this field. The curriculum differs from that for BS Chemistry in that it includes biology courses in place of some of the advanced chemistry courses. The curriculum prepares students for professional careers in biochemistry, chemistry, or forensic chemistry and advanced degree programs in biochemistry, chemistry, and medically related fields.

Clinical Laboratory Sciences – BS

The Division of Clinical Laboratory Sciences has two curricula leading to the degree of Bachelor of Science in Medical Laboratory Science or Bachelor of Science in Laboratory Science. Within Laboratory Science, there are 3 additional pre-professional routes for pre-physician assistant, pre-medicine, and histotechnology. These curricula prepare students for laboratory careers in fields such as clinical diagnostics, public health, bacteriology, environmental testing, industrial quality control, research and forensic science. Graduates within the medical laboratory science track will have the opportunity to become an American Society of Clinical Pathology (ASCP) certified medical laboratory scientist after successful completion of a National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) accredited clinical internship and passing the national certifying examination.

Majors

- Chemistry (BA) (p. 1280)
- Chemistry (BA) — Forensics Track (p. 1282)
- Chemistry (BA) — Pre-Professional Concentrations:
  - Pre-Medicine, Pre-Dental, Pre-Optometr (p. 1283)y
- Chemistry (BS) (p. 1286)
  - Biochemistry Option (p. 1284)
- Laboratory Science (p. 1287)
- Laboratory Science - Histotechnology Track (p. 1289)
- Laboratory Science — Pre-professional concentrations in:
  - Laboratory Science - Pre-Medicine (p. 1290)
  - Laboratory Science - Pre-Physician Assistant (p. 1291)
- Medical Laboratory Science (p. 1293)

Minors

- Chemistry (p. 1287)

Biochemistry Courses

BCHE 3180 NUTRITIONAL BIOCHEMISTRY (3) LEC. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077 or CHEM 2080 or CHEM 2087. Fundamental pathways of carbohydrate, lipid, and amino acid metabolism in human beings.

BCHE 3200 PRINCIPLES OF BIOCHEMISTRY (3) LEC. 3. Pr. (BIOL 1010 or BIOL 1020 or BIOL 1030 or BIOL 1027 or BIOL 1037) and (CHEM 2030 or CHEM 2070 or CHEM 2077 or CHEM 2080 or CHEM 2087). Structure and function of biomolecules, enzyme catalysis, processing of genetic information, bioenergetics and metabolism, and regulatory mechanisms in cellular processes.

BCHE 5180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways. Bioenergetics.

BCHE 5181 BIOCHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C BCHE 5180 or P/C CHEM 5180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

BCHE 5190 BIOCHEMISTRY II (3) LEC. 3. Pr. BCHE 5180 or BCHE 6180. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

BCHE 5191 BIOCHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C BCHE 5190 or P/C CHEM 5190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals and bacteria.

BCHE 6180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. Fundamentals of the classification, structure, and reactions of the major constituents of living matter and evaluation of binding phenomena and bioenergetics.

BCHE 6181 BIOCHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C BCHE 6180 or P/C CHEM 6180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

BCHE 6190 BIOCHEMISTRY II (3) LEC. 3. Pr. BCHE 6180. Departmental approval. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

BCHE 6191 BIOCHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 6190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals, and bacteria.

BCHE 7200 ADVANCED BIOCHEMISTRY I (3) LEC. 3. Graduate credit will not be given for both BCHE 6190 and BCHE 7200.

BCHE 7210 ADVANCED BIOCHEMISTRY II (3) LEC. 3. Structure and function of macromolecules participating in the flow of molecular information. Graduate credit will not be given for both BCHE 6180 and BCHE 7210. Or equivalent.

BCHE 7220 PRINCIPLES OF CELLULAR AND MOLECULAR ENZYMOLOGY (3) LEC. 3. Pr. BCHE 6190 or CHEM 6190 or BCHE 7200. Departmental approval. The principles of enzyme chemistry including the physical, chemical, and catalytic properties of enzymes.

BCHE 7230 BIOCHEMISTRY OF MACROMOLECULES (3) LEC. 3. Pr. BCHE 6180 or BCHE 7200. Departmental approval. Advanced study of the structure of protein and nucleic acids: DNA replication, RNA transcription and protein synthesis.

BCHE 7260 BIOINFORMATICS (3) LEC. 3. Pr. BCHE 7210. Departmental approval. Advanced study of main concepts and tools of genomics and proteomics.

BCHE 7270 BIOCHEMICAL RESEARCH TECHNIQUES (3) LEC. 3. Pr. BCHE 6190. Modern biochemical laboratory techniques. Course may be repeated for a maximum of 6 credit hours.

BCHE 7280 TOPICS IN BIOCHEMISTRY (1-3) LEC. Pr. BCHE 7210. Departmental approval. Directed studies in biochemistry. BCHE 7210 or equivalent. Course may be repeated for a maximum of 3 credit hours.

Chemistry Courses

CHEM 1010 SURVEY OF CHEMISTRY I (3) LEC. 3. Science Core. Survey of important topics from general and organic chemistry. Atomic and bonding theory, chemical reactions and stoichiometry, gas laws, solutions, acids and bases, hydrocarbons, alcohols, ethers and amines.

CHEM 1011 SURVEY OF CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1010. Science Core. Laboratory experiments emphasizing course material in CHEM 1010.

CHEM 1020 SURVEY OF CHEMISTRY II (3) LEC. 3. Pr. CHEM 1010. Science Core. Survey of important topics from organic and biochemistry. Aldehydes and ketones, carboxylic acids, carbohydrates, lipids, proteins, enzymes, extracellular fluids, metabolism, nucleic acids, radioactivity.

CHEM 1021 SURVEY OF CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 1020 and CHEM 1011. Science Core. Laboratory experiments emphasizing course material in CHEM 1020.

CHEM 1030 FUNDAMENTALS CHEMISTRY I (3) DSL/LEC. Science Core. Atomic and molecular theory, chemical equations, stoichiometry, gas laws, thermochemistry, bonding, electronic structure, molecular geometries, solids, liquids, properties of solutions, problem-solving techniques. Credit will not be given for both CHEM 1030 and CHEM 1110 or CHEM 1117.

CHEM 1031 FUNDAMENTAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1030 or P/C CHEM 1033. Science Core. Laboratory experiments emphasizing course material in CHEM 1030. Credit will not be given for both CHEM 1031 and CHEM 1111 or CHEM 1118.

CHEM 1040 FUNDAMENTAL CHEMISTRY II (3) LEC. 3. Pr. CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Science Core. Chemical kinetics; chemical equilibrium; acids and bases; calculations of pH; equilibrium constants and thermodynamical properties; electrochemistry; descriptive chemistry. Credit will not be given for both CHEM 1040 and CHEM 1120 or CHEM 1127.

CHEM 1041 FUNDAMENTAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. (P/C CHEM 1040 or P/C CHEM 1043) and (CHEM 1031 or CHEM 1111 or CHEM 1118). Science Core. Laboratory experiments emphasizing course material in CHEM 1040. Credit will not be given for both CHEM 1041 and CHEM 1121 or CHEM 1128.

CHEM 1110 GENERAL CHEMISTRY I (3) LEC. 3. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Science Core. Chemical principles for chemistry and related majors. Atomic and molecular theory, periodicity, chemical reactions, Stoichiometry, gases, thermochemistry, bonding, molecular geometries, liquids, solids, and solutions. Credit will not be given for both CHEM 1110 and CHEM 1030 or CHEM 1117.

CHEM 1111 GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1110 or P/C CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1110. Credit will not be given for both CHEM 1111 and CHEM 1031 or CHEM 1118.

CHEM 1117 HONORS GENERAL CHEMISTRY I (3) LEC. 3. Pr. Honors College. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1110, but covered in more depth. Credit will not be given for both CHEM 1117 and CHEM 1030 or CHEM 1110.

CHEM 1118 HONORS GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. Honors College. CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1117. Credit will not be given for both CHEM 1118 and CHEM 1031 or CHEM 1111.

CHEM 1120 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS II (3) LEC. 3. Pr. CHEM 1110 or CHEM 1117. Science Core. Continuation of CHEM 1110. Chemical kinetics, chemical equilibrium, acids and bases, thermodynamics, electrochemistry, representative element and transition metal chemistry. Credit will not be given for both CHEM 1120 and CHEM 1040 or CHEM 1127.

CHEM 1121 GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. (P/C CHEM 1120 or P/C CHEM 1127) and (CHEM 1111 or CHEM 1118). Science Core. Laboratory experiments emphasizing course material in CHEM 1120. Credit will not be given for both CHEM 1121 and CHEM 1041 or CHEM 1128.

CHEM 1127 HONORS GENERAL CHEMISTRY II (3) LEC. 3. Pr. Honors College. CHEM 1117. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1120, but covered in more depth. Credit will not be given for both CHEM 1127 and CHEM 1040 or CHEM 1120.

CHEM 1128 HONORS GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. Honors College. Science Core. Laboratory experiments emphasizing course material in CHEM 1127. Credit will not be given for both CHEM 1128 and CHEM 1041 or CHEM 1121.

CHEM 2030 SURVEY OF ORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Structure, nomenclature and reactions of the functional group classes of organic compounds polymers, and molecules of biological interest. Credit will not be given for both CHEM 2030 and CHEM 2070.

CHEM 2070 ORGANIC CHEMISTRY I (3) LEC. 3. Pr. CHEM 1040 or CHEM 1043 or CHEM 1120 or CHEM 1127. In-depth study of organic chemistry including structure, nomenclature, reactions, reaction mechanisms, stereochemistry, synthesis and spectroscopic structure determination organized by the functional group approach. Considers alkanes, alkenes, alkynes, alkyl halides, alcohols, ethers, and aromatic compounds. Credit will not be given for both CHEM 2070 and CHEM 2030.

CHEM 2071 ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. (P/C CHEM 2070 or P/C CHEM 2077) and (CHEM 1041 or CHEM 1128 or CHEM 1121). Laboratory for CHEM 2070.

CHEM 2077 HONORS ORGANIC CHEMISTRY I (3) LEC. 3. Pr. Honors College. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2070, but covered in more depth. Additional credit will not be given for CHEM 2070. Member of the Honors College or CHEM 1110 with grade of A or B or CHEM 1040 with grade of A.

CHEM 2078 HONORS ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 2070 or P/C CHEM 2077. Laboratory experiments emphasizing course material in CHEM 2077. Additional credit will not be given for CHEM 2071. Course may be repeated for a maximum of 3 credit hours.

CHEM 2080 ORGANIC CHEMISTRY II (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Continuation of CHEM 2070. Aldehydes, ketones, amines, carboxylic acids, esters, amides, anhydrides, polymers, carbohydrates and amino acids.

CHEM 2081 ORGANIC CHEMISTRY II LABORATORY (1) LAB. 1. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2071 or CHEM 2078) and (P/C CHEM 2080 or P/C CHEM 2087). Laboratory for CHEM 2080.

CHEM 2087 HONORS ORGANIC CHEMISTRY II (3) LEC. 3. Pr. Honors College or departmental approval. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2080, but covered in more depth. Additional credit will not be given for CHEM 2080. Member of the Honors College or CHEM 2077

CHEM 2088 HONORS ORGANIC CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 2080 or P/C CHEM 2087. Laboratory experiments emphasizing course material in CHEM 2087. Additional credit will not be given for CHEM 2081. May count either CHEM 2081 or CHEM 2088. Course may be repeated for a maximum of 3 credit hours.

CHEM 2100 PROFESSIONAL DEVELOPMENT (1) LEC. 1. This course is designed to introduce students to the many opportunities available in chemistry, both as a career choice and while as a student. Students will have the opportunity to investigate available options, will reflect on what career success means to the student, and will chart a pathway to student professional success.

CHEM 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN CHEMISTRY (1-3) LAB. SU. Individual problems course. Students will work under the direction of a staff member on some problem of mutual interest. Departmental approval required. Only Freshman or Sophomore. Course may be repeated for a maximum of 6 credit hours.

CHEM 3000 CHEMICAL LITERATURE (1) LEC. 1. Pr. CHEM 2080 or CHEM 2087. Chemical literature with emphasis on primary and secondary sources and the various computer data bases available.

CHEM 3050 ANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Theory and application of volumetric, potentiometric and photometric chemical analysis.

CHEM 3051 ANALYTICAL CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 3050. Analytical techniques applied to chemical analysis.

CHEM 3160 SURVEY OF PHYSICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127). The principles of physical chemistry.

CHEM 4070 PHYSICAL CHEMISTRY I (3) LEC. 3. Pr. (CHEM 1040 or CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and (MATH 2650 or PHYS 2400) and (PHYS 1610 or PHYS 1617). Principles of chemical thermodynamics, principles of application to problems of chemical interest.

CHEM 4071 PHYSICAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 4070.

CHEM 4080 PHYSICAL CHEMISTRY II (3) LEC. 3. Pr. (CHEM 1040 or CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and (MATH 2650 or PHYS 2400) and (PHYS 1610 or PHYS 1617). Principles of quantum mechanics and spectroscopy; application in molecular structure and in statistical thermodynamics.

CHEM 4081 PHYSICAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 4080. Laboratory for CHEM 4080.

CHEM 4100 INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 4080 or CHEM 3160. Principles of inorganic chemistry emphasizing periodic properties, bonding, structure and symmetry, the solid state, acid-base theory and coordination chemistry.

CHEM 4101 INORGANIC CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 4100. Synthesis and characterization of a variety of inorganic compounds.

CHEM 4110 ORGANOMETALLICS AND CATALYSIS (3) LEC. 3. Pr. CHEM 4100. Departmental approval. Survey of organometallic chemistry and catalysis with main group, transition metal, and f-block elements.

CHEM 4130 INSTRUMENTAL ANALYSIS (3) LEC. 3. Pr. P/C CHEM 3050. Fundamental concepts used in instrumental analytical chemistry emphasizing spectrophotometric, electroanalytical and chromatographic analysis.

CHEM 4131 INSTRUMENTAL ANALYSIS LABORATORY (1) LAB. 3. Pr. P/C CHEM 4130. Laboratory for CHEM 4130.

CHEM 4920 CHEMISTRY INTERNSHIP (3) INT. 12. Departmental approval. Application of chemistry concepts and skills in a professional setting. The course may be repeated for a maximum of 6 credit hours.

CHEM 4950 UNDERGRADUATE SEMINAR (1) LEC. 1. Oral presentation and discussion of research in the area of specialization.

CHEM 4980 UNDERGRADUATE RESEARCH IN CHEMISTRY (3) LAB. 9. Departmental approval. This is an individual problem course. Each student will work under the direction of a staff member on some problem of mutual interest. Course may be repeated for a maximum of 9 credit hours.

CHEM 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Departmental approval. Honors College Members Only; Course may be repeated for a maximum of 6 credit hours.

CHEM 5200 PYTHON PROGRAMMING IN CHEMISTRY (3) LEC. 3. Pr. CHEM 3160 or CHEM 4080. Computer programming in the Python language using specific examples relevant to different branches of chemistry. Emphasizes best practices for collaborative writing, documenting, and validating the program so that it is readable and maintainable.

CHEM 5280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 5450 FOUNDATIONS OF R FOR DBER (3) LEC. 3. R is an open-source statistical software that allows nearly limitless data manipulation, statistical analysis, and advance data visualizations for both the social and physical sciences required for quality research in discipline-based education research (DBER). This course will dedicate approximately one half to learning the basics of coding in R for many common tasks found in DBER (focusing on how to independently find and apply new functions as only a portion of functions can possibly be discussed) and the second half on applying these principles into real data from students' thesis or dissertation (or data can be provided by instructor).

CHEM 6200 PYTHON PROGRAMMING IN CHEMISTRY (3) LEC. 3. Computer programming in the Python language using specific examples relevant to different branches of chemistry. Emphasizes best practices for collaborative writing, documenting, and validating the program so that it is readable and maintainable.

CHEM 6280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 6450 FOUNDATIONS OF R FOR DBER (3) LEC. 3. R is an open-source statistical software that allows nearly limitless data manipulation, statistical analysis, and advance data visualizations for both the social and physical sciences required for quality research in discipline-based education research (DBER). This course will dedicate approximately one half to learning the basics of coding in R for many common tasks found in DBER (focusing on how to independently find and apply new functions as only a portion of functions can possibly be discussed) and the second half on applying these principles into real data from students' thesis or dissertation (or data can be provided by instructor).

CHEM 7100 ADVANCED INORGANIC CHEMISTRY (3) LEC. 3. Departmental approval. Current concepts of inorganic chemistry with an emphasis on theory, structure, bonding and reactivity.

CHEM 7110 PHYSICAL METHODS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Or equivalent. Theory and application of techniques for obtaining information inorganic compounds including magnetism, multinuclear nmr, mass spectrometry, x-ray diffraction, vibrational and electronic spectroscopies.

CHEM 7120 ORGANOMETALLIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Main group and transition metal organometallic chemistry.

CHEM 7160 ADVANCED TOPICS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Currently active research areas in inorganic chemistry. Course may be repeated for a maximum of 12 credit hours.

CHEM 7200 PHYSICAL ORGANIC CHEMISTRY (3) LEC. 3. This course will combine the foundations of undergraduate organic chemistry reactions and add to this the physical properties of chemical reactions as affected by real laboratory applications.

CHEM 7210 STRUCTURE ELUCIDATION OF ORGANIC COMPOUNDS (3) LEC. 3. Pr. CHEM 7200 or CHEM 7220. The early stages of this course will focus on the identification of functional groups, saturated, unsaturated and cyclic compounds using IR and NMR spectroscopy, as well as mass spectrometry. Detailed analyses of 1H NMR spectra, i.e., chemical shift, multiplet shape, and coupling constants will demonstrate the power of these methods in ascertaining atom connectivity in simple organic molecules. More advanced two-dimensional NMR techniques such as COSY, HSQC and HMBC will be discussed and used for determining the structures of more complex organic molecules. The determination of absolute and relative stereochemistry using Mosher ester analyses and NOESY, respectively, in chiral molecules will also be covered. Most of the structures that will be discussed and analyzed will be stereochemically complex systems and polycyclic molecules that require a combination of multiple one-dimensional and two-dimensional NMR techniques.

CHEM 7220 ORGANIC REACTIONS (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2073 or CHEM 2077) and (CHEM 2080 or CHEM 2083 or CHEM 2087). Organic reactions are described in the context of oxidation; reduction; C-C, C-N, C-O bond forming; olefination; aldol (and related) condensations; pericyclic, fragmentation, ring-expansion and ring-contraction reactions; and, named organic reactions and their reaction mechanisms and their application to chemical synthesis. Concurrent enrollment with CHEM 7200 is highly recommended.

CHEM 7230 COMPLEX MOLECULE SYNTHESIS (3) LEC. 3. Pr. CHEM 7220. This class is focused on target-oriented chemical synthesis of complex organic molecules. The main objective is to teach students how to use retrosynthetic analysis, a method for disconnecting a complex molecule into simpler starting materials, as well classical and modern organic reactions to plan syntheses of organic compounds that are biologically relevant and important in the development of better pharmaceuticals. During the course of the semester, students will be introduced to important classes of natural products including terpenes, terpenoids, alkaloids, macrolides, polycyclic ethers, as well as designed molecules that are biologically relevant, but not natural products themselves. Identifying key structural components (i.e., retrons), stereogenic centers, and substructures that can be derived from the chiral pool will be emphasized in synthesis planning. All lecture content will come from the current literature, with only manuscripts published in the past 12 months being discussed in class. Students will be responsible for reading Classics in Total Synthesis on their own and tested on the content of this book as well as assigned current literature in class. Emphasis will be placed on identifying economical and streamlined synthetic protocols that can employ cascade or domino reaction sequences.

CHEM 7260 SPECIAL TOPICS IN ORGANIC CHEMISTRY (1-3) LEC. Pr. CHEM 7200. Advanced course in a research area in organic chemistry which is of mutual interest to graduate students and the instructor. Course may be repeated for a maximum of 6 credit hours.

CHEM 7270 SUPRAMOLECULAR CHEMISTRY: SYNTHESIS, STRUCTURES, AND APPLICATIONS (3) ST1. 3. Pr. CHEM 2080. Supramolecular Chemistry bridges organic, inorganic, surface science, and analytical chemistries. It is a topical area that explores synthesis, spatial organization, weak bonding interactions, hydrogen bonding or covalent bonding, and is interest for numerous industrial or pharmacy applications.

CHEM 7300 ADVANCED PHYSICAL CHEMISTRY (3) LEC. 3. Topics of general and current interest; may vary from year to year.

CHEM 7330 CHEMICAL KINETICS (3) LEC. 3. Theoretical and experimental aspects of reaction rates. The mathematics and characterization of chemically reacting systems.

CHEM 7350 QUANTUM AND STATISTICAL MECHANICS (3) LEC. 3. Pr. CHEM 7300. A quantum mechanical and statistical approach to molecular structure and chemistry.

CHEM 7370 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (1-3) LEC. 3. Pr. CHEM 7300. Modern topics in advanced physical chemistry. Course may be repeated for a maximum of 3 credit hours.

CHEM 7380 MOLECULAR SPECTROSCOPY (3) LEC. 3. Pr. CHEM 7300. Theory and application of optical and magnetic resonance spectroscopy.

CHEM 7410 A DBER APPROACH TO TEACHING AND LEARNING IN CHEMISTRY (3) LEC. 3. Pr. CHEM 1030 and CHEM 1040. Discipline-based education research (DBER) theory andtrends, consuming and evaluating DBER research, activelearning in advanced chemistry topics, action research,review of pedagogical tools, assessment. This coursewill be of use to chemistry graduate students aimingfor careers in academia, masters education studentslooking to take a chemistry course for the fulfillmentof their degree requirements, and other fields that wantto know more about evaluating and critiquing current DBERliterature and methods.

CHEM 7500 ADVANCED ANALYTICAL CHEMISTRY (3) LEC. 3. Analytical principles, applications and methods, mathematical interpretations and current developments.

CHEM 7510 ELECTROANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical applications of electrochemistry.

CHEM 7530 ADVANCES IN BIOANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical Chemistry of microfluidic devices and "Lab on a chip." New methods of miniaturization of separations and analysis with emphasis on bioanalytical applications.

CHEM 7540 FLUORESCENCE IN BIOANALYTICAL CHEMISTRY: SPECTROSCOPY AND IMAGING (3) LEC. 3. Pr. CHEM 7500. Modern fluorescence-based bioanalytical methods as well as an advanced study of related literature. Standard approaches such as biosensors, nucleic acid analysis will be covered, as well as modern techniques such as Fluorescence microscopy, FRET, immunoassays, ELISAs and single-molecule detection.

CHEM 7550 PHOTO AND ELECTROCHEMISTRY (3) ST1. The course offers a simultaneous and comprehensive treatment of photochemistry and electrochemistry.

CHEM 7560 MASS SPECTROMETRY: INSTRUMENTATION AND APPLICATIONS (3) LEC. 3. Departmental approval. Several notable developments in mass spectrometry instrumentation platforms have been introduced which has led to significant increase in their implementations to various research and clinical applications. Learning about the fundamental principles of these instrumentation platforms will guide the users in selecting the correct instrument for a specific application. This course is designed to offer such an approach.

CHEM 7610 BIOCHEMISTRY AND BIOPHYSICS TECHNIQUES (3) LEC. 3. Fundamental concepts in biochemistry, molecular microbiology, and principles of physics will be introduced. This will be followed by presentations on the theory and practical application of common biophysical techniques. The techniques discussed will include, but will not be limited to: Raman, NMR, and Mass Spectrometry of biological molecules, X-ray Diffraction, Ion Mobility, Fluorescence Microscopy, Single-Molecule Approaches, EM/Cryo-EM, and Nano-particle techniques.

CHEM 7750 FORMAL PRESENTATIONS IN MODERN CHEMISTRY (1) LEC. 1. Oral presentations skills will be developed with a focus on the dissemination of new discoveries in the field of Chemistry. Course may be repeated for a maximum of 6 credit hours.

CHEM 7930 DIRECTED INDIVIDUAL STUDY (1-15) IND. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.

CHEM 7950 SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CHEM 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CHEM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Laboratory Science Courses

LBSC 2010 BASICS IN LABORATORY SCIENCE (2) LEC. 1. LAB. 1. Basic laboratory skills, quality control and assurance, standard precautions for biohazard testing; requirements for careers in medical and laboratory science.

LBSC 4010 HEMATOLOGY (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Origin, maturation, morphology, and function of normal blood cells and abnormalities in diseased blood with clinical correlation to disease processes.

LBSC 4011 HEMATOLOGY LAB (2) LAB. 6. Pr. (CHEM 2070 or CHEM 2077) and P/C LBSC 4010 and P/C LBSC 2010. Lab portion of course covering origin, maturation, morphology, and function of normal blood cells and abnormalities in disease blood with clinical correlation to disease processes.

LBSC 4050 CLINICAL IMMUNOHEMATOLOGY/PARASITOLOGY (5) LEC. 3. LAB. 6. Pr. (CHEM 2070 or CHEM 2077) and (BIOL 1020 or BIOL 1027). Immunogenetics, clinical significance of blood group antigens and antibodies, theory and techniques of serological study of human blood groups. Human parasites, life cycles and disease processes.

LBSC 4250 CLINICAL BIOCHEMISTRY/INSTRUMENTATION (4) LEC. 3. LAB. 3. Pr. P/C BCHE 5180 or P/C BCHE 3200. Biochemistry/physiology of systems in the body of elements in body fluids during the normal and abnormal processes. Theoretical and practical application of Lab techniques, atomic absorption, gaschromatograph-FID, HPLC, spectroscopy, spectrophotometry, ion selective electrodes and RIA used in analysis of body fluids.

LBSC 4910 CLINICAL PRACTICUM (0) PRA.

LBSC 4920 CLINICAL INTERNSHIP (0) INT/PRA.

BA Chemistry (CHMA)

This curriculum provides a strong background in chemistry while allowing students to specialize in areas of interest. It is especially well suited for students leaning towards medical sciences while allowing more flexibility than that allowed in the American Chemical Society approved biochemistry curriculum. The program allows for great versatility in the junior and senior years, allowing the curriculum to be tailored to individual goals. The curriculum prepares students for professional careers in chemistry or biochemistry and advanced degree programs in chemistry, biochemistry and medically related fields.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
CHEM 1110 General Chemistry I[1]	**3**	**CHEM 1120 General Chemistry for Scientists and Engineers II**[1]	**3**
CHEM 1111 General Chemistry I Laboratory	**1**	**CHEM 1121 General Chemistry II Laboratory**	**1**
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
SCMH 1950 COSAM Major and Career Exploration	1		
	16		**15**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	**3**	**CHEM 2080 Organic Chemistry II**	**3**
CHEM 2071 Organic Chemistry I Laboratory	**1**	**CHEM 2081 Organic Chemistry II Laboratory**	**1**
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
CHEM 3050 Analytical Chemistry	**3**	Core History	3
CHEM 3051 Analytical Chemistry Laboratory	**1**	COMM 1000 Public Speaking	3
Elective	4		
	16		**14**

Junior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**CHEM 3000 Chemical Literature**	**1**
BCHE 5181 Biochemistry I Laboratory	**1**	Foreign Language	4
CHEM 3160 Survey of Physical Chemistry	**3**	Core Social Science	3
Foreign Language	4	Core Fine Arts	3
Core Literature	3	Elective	3
	14		**14**

Senior

Fall	Hours	Spring	Hours
CHEM ELEC Chemistry Elective[2]	4	**CHEM Elective**[2]	**3**
Core History or Literature[3]	3	Core Social Science or Humanities[4]	3
Core Social Science	3	Elective	9
Elective	6	UNIV 4AA0 Achieve the Creed[5]	0
	16		**15**

Total Hours: 120

1 CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2 Approved CHEM Electives include: BCHE 5190, BCHE 5191, CHEM 4100, CHEM 4101, CHEM 4110, CHEM 4130, CHEM 4131, CHEM 4920, or CHEM 4980. A maximum of 3 hours of CHEM 4920 or CHEM 4980 may be counted as a CHEM elective. Additional hours may be used as general elective.

[3] Students must complete a sequence of EITHER History or Literature to graduate. Please select the second half of EITHER the History or Literature sequence that you began.

[4] If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.

[5] This course must be taken the semester of graduation.

BA Chemistry (CHMA): Forensics Track

The BA Chemistry (CHMA) curriculum provides a strong background in chemistry while allowing students to specialize in areas of interest. For the Forensics Track within CHMA, the courses prescribed emerged from discussions with professionals in the field (e.g., Alabama Department of Forensic Science [ADFS]). Within a solid background in the fundamentals of chemistry, robust knowledge of analytical chemistry, instrumental analysis, etc. are particularly valuable. The Forensic Track includes these emphases. The CHMA curriculum also affords the flexibility to choose from a wide variety of professional electives like Criminology (SOCY 3000), Judicial Process (POLI 3320), etc. Finally, the Forensic Track enables students to take Chemistry Internship (CHEM 4920) in their program of study to engage with a facility like the ADFS.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
CHEM 1110 General Chemistry I[1]	**3**	**CHEM 1120 General Chemistry for Scientists and Engineers II[1]**	**3**
CHEM 1111 General Chemistry I Laboratory	**1**	**CHEM 1121 General Chemistry II Laboratory**	**1**
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
SCMH 1950 COSAM Major and Career Exploration	1		
	16		**15**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	**3**	**CHEM 2080 Organic Chemistry II**	**3**
CHEM 2071 Organic Chemistry I Laboratory	**1**	**CHEM 2081 Organic Chemistry II Laboratory**	**1**
PHYS 1500 General Physics I[2]	4	PHYS 1510 General Physics II[2]	4
CHEM 3050 Analytical Chemistry	**3**	CORE HISTORY	3
CHEM 3051 Analytical Chemistry Laboratory	**1**	COMM 1000 Public Speaking	3
CORE FINE ARTS	3	CORE SOCIAL SCI or HUM[4]	3
	15		**17**

Junior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**CHEM 3000 Chemical Literature**	**1**
BCHE 5181 Biochemistry I Laboratory	**1**	Foreign Language	4
CHEM 3160 Survey of Physical Chemistry	**3**	CORE SOCIAL SCIENCE	3
Foreign Language	4	BIOL 3000 Genetics	3
CORE LITERATURE	3	STAT 2510 Statistics for Biological and Health Sciences	3
	14		**14**

Senior

Fall	Hours	Spring	Hours
CHEM Elective[3]	**3**	**CHEM 4130 Instrumental Analysis**	**3**
CORE HISTORY or LITERATURE[4]	3	**CHEM 4131 Instrumental Analysis Laboratory**	**1**
CORE SOCIAL SCIENCE	3	Professional Electives [3]	3
Professional Electives [3]	3	Elective	7
Elective	3	UNIV 4AA0 Achieve the Creed[5]	0
	15		**14**

Total Hours: 120

1 CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2 PHYS 1600/PHYS 1610 can count in place of PHYS 1500/PHYS 1510 if the student chooses to take the calculus-based physics.

3 See advisor for approved CHEM Electives and Professional Electives.

4 If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.

BA Chemistry — Pre-Med (MCHA), Pre-Den (DCHA), Pre-Opt (OCHA)

The BA Chemistry (CHMA) curriculum provides a strong background in chemistry while allowing students to specialize in areas of interest. For the Pre-Medicine (MCHA), Pre-Dentistry (DCHA), and Pre-Optometry (OCHA) options, a robust curriculum in general, organic, analytical, and biochemistry is complemented with courses in microbiology, genetics, and the flexibility to choose from a wide array of electives that prepare students for entrance into health professional schools.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
CHEM 1110 General Chemistry I[1]	3	CHEM 1120 General Chemistry for Scientists and Engineers II[1]	3
CHEM 1111 General Chemistry I Laboratory	1	CHEM 1121 General Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
SCMH 1890 Pre-Health Professions Orientation	1		
	16		**15**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
CHEM 3050 Analytical Chemistry	3	Core History	3
CHEM 3051 Analytical Chemistry Laboratory	1	BIOL 3000 Genetics	3
COMM 1000 Public Speaking	3	BIOL 3001 General Genetics Laboratory	1
	15		**15**

Junior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	3	CHEM 3000 Chemical Literature	1
BCHE 5181 Biochemistry I Laboratory	1	Foreign Language	4
CHEM 3160 Survey of Physical Chemistry	3	CORE SOCIAL SCIENCE[1]	3
Foreign Language	4	CORE FINE ARTS	3
Core Literature	3	BIOL 3200 General Microbiology	3
		BIOL 3201 General Microbiology Laboratory	1
	14		**15**

Senior

Fall	Hours	Spring	Hours
BCHE 5190 Biochemistry II	3	CHEM Elective[3]	3
BCHE 5191 Biochemistry II Laboratory	1	Core Social Science or Humanities[4]	3
Core History or Literature[3]	3	CORE HUMANITIES	3
CORE SOCIAL SCIENCE[1]	3	Elective	5
Elective	6	UNIV 4AA0 Achieve the Creed	0
	16		**14**

Total Hours: 120

Long range schedules for COSAM courses are online at www.auburn.edu/cosam/students/

Courses in BOLD will be used to calculate GPA in major.

Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.

1 CHEM 1030/1031 and 1040/1041 sequence can substitute for CHEM 1110/1111 and 1120/1121. See advisor for details.
2 CHEM Electives are defined as any CHEM course 3000-level and above. A maximum of 3 hours of CHEM 4980 may be counted as a CHEM elective. Additional hours may be used as general elective.
3 Students must complete a sequence of EITHER History or Literature to graduate. Please select the second half of EITHER the History or Literature sequence that you began.
4 If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.
5 This course must be taken the semester of graduation.

Biochemistry (BCHM)

This American Chemical Society approved curriculum provides a rigorous background in biochemistry with a solid foundation in analytical, organic, and physical chemistry. It is well suited for students who wish to obtain a deep knowledge of the chemistry of life. The curriculum differs from that for BS Chemistry in that it includes biology courses in place of some of the advanced chemistry courses. The curriculum prepares students for professional careers in biochemistry, chemistry, medicinal chemistry, biotechnology, or forensic chemistry. The degree also prepares students to enter advanced degree programs in biochemistry, chemistry, molecular biology, cell biology, genetics, and medically related fields.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
CHEM 1110 General Chemistry I[1]	**3**	**CHEM 1120 General Chemistry for Scientists and Engineers II[1]**	**3**

CHEM 1111 General Chemistry I Laboratory		**1**	**CHEM 1121 General Chemistry II Laboratory**	**1**
Core History		3	**BIOL 1020 Principles of Biology**	**3**
			BIOL 1021 Principles of Biology Laboratory	**1**
		14		**15**

Sophomore

Fall	Hours		Spring	Hours
CHEM 2070 Organic Chemistry I		**3**	**CHEM 2080 Organic Chemistry II**	**3**
CHEM 2071 Organic Chemistry I Laboratory		**1**	**CHEM 2081 Organic Chemistry II Laboratory**	**1**
PHYS 1600 Engineering Physics I		4	PHYS 1610 Engineering Physics II	4
MATH 2630 Calculus III		4	MATH 2650 Linear Differential Equations ***or*** PHYS 2400 Mathematical and Computational Methods of Physics	3
CHEM 3050 Analytical Chemistry		**3**	Core Humanities	3
CHEM 3051 Analytical Chemistry Laboratory		**1**		
		16		**14**

Junior

Fall	Hours		Spring	Hours
CHEM 4070 Physical Chemistry I		**3**	**CHEM 4080 Physical Chemistry II**	**3**
CHEM 4071 Physical Chemistry I Laboratory		**1**	**CHEM 4081 Physical Chemistry II Laboratory**	**1**
BIOL 3200 General Microbiology		3	Core Literature	3
BIOL 3201 General Microbiology Laboratory		1	**BCHE 5190 Biochemistry II**	**3**
BCHE 5180 Biochemistry I		**3**	**BCHE 5191 Biochemistry II Laboratory**	**1**
BCHE 5181 Biochemistry I Laboratory		**1**	**CHEM 3000 Chemical Literature**	**1**
Elective		3	BIOL 3000 Genetics	3
			BIOL 3001 General Genetics Laboratory	1
		15		**16**

Senior

Fall	Hours		Spring	Hours
CHEM 4100 Inorganic Chemistry		**3**	**CHEM 4130 Instrumental Analysis**	**3**
CHEM 4101 Inorganic Chemistry Laboratory		**1**	**CHEM 4131 Instrumental Analysis Laboratory**	**1**
CHEM 4950 Undergraduate Seminar		**1**	Core Fine Arts	3
CHEM 4980 Undergraduate Research in Chemistry *or* 4920 Chemistry Internship[2]		**3**	Core Social Science or Humanities[4]	3
Core History or Literature[3]		3	Core Social Science[1]	3
Core Social Science[1]		3	Elective	3
			UNIV 4AA0 Achieve the Creed[5]	0
		14		**16**

Total Hours: 120

1 CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2 May take more CHEM 4920 or CHEM 4980 as additional elective hours.

3 Students must complete a sequence of EITHER History or Literature to graduate. Please select the second half of EITHER the History or Literature sequence that you began.

4 If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.

5 This course must be taken the semester of graduation.

Chemistry (CHEM)

This American Chemical Society approved curriculum provides a rigorous background in chemistry and is well suited for students who wish to obtain a deep knowledge of all of the traditional subdisciplines of this field: analytical, inorganic, organic, and physical chemistry and biochemistry. The curriculum prepares students for professional careers in chemistry, biochemistry, or forensic chemistry and advanced degree programs in chemistry, biochemistry, and medically related fields.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	MATH 1620 Calculus II	4
CHEM 1110 General Chemistry I[1]	**3**	**CHEM 1120 General Chemistry for Scientists and Engineers II**[1]	**3**
CHEM 1111 General Chemistry I Laboratory	**1**	**CHEM 1121 General Chemistry II Laboratory**	**1**
Core History	3	Core Social Science	3
SCMH 1950 COSAM Major and Career Exploration	1		
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	**3**	**CHEM 2080 Organic Chemistry II**	**3**
CHEM 2071 Organic Chemistry I Laboratory	**1**	**CHEM 2081 Organic Chemistry II Laboratory**	**1**
MATH 2630 Calculus III	4	MATH 2650 Linear Differential Equations ***or*** PHYS 2400 Mathematical and Computational Methods of Physics	3
PHYS 1600 Engineering Physics I	4	PHYS 1610 Engineering Physics II	4
CHEM 3050 Analytical Chemistry	**3**	Core Literature	3
CHEM 3051 Analytical Chemistry Laboratory	**1**	Elective	1
	16		**15**

Junior

Fall	Hours	Spring	Hours
CHEM 4070 Physical Chemistry I	**3**	**CHEM 4080 Physical Chemistry II**	**3**
CHEM 4071 Physical Chemistry I Laboratory	**1**	**CHEM 4081 Physical Chemistry II Laboratory**	**1**
BCHE 5180 Biochemistry I	**3**	Core Social Science	3
BCHE 5181 Biochemistry I Laboratory	**1**	**BCHE 5190 Biochemistry II**	**3**
MATH 2660 Topics in Linear Algebra	3	**BCHE 5191 Biochemistry II Laboratory**	**1**
Elective	3	**CHEM 3000 Chemical Literature**	**1**
		Core History or Literature[2]	3
	14		**15**

Senior

Fall	Hours	Spring	Hours
CHEM 4100 Inorganic Chemistry	**3**	**CHEM 4110 Organometallics and Catalysis**	**3**

CHEM 4101 Inorganic Chemistry Laboratory	**1**	**CHEM 4980 Undergraduate Research in Chemistry *or* 4920 Chemistry Internship**[4]	**3**
CHEM 5280 Computational Chemistry	**4**	Core Humanities	3
Core Fine Arts	3	**CHEM 4950 Undergraduate Seminar**	**1**
Core Social Science or Humanities[3]	3	**CHEM 4130 Instrumental Analysis**	**3**
Elective	3	**CHEM 4131 Instrumental Analysis Laboratory**	**1**
		UNIV 4AA0 Achieve the Creed[5]	0
	17		**14**

Total Hours: 120

1 CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2 Students must complete a sequence of EITHER History or Literature to graduate. Please select the second half of EITHER the History or Literature sequence that you began.

3 If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.

4 May take more CHEM 4920 or CHEM 4980 as additional elective hours.

5 This course must be taken the semester of graduation.

Chemistry Minor

Students must complete seventeen hours of coursework, with nine of these hours at the 3000-level and above. In order to enroll in these courses, students must first complete CHEM 1030/1031 (OR CHEM 1110/1111) and CHEM 1040/1041 (OR CHEM 1120/1121), as pre-requisites for the upper level courses.

Honors coursework will be accepted (examples: CHEM 2077/2078, and contracted BCHE 6180/6190)

Code	Title	Hours
CHEM 2070	Organic Chemistry I	3
CHEM 2071	Organic Chemistry I Laboratory	1
CHEM 2080	Organic Chemistry II	3
CHEM 2081	Organic Chemistry II Laboratory	1
Nine hours of CHEM credit at the 3000-level or higher (BCHE 5180 and BCHE 5190 may count)	Maximum 3 hours of CHEM 4980 can be used	9
Total Hours		**17**

Laboratory Science (LBSC)

This curriculum prepares students for laboratory careers in fields such as public health, bacteriology, environmental testing, industrial quality control, research, non-diagnostic laboratory testing, and forensic science. This program allows for great versatility in the junior or senior years, allowing the curriculum to be tailored to individual goals. Concentration tracks are offered for Pre-Medicine, Pre-Physician Assistant, and Histotechnology. Graduates may choose to pursue an accredited clinical internship to qualify for Medical Laboratory Scientist certification.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	BIOL 1020 Principles of Biology	3
CHEM 1110 General Chemistry I[1]	**3**	BIOL 1021 Principles of Biology Laboratory	1

CHEM 1111 General Chemistry I Laboratory	**1**	**CHEM 1120 General Chemistry for Scientists and Engineers II**[1]	**3**
Core History	3	**CHEM 1121 General Chemistry II Laboratory**	**1**
PHIL 1030 Ethics and the Health Sciences	3	Core Social Science or Humanities[2]	3
	17		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	**3**	**CHEM 2080 Organic Chemistry II**	**3**
CHEM 2071 Organic Chemistry I Laboratory	**1**	**CHEM 2081 Organic Chemistry II Laboratory**	**1**
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
STAT 2510 Statistics for Biological and Health Sciences	3	**BIOL 3200 General Microbiology**	**3**
LBSC 2010 Basics in Laboratory Science	**2**	**BIOL 3201 General Microbiology Laboratory**	**1**
Core Literature	3	Core History or Literature[3]	3
	16		**15**

Junior

Fall	Hours	Spring	Hours
BIOL 5200 Clinical Microbiology	5	**CHEM 3050 Analytical Chemistry**	**3**
BIOL 3000 Genetics	3	**CHEM 3051 Analytical Chemistry Laboratory**	**1**
BIOL 3001 General Genetics Laboratory	1	**BIOL 5500 Immunology**	**3**
LBSC 4010 Hematology	**3**	Core Fine Arts	3
LBSC 4011 Hematology Lab	**2**	Core Social Science	3
	14		**13**

Senior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**LBSC 4250 Clinical Biochemistry/Instrumentation**	**4**
BCHE 5181 Biochemistry I Laboratory	**1**	**LBSC 4050 Clinical Immunohematology/ Parasitology**	**5**
Technical Elective[4]	6	Technical Elective[4]	3
Core Social Science	3	Elective	3
Elective	3	UNIV 4AA0 Achieve the Creed[5]	0
	16		**15**

Total Hours: 120

1 CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2 If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.

3 Students must complete a sequence of EITHER History or Literature to graduate. Please select the second half of EITHER the History or Literature sequence that you began.

4 See advisor for approved list of Tech Electives.

5 This course must be taken the semester of graduation.

Laboratory Science (LBSC) - Histotechnology Track

This curriculum prepares students for laboratory careers in fields such as public health, bacteriology, environmental testing, industrial quality control, research, non-diagnostic laboratory testing, and forensic science. This concentration prepares students to work in diagnostic histology labs. Upon degree conferral, graduates are able to gain employment through East Alabama Healthcare to receive clinical experience required for the Histotechnologist (HT) certification through Americal Society for Clinical Pathology (ASCP).

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	BIOL 1020 Principles of Biology	3
CHEM 1110 General Chemistry I[1]	**3**	BIOL 1021 Principles of Biology Laboratory	1
CHEM 1111 General Chemistry I Laboratory	**1**	**CHEM 1120 General Chemistry for Scientists and Engineers II**[1]	**3**
Core History	3	**CHEM 1121 General Chemistry II Laboratory**	**1**
PHIL 1030 Ethics and the Health Sciences	3	Core Social Science or Humanities[2]	3
	17		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	**3**	**CHEM 2080 Organic Chemistry II**	**3**
CHEM 2071 Organic Chemistry I Laboratory	**1**	**CHEM 2081 Organic Chemistry II Laboratory**	**1**
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
STAT 2510 Statistics for Biological and Health Sciences	3	**BIOL 3200 General Microbiology**	**3**
LBSC 2010 Basics in Laboratory Science	**2**	**BIOL 3201 General Microbiology Laboratory**	**1**
Core Literature	3	Core History or Literature[3]	3
	16		**15**

Junior

Fall	Hours	Spring	Hours
BIOL 5200 Clinical Microbiology	5	**CHEM 3050 Analytical Chemistry**	**3**
BIOL 3000 Genetics	3	**CHEM 3051 Analytical Chemistry Laboratory**	**1**
BIOL 3001 General Genetics Laboratory	1	**BIOL 5500 Immunology**	**3**
LBSC 4010 Hematology	**3**	Core Fine Arts	3
LBSC 4011 Hematology Lab	**2**	Core Social Science	3
	14		**13**

Senior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**LBSC 4250 Clinical Biochemistry/Instrumentation**	**4**
BCHE 5181 Biochemistry I Laboratory	**1**	**LBSC 4050 Clinical Immunohematology/ Parasitology**	**5**
BIOL 4000 Histology	3	Technical Elective[4]	3
BIOL 4001 Histology Laboratory	1	Elective	3

Technical Elective[4]	2	UNIV 4AA0 Achieve the Creed[5]	0
Core Social Science	3		
Elective	3		
	16		**15**

Total Hours: 120

1 CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2 If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.

3 Students must complete a sequence of EITHER History or Literature to graduate. Please select the second half of EITHER the History or Literature sequence that you began.

4 See advisor for approved list of Tech Electives.

5 This course must be taken the semester of graduation.

Laboratory Science — Pre-Medicine (MLBS)

This curriculum prepares students for laboratory careers in fields such as public health, bacteriology, environmental testing, industrial quality control, research, non-diagnostic laboratory testing, and forensic science. This concentration additionally prepares students for Medical School and a career in healthcare.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	BIOL 1020 Principles of Biology	3
CHEM 1110 General Chemistry I[1]	**3**	BIOL 1021 Principles of Biology Laboratory	1
CHEM 1111 General Chemistry I Laboratory	**1**	**CHEM 1120 General Chemistry for Scientists and Engineers II[1]**	**3**
CORE HISTORY	3	**CHEM 1121 General Chemistry II Laboratory**	**1**
PHIL 1030 Ethics and the Health Sciences	3	CORE SOCIAL SCIENCE[2]	3
	17		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	**3**	**CHEM 2080 Organic Chemistry II**	**3**
CHEM 2071 Organic Chemistry I Laboratory	**1**	**CHEM 2081 Organic Chemistry II Laboratory**	**1**
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
STAT 2510 Statistics for Biological and Health Sciences	3	**BIOL 3200 General Microbiology**	**3**
LBSC 2010 Basics in Laboratory Science	**2**	**BIOL 3201 General Microbiology Laboratory**	**1**
		CORE LITERATURE	3
	13		**15**

Junior

Fall	Hours	Spring	Hours
CORE HISTORY or LITERATURE[2]	3	**CHEM 3050 Analytical Chemistry**	**3**
BIOL 1030 Organismal Biology	3	**CHEM 3051 Analytical Chemistry Laboratory**	**1**
BIOL 1031 Organismal Biology Laboratory	1	PHYS 1510 General Physics II	4
PHYS 1500 General Physics I	4	BIOL 3000 Genetics	3
LBSC 4010 Hematology	**3**	BIOL 3001 General Genetics Laboratory	1
LBSC 4011 Hematology Lab	**2**	Elective	3
	16		**15**

Senior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**LBSC 4250 Clinical Biochemistry/Instrumentation**	**4**
BCHE 5181 Biochemistry I Laboratory	**1**	**LBSC 4050 Clinical Immunohematology/ Parasitology**	**5**
BIOL 5200 Clinical Microbiology	5	**BIOL 5500 Immunology**	**3**
CORE SOCIAL SCI or HUM[2]	3	CORE SOCIAL SCIENCE	3
CORE FINE ARTS	3	UNIV 4AA0 Achieve the Creed[3]	0
	15		**15**

Total Hours: 120

Courses in **BOLD** will be used to calculate GPA in major.

Options for courses labeled CORE are in the Auburn University Bulletin under Core Curriculum.

1 CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2 If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.

3 This course must be taken the semester of graduation.

Laboratory Science — Pre-Physician Assistant (ALBS)

This curriculum prepares students for laboratory careers in fields such as public health, bacteriology, environmental testing, industrial quality control, research, non-diagnostic laboratory testing, and forensic science. This concentration additionally prepares students for Physician Assistant programs and a career in healthcare.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	BIOL 1020 Principles of Biology	3
CHEM 1110 General Chemistry I[1]	**3**	BIOL 1021 Principles of Biology Laboratory	1
CHEM 1111 General Chemistry I Laboratory	**1**	**CHEM 1120 General Chemistry for Scientists and Engineers II[1]**	**3**
CORE HISTORY	3	**CHEM 1121 General Chemistry II Laboratory**	**1**
PHIL 1030 Ethics and the Health Sciences	3	CORE SOCIAL SCI OR HUM[2]	3
	17		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	**3**	**CHEM 2080 Organic Chemistry II**	**3**
CHEM 2071 Organic Chemistry I Laboratory	**1**	**CHEM 2081 Organic Chemistry II Laboratory**	**1**
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
STAT 2510 Statistics for Biological and Health Sciences	3	**BIOL 3200 General Microbiology**	**3**
CORE LITERATURE	3	**BIOL 3201 General Microbiology Laboratory**	**1**
LBSC 2010 Basics in Laboratory Science	**2**	CORE HISTORY or LITERATURE[2]	3
	16		**15**

Junior

Fall	Hours	Spring	Hours
BIOL 5200 Clinical Microbiology	5	**CHEM 3050 Analytical Chemistry**	**3**
BIOL 3000 Genetics	3	**CHEM 3051 Analytical Chemistry Laboratory**	**1**
BIOL 3001 General Genetics Laboratory	1	**BIOL 5500 Immunology**	**3**
LBSC 4010 Hematology	**3**	CORE FINE ARTS	3
LBSC 4011 Hematology Lab	**2**	CORE SOCIAL SCIENCE	3
PSYC Elective	3		
	17		**13**

Senior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**LBSC 4250 Clinical Biochemistry/Instrumentation**	**4**
BCHE 5181 Biochemistry I Laboratory	**1**	**LBSC 4050 Clinical Immunohematology/ Parasitology**	**5**
HADM 2100/KINE 3000 Medical Terminology ***or*** KINE 3000 Medical Terminology for Allied Health Professions	3	Technical Elective[3]	3
CORE SOCIAL SCIENCE	3	Elective	3
Elective	3	UNIV 4AA0 Achieve the Creed[4]	0
	13		**15**

Total Hours: 120

1 CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2 If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.

3 See advisor for approved list of Tech Electives.

4 This course must be taken the semester of graduation.

Medical Laboratory Science (MLSC)

This curriculum prepares students to work in clinical diagnostics along with other laboratory fields such as public health, bacteriology, environmental testing, industrial quality control, research, and forensic science. Graduates within the medical laboratory science track will have the opportunity to become an American Society of Clinical Pathology (ASCP) certified Medical Laboratory Scientist.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	BIOL 1020 Principles of Biology	3
CHEM 1110 General Chemistry I[1]	**3**	BIOL 1021 Principles of Biology Laboratory	1
CHEM 1111 General Chemistry I Laboratory	**1**	**CHEM 1120 General Chemistry for Scientists and Engineers II**[1]	**3**
Core History	3	**CHEM 1121 General Chemistry II Laboratory**	**1**
PHIL 1030 Ethics and the Health Sciences	3	Core Social Science or Humanities[2]	3
	17		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	**3**	**CHEM 2080 Organic Chemistry II**	**3**
CHEM 2071 Organic Chemistry I Laboratory	**1**	**CHEM 2081 Organic Chemistry II Laboratory**	**1**
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3
BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
STAT 2510 Statistics for Biological and Health Sciences	3	BIOL 3000 Genetics	3
Core Literature	3	BIOL 3001 General Genetics Laboratory	1
LBSC 2010 Basics in Laboratory Science	**2**	Core History or Literature[3]	3
	16		**15**

Junior

Fall	Hours	Spring	Hours
BIOL 3200 General Microbiology	**3**	**LBSC 4250 Clinical Biochemistry/ Instrumentation**[4]	**4**
BIOL 3201 General Microbiology Laboratory	**1**	**LBSC 4050 Clinical Immunohematology/ Parasitology**	**5**
BCHE 5180 Biochemistry I	**3**	**BIOL 5500 Immunology**	**3**
LBSC 4010 Hematology	**3**	Elective	3
LBSC 4011 Hematology Lab	**2**		
Core Fine Arts	3		
	15		**15**

Senior

Fall	Hours
BIOL 5200 Clinical Microbiology	**5**
Core Social Science	3
Core Social Science	3

Elective	3
	14

Professional Year

Fall	**Hours**
Degree is granted upon successful completion of a clinical internship at a NAACLS-approved school of Clinical Laboratory Sciences (Medical Laboratory Sciences) affiliated with Auburn University.	
Clinical Internship	22
UNIV 4AA0 Achieve the Creed	0
	22

Total Hours: 128

1 CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2 If a second LITERATURE sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a second HISTORY sequence is chosen, this course must be a CORE HUMANITIES.

3 Students must complete a sequence of EITHER History or Literature to graduate. Please select the second half of EITHER the History or Literature sequence that you began.

4 CHEM 3050+CHEM 3051 can substitute for LBSC 4250.

Department of Geosciences

The curriculum in geology provides a background in the geosciences and opportunity to specialize in an area of interest (i.e., environmental geology, paleontology) through elective major or related courses. It is designed for those interested in preparation for graduate studies or employment in the field of geology.

The curriculum in geography and environmental studies promotes geographic literacy as an indispensable element in any educational program. It focuses on spatial relationships and the view of the Earth as the home of humankind. Geography readies students for careers in public services, consulting companies, state or federal agencies, utilities and other professions, as well as for graduate studies in geography.

Majors

- Geography and Environmental Studies (p. 1303)
- Geology (p. 1304)
- Geology — Earth System Science Option (p. 1306)

Minors

- Geography (p. 1304)
- Geology (p. 1306)

Undergraduate Certificates

- Geographic Information Systems (GIS) (p. 1302)

Geography Courses

GEOG 1000 INTRODUCTION TO GEOGRAPHY (1) LEC. 1. LAB. 0, LEC. 0. Introduction to fundamental concepts and major fields of study in geography

GEOG 1010 GLOBAL GEOGRAPHY (3) LEC. 3. Social Science I Core. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 1017 HONORS GLOBAL GEOGRAPHY (3) LEC. 3. Pr. Honors College. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 1020 GLOBAL SYSTEMS WEATHER/CLIMATE (4) DSL/LLB. The ‘Weather and Climate’ GS course will teach students the difference between weather and climate. They will evaluate the effect of weather on the food we eat, where we live, what we wear and the science behind climate change. This course will identify and describe Earth’s physical systems and make connections between them.

GEOG 1030 GLOBAL SYSTEMS LAND/WATER (4) DSL/LLB. The ‘Land and Water’ Global Systems course will compare the modification of land and water resources due to human interventions and weather anomalies over time. It will highlight the connection between temperature and precipitation, weathering of rocks, soil type and the river system, human nature interactions and ecosystems of the Earth.

GEOG 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOG 2010 HUMAN GEOGRAPHY (3) LEC. 3. Spatial perspectives on modern society such as population change, economics, politics, urban development, and local culture, and geography's approach to solving problems using case studies and issues.

GEOG 2017 HONORS HUMAN GEOGRAPHY (3) LEC. 3. Spatial perspectives on modern society such as population change, economics, politics, urban development, and local culture, and geography's approach to solving problems using case studies and issues.

GEOG 2020 PHYSICAL GEOGRAPHY (3) LEC. 3. Selected elements of the earth's physical system to include such items as landforms, basic weather elements, soils and vegetation.

GEOG 3000 SPORTS GEOGRAPHY (3) LEC. 3. Geographical basis of sports at different spatial scales, including locational strategies, sportive nationalism, and the urban political economy of sports.

GEOG 3110 UNITED STATES AND CANADA (3) LEC. 3. Survey of the region incorporating physical and cultural elements, providing a synthesis of the economic and political processes of the U.S. and Canada.

GEOG 3120 ALABAMA AND THE SOUTHEAST (3) LEC. 3. Study of the physical and cultural environments of the state.

GEOG 3130 LATIN AMERICA (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development and problems and prospects affecting major countries.

GEOG 3140 AFRICA (3) LEC. 3. Analysis of the relationships among diverse population groups and the physical environments of sub-Saharan Africa.

GEOG 3150 EUROPE (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development, and problems and prospects affecting several of the major countries.

GEOG 3300 INTERNATIONAL TRAVEL AND TOURISM (3) LEC. 3. Environmental and cultural patterns that characterize places attractive to tourists. Provides realistic situations for developing travel plans and programs.

GEOG 3720 STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 10. LAB. 5. Coreq. PARK 3630 and NATR 3320 and NATR 4250. Three-week course intended to give students a general understanding of the potential impacts of climate change on the environment in the tropics via a mix of lectures, hands-on activities and field trips. Departmental approval required.

GEOG 3810 CARTOGRAPHY AND GRAPHICS (4) LEC. 2. LAB. 2. Techniques of map production including relevant computer graphics applications and related laboratory exercises.

GEOG 4740 SENIOR SEMINAR (2) SEM. 2. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count GEOG 4740 or GEOL 4740.

GEOG 4920 INTERNSHIP (3) LEC. 3. Opportunity to apply classroom experience to real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOG 4930 DIRECTED STUDIES (1-4) AAB/IND. Departmental approval. Conferences, reading, research and/or reports may fulfill course requirement. Course may be repeated for a maximum of 4 credit hours.

GEOG 5010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. Senior standing or Departmental approval. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 5210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth's climate system (e.g. surface-atmosphere energy budge, the hydrologic cycle, and atmospheric motion) as well as climate change and sea level rise.

GEOG 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 2. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Study of the origin of landforms with emphasis on the eologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOG 5350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 5380 POLITICAL GEOGRAPHY (3) LEC. 3. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 5400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 5510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation of the inter-relationships between humans and their natural or physical environments.

GEOG 5550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 5600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. Departmental approval. Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons.

GEOG 5700 QUANTITATIVE METHODS AND SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. Pr., STAT 2510 or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills, evaluates written materials in geography, reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 5820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 5830 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 5850 DRONES AND GEOSPATIAL APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. This course will introduce the concepts of drone data collection, processing, and analysis and focus on how these high-resolution datasets can be used in a multitude of geospatial (including GIS and remote sensing) applications. This class will have both in-class and field components. Prerequisite: An Intro to GIS class is preferred, please contact the instructor if you have questions.

GEOG 5880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 5830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and process. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 5890 GIS PROGRAMMING (3) LEC. 2. LAB. 2. Pr. P/C GEOG 5830. This course is an introduction to programming and scripting for intermediate Geographic Information Systems (GIS) users. Students will learn how to design and write clearly structured scripts in Python using a standalone development environment. Students will develop programs to manage geospatial data, perform geoprocessing analysis, and design custom tools that can be integrated into common GIS software packages. Intro to GIS is a prerequisite which can be met if taken during the same semester (co-requisite). Credit will not be given for both GEOG 5890 and GEOG 6890

GEOG 5970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 6010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 6210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth's climate system (e.g surface-atmosphere energy budge, the hydrologic cycle, and atmospheric motion, as well as climate change and sea level rise.

GEOG 6220 GEOMORPHOLOGY (3) LEC. 3. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Credit will not be given for both GEOG 5220 and GEOG 6220.

GEOG 6350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 6380 POLITICAL GEOGRAPHY (3) LEC. 3. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 6400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 6510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation the inter-relationships between humans and their natural or physical environments.

GEOG 6550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 6700 QUANT METH & SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5700 and GEOG 6700.

GEOG 6710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 6800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills; evaluates written materials in geography; Reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 6820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 6830 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Departmental approval. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 6850 DRONES AND GEOSPATIAL APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. This course will introduce the concepts of drone data collection, processing, and analysis and focus on how these high-resolution datasets can be used in a multitude of geospatial (including GIS and remote sensing) applications. This class will have both in-class and field components. Prerequisite: An Intro to GIS class is preferred, please contact the instructor if you have questions.

GEOG 6880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 6830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and processes. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 6890 GIS PROGRAMMING (3) LEC. 2. LAB. 2. Pr. P/C GEOG 6830. This course is an introduction to programming and scripting for intermediate Geographic Information Systems (GIS) users. This course teaches students to design and write clearly structured scripts in Python using a standalone development environment. Students will develop programs to manage geospatial data, perform geoprocessing analysis, and design custom tools that can be integrated into common GIS software packages. Intro to GIS is a prerequisite which can be met if taken during the same semester (co-requisite). Credit will not be given for both GEOG 5890 and GEOG 6890

GEOG 6970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Departmental approval. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 7000 ESSENTIAL TEACHING SKILLS FOR GEOSCIENCE GTAS (3) LEC. 3. LAB. 0, LEC. 0. This course is designed to equip graduate teaching assistants (GTAs) in the geosciences with the foundational skills and knowledge necessary to succeed as effective educators in higher education. Participants will explore essential topics such as backwards design, active learning strategies, classroom management, effective communication, assessment design, the integration of technology in teaching, and navigating power dynamics. The course emphasizes practical application through hands-on activities, peer collaboration, and reflective teaching practices. Department approval.

GEOG 7930 DIRECTED STUDIES (1-3) AAB. Departmental approval. Individualized literature, field and/or laboratory research not available through regularly offered coursework. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOG 7980 CAPSTONE RESEARCH (1-3) RES. SU. Departmental approval. enrolled as GEOG MS non-thesis student. Literature, field and/or laboratory research directed toward the completion of capstone project for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOG 7990 M.S. RESEARCH AND THESIS (1-10) RES. Research and Thesis. Course may be repeated with change in topics.

GEOG 8900 DIRECTED STUDIES (1-6) IND. Provides exposure to discipline-specific research procedures in Earth System Science. Students will work closely with their mentors to explore an Earth-System problem through directed readings, literature searches, field work, laboratory experimentation, and quantitative analysis. Course may be repeated for a maximum of 6 credit hours.

Geology Courses

GEOL 1100 DYNAMIC EARTH (4) LEC. 3. LAB. 2. Science Core. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and landforms. Study of geologic maps. Credit will not be given for both GEOL 1100 and GEOL 3150.

GEOL 1107 HONORS DYNAMIC EARTH (4) LEC. 3. LAB. 2. Pr. Honors College. General physical geology for Honors students and for Geology majors. Topics similar to GEOL 1110 but covered in greater depth. Science Core.

GEOL 1110 EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Science Core. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans.

GEOL 1117 HONORS EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans. For Honors students and Geology majors. Science Core.

GEOL 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOL 2010 MINERALOGY AND OPTICAL CRYSTALLOGRAPHY (5) LEC. 4. LAB. 2. Physical and chemical properties of minerals, classification and roles with emphasis on natural systems, materials science, health, and environment. Credit will not be given for both GEOL 2010 and GEOL 2013.

GEOL 2050 IGNEOUS AND METAMORPHIC PETROLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 2010 or GEOL 2013. Principles and processes of igneous and metamorphic activity in a plate tectonic and petrologic context. Description, classification and interpretation of igneous and metamorphic rocks.

GEOL 2100 ENVIRONMENTAL GEOLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Emphasis on geology as an environmental science; applied geology, geological hazards and environmental regulations as applied to geologic environmental remediation.

GEOL 3060 LUNAR AND PLANETARY GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Departmental approval. Geology of the planets, moons, asteroids and comets. Origin of the solar system. Space exploration. Impact cratering.

GEOL 3200 INTRODUCTION TO PALEOBIOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 1110 or GEOL 1113 or GEOL 1117. The nature of the fossil record, applications of that data to geological and biological questions with emphasis on the concepts using examples from all biotic groups.

GEOL 3300 EVOLUTION AND EXTINCTION OF THE DINOSAURIA (3) LEC. 2. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Departmental approval. Survey of the dinosaurs, their evolution and extinction. Southeastern U.S. dinosaurs.

GEOL 3400 STRUCTURAL GEOLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 2050. Fundamentals of rock deformation. The mechanics of rock flow, fracture, and folding. Geometric techniques of structural analysis.

GEOL 3550 FIELD GEOLOGY: METHODS AND APPLICATION (3) LEC. 2. LAB. 2, AAB/LLB. 2. Pr. GEOL 1100 and GEOL 1110. Departmental approval. Through a combination of classroom, laboratory, and field-based activities, this course develops skills of geologic data collection, observation, interpretation, and communication.

GEOL 3650 ADVANCED FIELD GEOLOGY (3) LEC. 1. LAB. 10. Pr. GEOL 3400 and GEOL 3550. Instruments and methods used in geological field mapping, interpretation of sedimentary, igneous and metamorphic rocks and deformational analysis. Summer only.

GEOL 4110 STRATIGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOL 4010. Departmental approval. Description and correlation of layered earth materials. Synthesis and interpretation of stratigraphic correlations. North American Stratigraphic Code. History and theory of stratigraphy.

GEOL 4200 SEDIMENTARY PETROLOGY AND STRATIGRAPHY (4) LEC. 3. LAB. 2, LLB. 0. Pr. GEOL 2050. Description, classification, and interpretation of sediments and sedimentary rocks. Description and correlation of layered Earth materials. Stratigraphic correlation methods, and sequence stratigraphy. Department approval.

GEOL 4210 ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3400. The origin, distribution and classification of mineral deposits formed by igneous, metamorphic and sedimentary processes. Introduction of methods of exploration and development.

GEOL 4260 INTRODUCTION TO GEOCHEMISTRY (3) LEC. 3. Pr. CHEM 1040 and GEOL 2050. Principles governing the distribution of major, minor and trace elements within the earth; differentiation of elements due to geologic processes and the hydrosphere.

GEOL 4300 GEODYNAMICS (3) LEC. 3. Pr. GEOL 3400 and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Structure and dynamics of the earth deduced from seismology, gravity, heat flow and magnetism.

GEOL 4740 SENIOR SEMINAR (2) SEM. 2. Geology majors with upperclass standing. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count either GEOL 4740 or GEOG 4740.

GEOL 4920 INTERNSHIP (1-3) INT. SU. Geology majors with upper-class standing (juniors or seniors). An opportunity to apply classroom experience to a real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOL 4930 DIRECTED STUDIES IN UNDERGRADUATE RESEARCH (1-3) AAB. Departmental approval. Directed studies in areas of geology not covered by an existing course or to supplement knowledge gained from an existing course. Course may be repeated for a maximum of 3 credit hours.

GEOL 4970 SPECIAL TOPICS IN GEOLOGY (1-4) ST1. Instruction and discussion of selected topics in geosciences. Course may be repeated for a maximum of 8 credit hours.

GEOL 4980 UNDERGRADUATE RESEARCH METHODS (1-3) IND. Departmental approval. Active participation in original research under supervision of a senior investigator. Course may be repeated for a maximum of 3 credit hours.

GEOL 5060 INTRODUCTION TO MICROPALEONTOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3200 and (BIOL 1030 or BIOL 1037). A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 5100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 1. Study of the origin of landforms with emphasis on the geologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOL 5300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. P/C GEOL 4010. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 5440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction in the theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). The course provides an understanding the EMPA as a research tool for evaluating the composition and structure of a wide range of materials.

GEOL 5500 PETROLEUM GEOLOGY (3) LEC. 3. Pr. GEOL 4010. Coverage of petroleum source rocks, migration, reservoir rock characters, and trapping mechanics. Overview of exploration methods including well-log analysis and seismic interpretation.

GEOL 5600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 5700 GEOHEALTH (3) LEC. 3. Pr. GEOL 1100 and CHEM 1030. The effects of the composition of Earth materials and the local geological phenomena on human, plant, and animal health. The application of principles of geology and chemistry to predict and prevent diseases.

GEOL 5840 CLIMATE CHANGE AND SOCIETY (3) LEC. 3. The science of Earth’s changing climate, the societal influences on climate change, as well as the expected impacts based on the collected scientific evidence. Analyzes key aspects of climate science, the drivers of climate change, Earth’s climate trends, the evidence of climate change, the predicted future climate scenarios, the expected impacts, and the array of possible response options.

GEOL 6060 INTRODUCTION TO MICROPALEONTOLOGY (3) LEC. 3. LAB. 1. A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 6100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 6220 GEOMORPHOLOGY (3) LEC. 2. LAB. 1. Study of origin of landforms with emphasis on geologic processes and structures that generate landforms; includes the applications of landform analysis. May count either GEOL 6220 or GEOG 6220.

GEOL 6300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 4010. Departmental approval. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 6400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2. LAB. 2. Departmental approval. A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography.

GEOL 6440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction to theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). Provides an understanding of EMPA as a research tool for evaluating composition and structure of wide range of materials. GEOL 5440 or GEOL 6440.

GEOL 6500 PETROLEUM GEOLOGY (3) LEC. 3. Pr. P/C GEOL 4010. Geology/Geography graduate students who took GEOL 4010 ("P/C"). Coverage of petroleum source rocks, migration, reservoir rock characters, and trapping mechanics. Overview of exploration methods including well-log analysis and seismic interpretation.

GEOL 6600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 6700 GEOHEALTH (3) LEC. 3. The effects of the composition of Earth materials and the local geological phenomena on human, plant, and animal health. The application of principles of geology and chemistry to predict and prevent diseases.

GEOL 6840 CLIMATE CHANGE AND SOCIETY (3) LEC. 3. The course will investigate the science of Earth’s changing climate, the societal influences on climate change, as well as the expected impacts based on the collected scientific evidence. Analysis of peer-reviewed literature on the key aspects of climate science, the drivers of climate change, Earth’s climate trends, the evidence of climate change, predicted future climate scenarios, expected impacts, and the array of possible societal response options to prevent/mitigate the consequences of anthropogenic climate change. The class will have a strong component of discussion of literature and foundational knowledge as well as reflection on what students have learned and the implications of this knowledge for their areas of interest and generally for their lives.

GEOL 7100 GEOCOMMUNICATION (3) LEC. 3. Departmental approval. Instruction and practice in written and oral communication skills necessary for a successful career in the geosciences; emphasis on preparation of scientific articles, technical reports, abstracts, and thesis; preparation and delivery of oral presentations.

GEOL 7170 IMPACT AND PLANETARY GEOLOGY (3) LEC. 3. Pr. GEOL 1100 and GEOL 1110. Study of impact craters and their formation. Identification of impact crates. Role of impacts in planetary evolution and in evolution and extinction of life on Earth. Study of rocky and icy geologic surface terrains and their geologic processes.

GEOL 7200 TECTONICS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. Emphasis will be placed on plate tectonics and driving forces, evolution of collisional, transform and extensional systems, and dynamic indicators of past and current tectonic processes.

GEOL 7250 GROUNDWATER HYDROGEOLOGIC MODELING (3) LEC. 2. LAB. 2. Pr. GEOL 6100. Departmental approval. Overview of groundwater modeling techniques with environmental and geologic applications. Interaction of geology and subsurface groundwater flow. Basin hydrology modeling. Practical experience in computer simulations of subsurface hydrogeologic processes.

GEOL 7260 AQUEOUS AND ENVIRONMENTAL GEOCHEMISTRY (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Departmental approval. Study of water-rock reactions that control the chemical composition of groundwater; aqueous geochemistry of trace elements; groundwater pollution, remediation and geomic robiology.

GEOL 7300 CYCLES THROUGH EARTH HISTORY (3) LEC. 2. LAB. 2. Pr. GEOL 4100 and GEOL 4260. Discussion of the fundamental processes controlling sedimentary cycles at different physical, biotic, and temporal scales.

GEOL 7400 ADVANCED ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 4210. Departmental approval. The practical and theoretical aspects of economic geology as applied to exploration and development of natural resources.

GEOL 7410 GEOLOGY OF ORGANIC MATTER (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. The origins, classifications, taphonomy of organic matter, modern and ancient processes and environments of deposition of organic-rich strata, including hydrocarbon- source rocks and coals. Laboratory and field trips required.

GEOL 7450 MINERAL RESOURCES AND THE ENVIRONMENT (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Overview of geology and geographic distribution of mineral resources; economic aspects affecting their extraction; environmental impacts and cost of mineral resource extraction.

GEOL 7500 PALEOCLIMATOLOGY (3) LEC. 3. Explores how Earth's climate has evolved dynamically over time, varying within restricted boundaries that allowed life to exist and evolve. Explores interactions among Earth's surface abiotic and biotic components, and includes plate tectonics, atmospheric chemistry and physics, and ocean productivity.

GEOL 7550 ADVANCED GEOPHYSICAL METHODS (3) LEC. 2. LAB. 2. Pr. GEOL 6600. Departmental approval. Advanced treatment of geophysical methods, data interpretation and modeling. Applications to resource development and environmental assessments will be explored, with emphasis on seismic methods.

GEOL 7600 PETROLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. The description, classification, formative processes, and petrologic interpretation of igneous, metamorphic and sedimentary rocks.

GEOL 7610 STRUCTURAL AND METAMORPHIC ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 3400 and GEOL 3650. Quantitative analysis of dynamic, kinematic and chemical responses of rocks and minerals to crustal movements and dynamo thermal metamorphism.

GEOL 7650 FACIES ANALYSIS AND SEQUENCE STRATIGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. Systematic analysis of modern and ancient deposition facies, and their interpretation in a sequence stratigrahic context. Laboratory and field trips required.

GEOL 7700 ANALYTICAL ISOTOPE GEOCHEMISTRY (3) LEC. 2. LAB. 1. Pr. CHEM 1040 or PHYS 1510 or MATH 1620. Biweekly lectures will teach the theory and principles of isotope geochemistry and mass spectrometry, leading to applications in geoscience research. Lab sessions and problem sets will support lectures and emphasize work with various mass spectrometers in the Department of Geosciences.

GEOL 7930 DIRECTED STUDIES (1-3) LEC. 3. Departmental approval. Directed studies. May incorporate literature, field and/or laboratory research in any proportion. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOL 7980 CAPSTONE PROJECT (1-3) LEC. SU. Literature, field and/or laboratory research directed towards completion of capstone project required for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOL 7990 RESEARCH AND THESIS (1-10) MST. Departmental Approval. Course may be repeated with change in topics.

GEOL 8900 DIRECTED STUDY (1-6) IND. 3. Provides exposure to discipline-specific research procedures in Earth System Science. Students will work closely with their mentors to explore an Earth-system problem through directed readings, literature searches, field work, laboratory experimentation, and quantitative analysis. Course may be repeated for a maximum of 6 credit hours.

Certificate in Geographic Information Systems (GIS)

This undergraduate certificate in Geographic Information Systems (GIS) (17-18 hours) prepares individuals to explain geospatial science components and how they can assist in solving geographic problems; select the appropriate scale and map projections to use for various GIS applications; create and maintain geospatial datasets; and select the appropriate spatial dataset formats to use for various GIS applications. This certificate is designed for aspiring geospatial professionals who want to become more skillful users of GIS methods, software, and related tools.

The concentrated Curriculum has four courses required for a total of 15 hours. Students can choose from approved electives for courses that are at least 2 credit hours. Total hours for GISc Certificate is 17-18 hours.

Code	Title	Hours
Required Core Courses (15 hours)		
GEOG 5830	Geographic Information Systems	4
GEOG 5820	Aerial Photography and Remote Sensing	4
GEOG 5880	Advanced Geographic Information Systems	3
GEOG 3810	Cartography and Graphics	4
Elective Courses (2 hours minimum)		
BSEN 5220	Geospatial Technologies in Biosystems	3
FORY 5480	GIS Database Design and Analysis	2
CPLN 5460	Geographic Information Systems for Planning and Policy	3
GEOG 5850	Drones and Geospatial Applications	3
GEOG 5700	Quantitative Methods and Spatial Analysis	3
GEOL 5100	Hydrogeology	3

Geography and Environmental Studies (GEST)

The Bachelor of Arts in Geography and Environmental Studies offers students a comprehensive understanding of the dynamic relationship between Earth, Environment, and Society. This interdisciplinary program focuses on the spatial relationships inherent to Earth's geosphere, hydrosphere, atmosphere, and biosphere.

A key component of the program is training in geospatial sciences, including Geographic Information Systems (GIS), drones, and remote sensing. These in-demand technology tools prepare students to visualize and interpret geographic data in meaningful ways, fostering critical thinking and practical skills applicable to a wide range of careers.

Students in the geography and environmental studies major are prepared for in-demand and profitable career opportunities including positions as urban and regional planners, environmental consultants addressing sustainability and ecological concerns, Geographic Information Systems (GIS) analysts and data science roles, environmental and conservation positions dedicated to studying and conserving ecosystems, educators and academics, and policy advisors shaping environmental legislation and initiatives. Majors often find lucrative career options in disaster management, weather and climate research, and sustainability.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I, 1150 Pre-Calculus Algebra and Trigonometry, 1100 Finite Math and Applications, 1120 Pre-Calculus Algebra, ***or*** 1130 Pre-Calculus Trigonometry	3-4	Core Social Science	3
Core History	3	Core Humanities	3
Foreign Language	4	COMM 1000 Public Speaking	3
		Foreign Language	4
	13		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Science[3]	4	Core Science[3]	4
GEOG 1010 Global Geography	**3**	Core Social Science or Humanities[2]	3
GEOG 2000 Professional Development	**1**	Core Social Science	3
GEOG 2010 Human Geography	**3**	**GEOG 1030 Global Systems Land/Water**	**4**
GEOG 1020 Global Systems Weather/Climate	**4**		
	15		**14**

Junior

Fall	Hours	Spring	Hours
GEOG Elective	**3**	**GEOG Electives**	**3**
Core History or Literature[1]	3	Electives	3
Electives	3	STAT 2510 Statistics for Biological and Health Sciences	3
Core literature	3	Core Fine Arts	3
GEOG 5830 Geographic Information Systems	**4**	**GEOG 3810 Cartography and Graphics**	**4**
	16		**16**

Senior

Fall	Hours	Spring	Hours
GEOG 5820 Aerial Photography and Remote Sensing	**4**	**GEOG Elective**	**6**
GEOG Electives	**6**	Electives	7-8
Electives	4	UNIV 4AA0 Achieve the Creed[4]	0
GEOG 4740 Senior Seminar	**2**		
	16		**14**

Total Hours: 120

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and Lit sequence options, see the *Bulletin.*

2 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

3 CORE Science Sequences:
BIOL 1020/BIOL 1021, BIOL 1030/BIOL 1031, CHEM 1030/CHEM 1031, CHEM 1040/CHEM 1041,
CHEM 1110/CHEM 1111, CHEM 1120/CHEM 1121, GEOL 1100, PHYS 1500, PHYS 1510, PHYS 1600, PHYS 1610.

4 This course must be taken the semester of graduation.

Geography Minor

A minimum of fifteen semester hours including any two of the following: GEOG 1010/1013/1017 Global Geography, GEOG 1020 Weather and Climate, GEOG 1030 Land and Water, and GEOG 2010 Human Geography. In addition, 9 hours of electives consisting of any GEOG courses at the 3000 level or above, except GEOG 4920 Internship or GEOG 4930 Directed Studies. Students must earn a grade of “C” or better in all minor courses.

Geology (GEOL)

Geology focuses on the formation and subsequent evolution of the planets, emphasizing habitable planet Earth. Geologists study the Earth’s internal and surface structure and compositions, major geological events, formation of Earth’s minerals and rocks and natural resources, using the principles of chemistry, physics, mathematics, and biology. Geology provides understanding of the dynamic processes that influences the solid Earth, Earth’s surface, life, and climate. Geology frequently draws students with interests in outdoor activities, travel, energy industry, and environment. In addition to regular lectures, geology majors train in fieldwork skills and specialized laboratory skills. Recent alumni have had in-demand and profitable careers in academia, mineral resources, energy industry, environmental industry, and government.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
GEOL 1100 Dynamic Earth	**4**	**GEOL 1110 Earth and Life Through Time**	**4**
Core Science[1]	4	Core Science[1]	4
Core History I	3	Core History II	3
	14		**14**

Sophomore

Fall	Hours	Spring	Hours
GEOL 3550 Field Geology: Methods and Application	**3**	Core Science[1]	4

GEOL 2010 Mineralogy and Optical Crystallography	**5**	**GEOL 2050 Igneous and Metamorphic Petrology**	**4**
MATH 1610 Calculus I	4	Free Elective	3
GEOL 2000 Professional Development	**1**	**Math Requisite**[2]	**3-4**
Core Social Science	3		
	16		**14-15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
Core Science[1]	4	Technical Elective	3	**GEOL 3650 Advanced Field Geology**	**3**
GEOL 3200 Introduction to Paleobiology	**3**	**GEOL 3400 Structural Geology**	**4**		
GEOL Elective[4]	**6**	Core Social Science[3]	3		
Free Elective	3	**GEOL Elective**[4]	**3**		
		Core Fine Arts[3]	3		
	16		**16**		**3**

Senior

Fall	Hours	Spring	Hours
GEOL 4200 Sedimentary Petrology and Stratigraphy	4	**GEOL Elective**[4]	**8**
GEOL Elective[4]	**3**	Core Humanities	3
GEOG 5830 Geographic Information Systems	4	Core Literature II	3
GEOL 4740 Senior Seminar	**2**	UNIV 4AA0 Achieve the Creed	0
Core Literature I	3		
	16		**14**

Total Hours: 123-124

Courses in BOLD will be used to calculate GPA in major.

[1] Options for courses labeled CORE are in the Auburn University Bulletin (https://bulletin.auburn.edu/) under Core Curriculum. Take CHEM 1030/CHEM 1031, BIOL 1020/BIOL 1021, PHYS 1500, and 4th course can be either CHEM 1040/CHEM 1041, BIOL 1030/BIOL 1031, or PHYS 1510.

[2] Math Requisite can be either MATH 1620 Calculus II (4), STAT 2510 (3), or STAT 3010 (3).

[3] GEOG 1010 Global Geography is suggested for majors (as one of their Core Social Science requirements).

[4] **Geology Electives:** 18 hours required. Geology electives may be selected from the following courses with NO MORE THAN 3 hours coming from the unspecified group (GEOL 4930 and GEOL 4980).

GEOL Electives:

GEOL 3060 Lunar and Planetary Geology (3)
GEOL 4210 Economic Geology (3)
GEOL 4260 Introduction to Geochemistry (3)
GEOL 5060 Introduction to Micropaleontology (3)
GEOL 5100 Hydrogeology (3)
GEOL 5220 Geomorphology (3) (also cross-listed as GEOG 5220 Geomorphology)
GEOL 5300 Basin Analysis (3)
GEOL 5440 Electron Microprobe Analysis (3)
GEOL 5500 Petroleum Geology (3)
GEOL 5600 Applied Geophysics (4)

GEOL 5700 Geohealth (3)
GEOL 5840 Climate Change and Society (3)
No more than 3 hours total can count towards your 18 hours of GEOL electives from the following:
GEOL 4930 Directed Studies in Undergraduate Research (1-3) (no more than 3 hours)
GEOL 4980 Undergraduate Research Methods (1-3) (no more than 3 hours)
Technical Electives: The following courses are approved. Other courses may be permitted with prior approval of the GEOL advisor. Students must meet with their Geology advisor and have technical electives approved in advance. An approval form must be on file in the Dean's office in order to be cleared for graduation.
CSES 5000, CSES 5080, CSES 5150 ,CSES 5300
ANTH any 2000+ course
BIOL 1030/BIOL 1031, BIOL 2425, BIOL 3030, BIOL 3060, BIOL 3075, BIOL 3200, BIOL 4010, BIOL 4020
CIVL 2010, CIVL 3310, CIVL 4210, CIVL 4310, CIVL 5330, CIVL 5340
CHEM 1040/CHEM 1041, CHEM 1110/CHEM 1120, CHEM 1117/CHEM 1127, CHEM 2070, CHEM 3050, any 3000-5000 course
COMP 2210, any 2000-3000 course
GEOG any 3000-5000 course
MATH any 2000-5000 course
MECH any 3000-5000 course
PHYS 1510 or any 2000-5000 course
STAT any 2000-5000 course

Geology Minor

A minimum of fifteen semester hours including GEOL 1100/1107 Dynamic Earth. Additional GEOL courses may include any other GEOL courses at the 3000 level or above, excluding GEOL 4920 Internship. Students must earn a grade of “C” or better in all minor courses.

Geology — Earth System Science Option (ESYS)

The Earth System Science (ESS) option of the Geology major provides students with a fundamental understanding of the links between the Earth's geological, geographical, biological, chemical, physical, and human subsystems. ESS students examine the cycling of matter and energy through the lithosphere, the hydrosphere, the atmosphere, and the biosphere at multiple temporal and spatial scales. Field research, lab work, and classroom activities allow students to observe and interpret how the Earth’s land surfaces, atmosphere, biosphere, and oceans interact and impact human and environmental health. The ESS degree prepares students for in-demand and profitable career opportunities including water resource management, environmental geology and remediation, geoscience consulting and teaching, geochemical cycles, and geohazards, such as volcanoes, earthquakes, and hurricanes.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
GEOL 1100 Dynamic Earth	**4**	**GEOL 1110 Earth and Life Through Time**	**4**
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
CORE HISTORY I	3	CORE HISTORY II	3
	14		**14**

Sophomore

Fall	Hours	Spring	Hours
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1

GEOL 2010 Mineralogy and Optical Crystallography	**5**	**BIOL 3030 Evolution and Systematics**	**3**
MATH 1610 Calculus I	4	**ESS Elective**	**4**
CORE LITERATURE I	3	**ESS Elective**	**4**
	16		**15**

Junior

Fall	Hours	Spring	Hours	Summer	Hours
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4	**ESS Elective***	**4**
GEOL 3060 Lunar and Planetary Geology	**3**	**BIOL 3060 Ecology**	**4**		
GEOL 3200 Introduction to Paleobiology	**3**	GEOG 5210 Climatology	3		
CORE FINE ARTS	3	**GEOL 5220 Geomorphology**	**3**		
CORE SOCIAL SCIENCE[1]	3				
	16		**14**		**4**

Senior

Fall	Hours	Spring	Hours
ESS Elective	**4**	**ESS Elective**	**3**
GEOG 5830 Geographic Information Systems	**4**	**ESS Elective**	**3**
CORE HUMANITIES	3	CORE SOCIAL SCIENCE	3
GEOL 4740 Senior Seminar	**2**	CORE LITERATURE II	3
		ESS Elective	**3**
	13		**15**

Total Hours: 121

* **ESS Elective** (BIOL 3075 Introduction to Oceanography, offered at Dauphin Island Sea Lab in summer, is recommended.)

1 GEOG 1010 is suggested for majors.

EARTH SYSTEM SCIENCE ELECTIVES

GEOL 2050 Igneous and Metamorphic Petrology
GEOL 3400 Structural Geology
GEOG 5400 Geography of Natural Hazards
GEOL 4260 Introduction to Geochemistry
GEOG 5510 Human-Environment Interaction
GEOL 4300 Geodynamics
GEOG 5550 Geography of Water Resources
GEOL 4930 Directed Studies in Undergraduate Research
GEOG 5600 Global Resources and the Environment
GEOL 5100 Hydrogeology
GEOG 5820 Aerial Photography and Remote Sensing
GEOL 5600 Applied Geophysics
BIOL 2500 Human Anatomy and Physiology I
BIOL 2501 Human Anatomy and Physiology I Laboratory
BIOL 2510 Human Anatomy and Physiology II
BIOL 2511 Human Anatomy and Physiology II Laboratory
BIOL 3040 Biology of Marine Systems
BIOL 3075 Introduction to Oceanography (Dauphin Island Sea Lab)
BIOL 3100 Plant Biology
BIOL 3200 General Microbiology & BIOL 3201 General Microbiology Laboratory

BIOL 4010 Invertebrate Biodiversity
BIOL 4020 Vertebrate Biodiversity
BIOL 5090 Conservation Biology
BIOL 5150 Population and Community Ecology
CHEM 2030 Survey of Organic Chemistry
CHEM 2070 Organic Chemistry I
CHEM 2071 Organic Chemistry I Laboratory
CHEM 2080 Organic Chemistry II
CHEM 2081 Organic Chemistry II Laboratory
CHEM 3050 Analytical Chemistry
CHEM 3160 Survey of Physical Chemistry
PHYS 3500 Physics of the World Around Us
NATR 5050 Urban Ecology
NATR 5310 Environmental Ethics
CIVL 3220 Water and Waste Treatment

Department of Mathematics & Statistics

The Department of Mathematics and Statistics offers degree curricula in Mathematics and in Applied Mathematics (with three options), an Accelerated Bachelor's/Master's program in Data Science, as well as a minor in Mathematics and a minor in Statistics. Majors acquire a firm foundation in mathematics preparing them for further study, or for careers in mathematics or statistics and related fields. For a minor in MATH or STAT see the "Minors" section.

This curriculum of Mathematics provides students with a general background in mathematics, preparing them for graduate studies in Mathematics or careers that require mathematical knowledge and problem-solving skills, and is well suited for students who wish to pursue career in teaching Mathematics in a university/college, or who desire more flexibility or emphasis in liberal arts.

The Department of Mathematics and Statistics offers three options in the field of Applied Mathematics. The option in Applied Mathematics is suitable for students who are preparing for graduate work in mathematics, or applied mathematics, as well as for those anticipating careers which require proficiency with the methods of applied mathematics such as engineering, physical sciences, computer science, and the allied fields of biological, behavioral, or managerial sciences.

The option in Actuarial Science offers a well-balanced curriculum in applied mathematics with advanced preparation for the actuarial profession. It prepares students for a career in the insurance industry and in other businesses relying on the expertise of actuaries. An increasing number of actuaries work in the broader financial services sector including commercial and investment banking and retirement funds. Actuaries are also employed by corporations, as well as by state and federal governments. This program offers courses with syllabi that closely match those for exams offered by the Society of Actuaries required for professional designations. The curriculum for the Actuarial Science option is flexible enough to allow its graduates to enter graduate programs in mathematics and related fields.

The option in Applied Discrete Mathematics prepares students for graduate work in mathematics or theoretical computer science, and for careers in industry supported by discrete mathematics dealing with problems in graph theory, operations research, discrete optimization, computer science, communications and information sciences.

The Accelerated Bachelors/Master's Degree in Data Science is available for students pursuing the option in Applied Discrete Mathematics. The students can take up to nine (9) hours of MATH/STAT coursework at the 6000-level (i.e., MATH 6XX0 and/or STAT 6XX0 electives) while classified as an undergraduate and have it applied to both the student's undergraduate degree and master's degree. After completing the requirements for the undergraduate degree, the student then completes the remaining requirements of the MS-DS degree.

Starting with the Fall 2015 semester, incoming students are required to earn a "C" or better in certain prerequisites to take the follow-on course. The follow-on courses are: Pre-Calculus Algebra and Trigonometry, Calculus I, Calculus II, and Calculus III.

Students should consult the departmental advisor to determine appropriate technical electives for the emphasis of their choice.

Majors

- Applied Mathematics — Actuarial Science Option (p. 1326)
- A (p. 1327)pplied Mathematics — Applied Discrete Mathematics Option (p. 1327)

- Applied Mathematics (p. 1325)
- Mathematics (p. 1329)

Minors

- Mathematics (p. 1330)
- Statistics (p. 1330)

Mathematics Courses

MATH 1000 COLLEGE ALGEBRA (3) LEC. 3. Pr. ALEK score of 1. Fundamental concepts of algebra, equations and inequalities, functions and graphs, polynomial and rational functions. Does not satisfy the core requirement in mathematics. Students who have previous credit in any higher-numbered math course may not also receive credit for this course.

MATH 1100 FINITE MATH AND APPLICATIONS (3) LEC. 3. Pr. ALEK score of 50 or MATH 1000 or MATH 1003. ALEKS Math Placement Assessment score of at least a 50 or MATH 1000. Mathematics Core. Overview of finite mathematics and its applications. Graph theory, matrices, finite and conditional probability; descriptive and inferential statistics, voting methods, game theory.

MATH 1120 PRE-CALCULUS ALGEBRA (3) LEC. 3. Pr. ALEK score of 50 or MATH 1000 or MATH 1003. ALEKS Math Placement Assessment score of at least a 50 or MATH 1000. Mathematics Core. Preparatory course for calculus. This course emphasizes the algebra of functions – including polynomial, rational, exponential, and logarithmic functions. In addition, the course covers non-linear inequalities as well as systems of linear and non-linear equations and inequalities. The course also includes an introduction to sequences and series. No credit is given to students with higher-numbered math course.

MATH 1121 PRE-CALCULUS ALGEBRA WORKSHOP (1) LAB. 2. SU. Pr. P/C MATH 1000 or P/C MATH 1003 or P/C MATH 1120 or P/C MATH 1123. Workshop for College Algebra and Pre-Calculus Algebra.

MATH 1130 PRE-CALCULUS TRIGONOMETRY (3) LEC. 3. Pr. ALEK score of 64 or MATH 1120 or MATH 1123. ALEKS Math Placement Assessment score of at least a 64 or MATH 1120. Mathematics Core. Preparatory course for the calculus sequence. Basic analytic and geometric properties of the trigonometric functions. Complex numbers, De Moivre' Theorem, polar coordinates. Students who have previous credit in any higher-numbered math course may not also receive credit for this course.

MATH 1150 PRE-CALCULUS ALGEBRA AND TRIGONOMETRY (4) LEC. 4. Pr. ALEK score of 64 or MATH 1000 or MATH 1003. ALEKS Math Placement Assessment score of at least a 64 or "C" or better in MATH 1000. Mathematics Core. Algebraic functions, Exponential Logarithmic functions. Analytic and geometric properties of trigonometric functions.

MATH 1151 MATHEXCEL PRECALCULUS WORKSHOP (2) LEC. 2. SU. Coreq. MATH 1150. Appropriate score on the mathematics placement exam or grade of "C" or better in MATH 1000. Workshop for MATH 1150. Two 2-hour sessions per week.

MATH 1610 CALCULUS I (4) LEC. 4. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or ALEK score of 78. ALEKS Math Placement Assessment score of at least a 78 or "C" or better in MATH 1130 or in MATH 1150. Mathematics Core. Limits, the derivative of algebraic, trigonometric, exponential, logarithmic functions. Applications of the derivative, antiderivatives, the definite integral and applications to area problems, the fundamental theorem of calculus. Students may receive credit for only one of MATH 1610/1617.

MATH 1617 HONORS CALCULUS I (4) LEC. 4. Pr. Honors College. MATH 1130 or MATH 1150 or ALEK minimum score of 78 or MATH 1133 or MATH 1153. ALEKS Math Placement Assessment score of at least a 78 or "C" or better in MATH 1130 or in MATH 1150. Mathematics Core. Honors version of MATH 1610. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: Applied Math-Actuarial Sci (ACTU), Applied Math-Discrete (APDM), Applied Mathematics (AMTH), and Mathematics (MATH). This course covers the same material as MATH 1610 but in a greater depth appropriate for Honors students and Mathematics majors. Students may receive credit for only one of MATH 1610, MATH 1617 or MATH 1680.

MATH 1620 CALCULUS II (4) LEC. 4. Pr. MATH 1610 or MATH 1613 or MATH 1617. "C" or better in MATH 1610 or in MATH 1617. Techniques of integration, applications of the integral, parametric equations, polar coordinates. Vectors, lines and planes in space. Infinite sequences and series. Students may receive credit for only one of MATH 1620 or MATH 1627.

MATH 1627 HONORS CALCULUS II (4) LEC. 4. Pr. Honors College. MATH 1610 or MATH 1613 or MATH 1617. "C" or better in MATH 1610 or in MATH 1617. Honors version of MATH 1620. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: Applied Math-Actuarial Sci (ACTU), Applied Math-Discrete (APDM), Applied Mathematics (AMTH), and Mathematics (MATH). The same material as MATH 1620, but in greater depth appropriate for honors students and Mathematics majors. Students may receive credit for only one of MATH 1620 or MATH 1627.

MATH 1680 CALCULUS WITH BUSINESS APPLICATIONS I (4) LEC. 4. Pr. MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or ALEK score of 68. ALEKS Math Placement Assessment score of at least a 68 or MATH 1120 or MATH 1130 or MATH 1150. Students in College of Business. Mathematics Core. Differentiation and integration of exponential and logarithmic functions, applications to business. Functions of several variables, partial derivatives, multiple integrals.

MATH 1690 CALCULUS WITH BUSINESS APPS II (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or MATH 1610 or MATH 1617 or MATH 1613. Probability, random variables, probability distributions. Further topics in calculus: integration, functions of several variables, applications to probability. Applications to business and related areas. Credit will not be given to majors in Engineering or Math or Physics.

MATH 1950 FIRST YEAR MATHEMATICS SEMINAR (1) SEM. 1. This seminar will provide a shared intellectual experience for incoming freshmen mathematics majors. It will serve as a focused and interactive forum to provide a glimpse into the world of mathematics that lies beyond elementary calculus. Each semester's symposium will be devoted to a specific mathematical topic. Writing about mathematics and explaining mathematical ideas to both “math people” and “non-math people” will be emphasized. Only offered to incoming first-year students (though transfer students and higher rank students may be allowed to enroll on an approval basis). May not be repeated for credit. High School Math will be required.

MATH 2630 CALCULUS III (4) LEC. 4. Pr. MATH 1620 or MATH 1623 or MATH 1627. "C" or better in MATH 1620, MATH 1623 or MATH 1627. Multivariate calculus: vector-valued functions, partial derivatives, multiple integration, vector calculus. Credit will be given for only MATH 2630 or MATH 2637.

MATH 2637 HONORS CALCULUS III (4) LEC. 4. Pr. MATH 1620 or MATH 1623 or MATH 1627. Must have earned a "C" or better in MATH 1620, MATH 1623 or MATH 1627. Honors version of MATH 2630. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: Applied Math-Actuarial Sci(ACTU), Applied Math-Discrete(DISC), Applied Mathematics(AMTH), and Mathematics(MATH). The same material as MATH 2630, but in greater depth appropriate for honors students and Mathematics majors. Credit will be given for only one of MATH 2630 or MATH 2633 or MATH 2637.

MATH 2650 LINEAR DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. P/C MATH 2630 or P/C MATH 2633 or P/C MATH 2637. Introduction to ordinary differential equations, specifically linear equations of first and second order, and applications.

MATH 2660 TOPICS IN LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Matrices, row-reduction, systems of linear equations, (finite-dimensional) vector spaces, subspaces, bases, dimension, change of basis, linear transformations, kernels, orthogonality, Gram-Schmidt.

MATH 2667 HONORS TOPICS IN LINEAR ALGEBRA (3) LEC. 3. Pr. Honors College. MATH 1620 or MATH 1623 or MATH 1627. Must have earned a "C" or better in MATH 1620 or MATH 1623 or MATH 1627. Honors version of MATH 2660. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: (Applied Math-Actuarial Sci(ACTU), Applied Math-Discrete(DISC), Applied Mathematics(AMTH), and Mathematics(MATH). Topics include: matrices, row-reduction, systems of linear equations, (finite-dimensional) vector spaces, subspaces, bases, dimension, change of basis, linear transformations, kernels, orthogonality, Gram-Schmidt. The same material as MATH 2660, but in greater depth appropriate for honors students and Mathematics majors, with possible additional topics as determined by the instructor. Credit will be given for only one of MATH 2660 or MATH 2667.

MATH 2670 INTRODUCTION TO DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. MATH 1620. Rigorous introduction to ordinary differential equations with emphasis on mathematical justification of solution methods and qualitative analysis of equations and low dimensional systems. The existence and uniqueness theorems. Separable equations, exact equations and integrating factors. Second order linear equations, the Wronskian, method of undetermined coefficients, variation of parameters. Laplace transform. Higher order equations. Systems of first order equations, fundamental matrix.

MATH 2790 MATHEMATICS OF INTEREST THEORY (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Mathematical foundations of the theory of interest necessary as preparation for the Society of Actuaries examination on the theory of interest.

MATH 2850 MATHEMATICS FOR ELEMENTARY EDUCATION I (3) LEC. 3. For Elementary Education major or departmental approval. Mathematical insights for elementary school teachers. Sets, the structure of the number system (integers, fraction, decimals).

MATH 2860 MATHEMATICS FOR ELEMENTARY EDUCATION II (3) LEC. 3. Pr. MATH 2850. For Elementary Education majors or departmental approval. Mathematical insights into measurement and geometry for elementary school teachers. Shapes in two and three dimensions. Similarities, congruences and transformations.

MATH 2870 MATHEMATICS FOR ELEMENTARY EDUCATION III (3) LEC. 3. For Elementary Education majors or departmental approval. Mathematical insights into probability, data analysis and functions for elementary school teachers. Uncertainty, probability spaces and an introduction to statistics. Relationships, functions and change.

MATH 3010 HISTORY OF MATHEMATICS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. The evolution of modern mathematics from its motivational roots in the physical sciences; the lives and contributions of outstanding mathematicians; the parallel development of mathematics and western culture.

MATH 3100 INTRODUCTION TO ADVANCED MATHEMATICS (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Teaching of the fundamental abilities necessary for the pursuance of mathematical studies. Logic and set theory, mathematical induction, basic number theory, basic analysis. Credit will not be given for both MATH 3100 and Math 3710.

MATH 3710 DISCRETE MATHEMATICS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Methods of proof, induction, counting, inclusion-exclusion, discrete probability, relations, partial orders, graphs, trees, languages, grammars, finite state machines, automata. Credit will not be given for both MATH 3710 and Math 3100.

MATH 4110 ADVANCED LOGIC (3) LEC. 3. Pr. MATH 3100 or PHIL 3110. Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics. May count either MATH 4110 or PHIL 4110.

MATH 4790 ACTUARIAL SEMINAR IN THE MATHEMATICS OF FINANCE (3) LEC. 3. Pr. MATH 2790. Intensive seminar in the mathematical aspects of finance, and the theory of interest primarily intended as preparation for the Society of Actuaries Course 2 examination.

MATH 4800 INTRODUCTION TO ACTUARIAL MATHEMATICS (3) LEC. 3. Pr. STAT 3600 and MATH 2790. An introduction to important actuarial methods in modeling and foundational principles of ratemaking and reserving for short-term coverages primarily intended as preparation for part of the Society of Actuaries Exam FAM.

MATH 4820 ACTUARIAL SEMINAR IN PROBABILITY (3) LEC. 3. Pr. STAT 3600. or equivalent. Intensive seminar in calculus, probability, and risk theory primarily intended as preparation for the Society of Actuaries Course 1 examination.

MATH 4930 DIRECTED STUDIES (1-3) IND. Study of individual problems or topics of interest to students. Course may be repeated for a maximum of 3 credit hours.

MATH 4970 SPECIAL TOPICS (1-4) IND. Departmental approval. An individual problems course. Each student will work under the direction of a staff member on a problem of mutual interest. Course may be repeated for a maximum of 4 credit hours.

MATH 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental approval. Directed research in the area of specialty under faculty supervison. Course may be repeated for a maximum of 3 credit hours.

MATH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours. Membership in Honors College.

MATH 5000 MATH MODELING (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667). Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term project. Programming ability.

MATH 5010 VECTOR CALCULUS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and (MATH 2660 or MATH 2667). Departmental approval. Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green's Theorem, Stoke's Theorem, Gauss' Theorem. Tensors and differential forms. Applications.

MATH 5030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3. Pr. MATH 5030. Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 5060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. MATH 2650 or MATH 2670. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 5110 NUMBER THEORY (3) LEC. 3. Pr. MATH 3100. Greatest common divisor, unique factorization, linear Diophantine equations. Modular arithmetic, Chinese remainder theorem, polynomial congruences. Quadratic residues, Legendre/Jacoby symbols, quadratic reciprocity. Primes. Moebius inversion. Sums of squares. Units and the integers mod n.

MATH 5120 INFORMATION THEORY (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 5130 CALCULUS OF VARIATION (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Fundamental concepts of extrema of functions and functionals; first and second variations; generalizations; sufficient conditions; constrained functionals; the general Lagrange Problem; optimal control.

MATH 5140 DATA COMPRESSION (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 5150 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.

MATH 5170 FINITE EXTREMAL SET THEORY (3) LEC. 3. Pr. (MATH 2660 or MATH 2667) and (MATH 3100 or MATH 3710). Finite posets and their Hasse diagrams. Sequences and the Erdos-Szekeres Theorem. Chains and antichains, Dilworth's Theorem. Set systems in the hypercube, Sperner's Lemma and the LYM inequality. Intersecting families, the Erdos-Ko-Rado Theorem. Isoperimetric inequalities in the hypercube. Additional topics related to recent research. Includes paper reading and presentation component.

MATH 5180 CRYPTOGRAPHY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 5200 ANALYSIS I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, Cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity. Emphasis on proofs.

MATH 5210 ANALYSIS II (3) LEC. 3. Pr. MATH 5200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; R^n and abstract spaces, functions of several variables. Emphasis on proofs.

MATH 5280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667). Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

MATH 5300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Linear difference equations, initial value problems, Green's functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

MATH 5310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 5320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 5310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, Galois Theory.

MATH 5330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 5310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic/robotics problems, symbolic manipulation software.

MATH 5350 INTRODUCTION TO ALGEBRAIC GEOMETRY (3) LEC. 3. Pr. MATH 5320. LEC. 3. Pr. "C" or better in Math 5320. Affine varieties, Hilbert's Nullstellensatz, the Ideal-Variety Correspondence, irreducibility, polynomial and rational functions, projective varieties, Bezout's Theorem, dimension theory.

MATH 5370 LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Introduction to the theoretical foundations of Linear Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces, matrix representations, eigenvalues, eigenspaces.

MATH 5380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 5390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 5380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, advanced theorems on the circle.

MATH 5460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods.

MATH 5500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Pr. MATH 3100. C or better in MATH 3100. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 5630 INTRODUCTION TO NUMERICAL ANALYSIS I (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Programming ability. Numerical solution of equations, polynomial approximation, numerical differentiation and integration, numerical solutions of ordinary differential equations, error analysis. Written programs using algorithms. Programming ability.

MATH 5640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Programming ability. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigen vectors, error analysis. Written programs using the algorithms.

MATH 5650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667). Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 5670 and STAT 5670.

MATH 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 5670 or STAT 5670. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 5680 and STAT 5680.

MATH 5710 LINEAR OPTIMIZATION (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 5730 ENUMERATION (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.

MATH 5740 SOCIAL NETWORK ANALYSIS (3) LEC. 3. Pr. (MATH 3100 or COMP 2240) and (P/C COMP 1220 or P/C COMP 1230). Introduction to Social Network Analysis and Python, graph properties and network visualization, Network Metrics, Cascading Behavior in Networks, 2-Mode network, Large-scale structure of networks and corresponding Algorithms, Clustering, Ego analysis and Bipartite networks, Exponential random graph modeling, and Network evolution.

MATH 5750 INTRODUCTION TO GRAPH THEORY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Algorithmic and theoretical aspects of graph theory: matchings, colorings, scheduling problems, Hamilton cycles. Euler tours, spanning trees, network reliability, connectivity, extremal graphs, planar graphs, disjoint paths.

MATH 5770 COMBINATORIAL DESIGNS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.

MATH 5800 ACTUARIAL MATHEMATICS I (3) LEC. 3. Pr. MATH 2790 and STAT 3600. A development of theoretical basis of survival models, life table, life insurance benefits, annuities, premium calculation and policy values primarily intended as preparation for part of the Society of Actuaries Exam FAM.

MATH 5810 ACTUARIAL MATHEMATICS II (4) LEC. 4. Pr. MATH 5800. This course develops the knowledge of theoretical basis to traditional and modern contingent payment models and the application of those models to insurance and other financial risks. It is primarily intended as preparation for the Society of Actuaries Exam ALTAM.

MATH 5840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Divisibility, Diophantine equations, congruencies.

MATH 5850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Computer familiarity.

MATH 5860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 5870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1617) and (MATH 1620 or MATH 1627) and (MATH 2650 or MATH 2670) and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 5970 SPECIAL TOPICS (1-3) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.

MATH 6000 MATHEMATICAL MODELING: CONTINUOUS (3) LEC. 3. Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term-project. Programming ability.

MATH 6010 VECTOR CALCULUS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (MATH 2660 or MATH 2667). Departmental approval. Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green's Theorem, Stoke's Theorem, Gauss' Theorem. Tensors and differential forms. Applications.

MATH 6030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 6060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 6110 NUMBER THEORY (3) LEC. 3. Greatest common divisor, unique factorization, linear Diophantine equations. Modular arithmetic, Chinese remainder theorem, polynomial congruences. Quadratic residues, Legendre/Jacoby symbols, quadratic reciprocity. Primes. Moebius inversion. Sums of squares. Units and the integers mod n.

MATH 6120 INFORMATION THEORY (3) LEC. 3. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 6140 DATA COMPRESSION (3) LEC. 3. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 6150 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.

MATH 6170 FINITE EXTREMAL SET THEORY (3) LEC. 3. Pr. (MATH 2660 or MATH 2667) and (MATH 3100 or MATH 3710). Finite posets and their Hasse diagrams. Sequences and the Erdos-Szekeres Theorem. Chains and antichains, Dilworth's Theorem. Set systems in the hypercube, Sperner's Lemma and the LYM inequality. Intersecting families, the Erdos-Ko-Rado Theorem. Isoperimetric inequalities in the hypercube. Additional topics related to recent research. Includes paper reading and presentation component. Graduate version of MATH 5170.

MATH 6180 CRYPTOGRAPHY (3) LEC. 3. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 6200 ANALYSIS I (3) LEC. 3. or equivalent course, subject to departmental approval. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, Cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity; intermediate#value and extreme-value theorems. Emphasis on proofs.

MATH 6210 ANALYSIS II (3) LEC. 3. Pr. MATH 6200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; R^n and abstract spaces, functions of several variables. Emphasis on proofs.

MATH 6310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 6320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 6310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, and Galois Theory.

MATH 6330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 6310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic/robotics problems, and symbolic manipulation software.

MATH 6350 INTRODUCTION TO ALGEBRAIC GEOMETRY (3) LEC. 3. Pr. MATH 5320. LEC. 3. Pr. "C" or better in Math 5320. Affine varieties, Hilbert's Nullstellensatz, the Ideal-Variety Correspondence, irreducibility, polynomial and rational functions, projective varieties, Bezout's Theorem, dimension theory.

MATH 6370 LINEAR ALGEBRA (3) LEC. 3. Introduction to the theoretical foundations of Linear Algebra Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces matrix representations, eigenvalues, eigenspaces.

MATH 6380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 6390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 6380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, and advanced theorems on the circle.

MATH 6460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Departmental approval. Analytical solutions of nonlinear problems, ODES, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

MATH 6500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Departmental approval. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 6630 INTRODUCTION TO NUMERICAL ANALYSIS I (3) LEC. 3. Numerical solution of equations, polynomial approximation, numerical differentiation and integration, numerical solutions of ordinary differential equations, error analysis. Written programs using algorithms. Programming ability.

MATH 6640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms. Programming ability.

MATH 6650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 6670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 6670 and STAT 6670.

MATH 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi- regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 6680 and STAT 6680.

MATH 6710 LINEAR OPTIMIZATION (3) LEC. 3. Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 6730 ENUMERATION (3) LEC. 3. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.

MATH 6740 SOCIAL NETWORK ANALYSIS (3) LEC. 3. Introduction to Social Network Analysis and Python, graph properties and network visualization, Network Metrics, Cascading Behavior in Networks, 2-Mode network, Large-scale structure of networks and corresponding Algorithms, Clustering, Ego analysis and Bipartite networks, Exponential random graph modeling, and Network evolution.

MATH 6750 INTRODUCTION TO GRAPH THEORY (3) LEC. 3. Algorithmic and theoretical aspects of graph theory: matchings, colorings, scheduling problems, Hamilton cycles. Euler tours, spanning trees, network reliability, connectivity, extremal graphs, planar graphs, disjoint paths.

MATH 6770 COMBINATORIAL DESIGNS (3) LEC. 3. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.

MATH 6800 ACTUARIAL MATHEMATICS I (3) LEC. 3. Departmental approval. A development of theoretical basis of survival models, life table, life insurance benefits, annuities, premium calculation and policy values primarily intended as preparation for part of the Society of Actuaries Exam FAM.

MATH 6810 ACTUARIAL MATHEMATICS II (4) LEC. 4. Pr. MATH 6800. This course develops the knowledge of theoretical basis to traditional and modern contingent payment models and the application of those models to insurance and other financial risks. It is primarily intended as preparation for the Society of Actuaries Exam ALTAM.

MATH 6840 NUMBER SYSTEMS AND ALGEBRA FOR TEACHERS (3) LEC. 3. Pr. MATH 3100. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on number systems, algebra, and functions, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving. Admission to a program in Secondary Mathematics Education or department approval required.

MATH 6850 FUNCTIONS AND MATHEMATICAL MODELING FOR TEACHERS (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) or MATH 2660 or MATH 2667. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on functions and mathematical modeling, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving. Admission to a program in Secondary Mathematics Education or department approval required.

MATH 6860 GEOMETRY FOR TEACHERS (3) LEC. 3. Pr. MATH 2660 or MATH 2667 or MATH 3100. Connect advanced college-level mathematics with the secondary mathematics curriculum, focusing on geometry, to develop mathematical knowledge relevant to teaching. The contents include axiomatic systems of geometry, transformational geometry, and similarity. Appropriate technology and mathematics problem solving skills will be introduced. Admission to a program in Secondary Mathematics Education or department approval required.

MATH 6870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1617) and (MATH 1620 or MATH 1627) and (MATH 2650 or MATH 2670) and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 6970 SPECIAL TOPICS (1-3) DSL. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.

MATH 7000 APPLIED MATHEMATICS I (3) LEC. 3. Departmental approval. Linear spaces, matrices, eigenvalues, least squares solutions to linear systems, Hilbert spaces, orthogonal expansions, integral equations, compact operators, Green's functions for boundary value problems, eigenfunction expansions.

MATH 7010 APPLIED MATHEMATICS II (3) LEC. 3. Pr. MATH 7000 or MATH 7006. Calculus of variations, asymptotic expansions, Spectral theory, Fourier transform, Partial differential equations, transform methods and eigenfunction expansions, vibrations, diffusion processes, equilibrium states, Green's functions, boundary layer problems.

MATH 7110 DISCRETE GEOMETRY AND CONVEXITY I (3) LEC. 3. Departmental approval. Geometric objects and configurations with discrete symmetry groups. Regular polygons and polyhedra. Regular arrangements. Plane tilings and patterns.

MATH 7120 DISCRETE GEOMETRY AND CONVEXITY II (3) LEC. 3. Pr. MATH 7110. Convexity and related geometric extremum problems. Packing and covering. Arrangements of extreme density.

MATH 7140 INTRODUCTION TO MODEL THEORY (3) LEC. 3. Departmental approval. First-order languages, Satisfaction. Consequences. The completeness and compactness theorems, models constructed from constants. Elementary substructures and embeddings, Lowenheim-Skolem-Tarskj theorems. Ultraproducts and ultrapowers.

MATH 7150 AXIOMATIC SET THEORY I (3) LEC. 3. Departmental approval. Introduction to modern set theory. The axioms of ZFC, ordinals and cardinals, closed unbounded sets, the constructible universe L, Martin's Axiom.

MATH 7160 AXIOMATIC SET THEORY II (3) LEC. 3. Pr. MATH 7150. Introduction to forcing, independence results, iterated forcing, consistency of Martin's Axiom.

MATH 7180 ALGORITHMIC ALGEBRA I (3) LEC. 3. Departmental approval. Fundamental aspects of algorithmic algebra. Noetherian rings. Theory of Groebner bases. Hilbert Nullstellensatz. Elimination theory. Applications to graph theory and algebraic geometry.

MATH 7190 ALGORITHMIC ALGEBRA II (3) LEC. 3. Pr. MATH 7180. Modules. Groebner bases for modules and syzygy computations. Improved Buchberger's algorithm. Computation of Ext. Groebner bases over rings. Primary decomposition of ideals. Dimension theory.

MATH 7200 REAL ANALYSIS I (3) LEC. 3. Departmental approval. Sigma algebras, measures, measurable functions, integratability, properties of Lebesgue measure, density, Lusin's theorem, Egeroff's theorem, product measures, Fubini's theorem. Limit theorems involving pointwise convergence and integration.

MATH 7210 REAL ANALYSIS II (3) LEC. 3. Pr. MATH 7200. L-p spaces, completeness, duals. Weak convergence, norm convergence, pointwise convergence, convergence in measure. Signed and complex measures. Absolute continuity, Lebesgue decomposition. Measure theory, Lebesgue integration, introductory functional analysis.

MATH 7230 FUNCTIONS OF A COMPLEX VARIABLE I (3) LEC. 3. Departmental approval. Complex numbers, analytic functions, derivatives, Cauchy integral theorem and formulae, Taylor and Laurent series, analytic continuation, residues, maximum principles, Riemann surfaces.

MATH 7240 FUNCTIONS OF A COMPLEX VARIABLE II (3) LEC. 3. Pr. MATH 7230. Conformal mappings, families of analytic functions and harmonic analysis.

MATH 7280 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Existence and continuation theorems for ordinary differential equations, continuity and differentiability with respect to initial conditions, linear systems, differential inequalities, Sturm theory.

MATH 7290 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7280. Stability theory, periodic solutions, boundary value problems, disconjugacy of linear equations, Green's functions, upper and lower solutions, a priori bounds methods, current research.

MATH 7310 ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Lagrange's Theorem, normal subgroups, factor groups, Isomorphism and Correspondence Theorems. Symmetric groups, alternating groups, free groups, torsion groups. Introduction to rings, correspondence theorems.

MATH 7320 ALGEBRA II (3) LEC. 3. Pr. MATH 7310. Rings, modules, vector spaces, and semi-simple modules. Commutative rings; prime and primary ideals, PIDs are UFD, factorizations in integral domains, field extensions, the Galois Correspondence Theorem.

MATH 7340 RING THEORY (3) LEC. 3. Pr. MATH 7320. Topics on: commutative rings (Cohen-Seidenberg theorems, Krull Intersection Theorem, Dedekind domains), or noncommutative rings (projective modules over Artinian algebras, representation type, Noether-Skolem Theorem, division algebras).

MATH 7350 ALGEBRAIC GEOMETRY (3) LEC. 3. Pr. MATH 7320 and P/C MATH 7500. Pr. ``C" or better in Math 7320 and Math 7500. Affine and projective varieties, the Ideal-Variety Correspondence, morphisms and rational maps of varieties, Bezout's Theorem, sheaves, schemes, divisors, sheaf cohomology.

MATH 7360 LIE ALGEBRA (3) LEC. 3. General introduction of Lie algebras including their structures and classifications of semisimple Lie algebras.

MATH 7370 MATRICES I (3) LEC. 3. Departmental approval. Jordan form, functions of a matrix, spectral theorem, singular values, norms, quadratic forms, field of values, inertia; topics of current interest.

MATH 7380 MATRICES II (3) LEC. 3. Pr. MATH 7370. Matrix stability and inertia, inequalities for matrix eigenvalues and singular values, The Kronecker and Hadamard matrix products, the exponential and logarithm matrix map; topics of current interest.

MATH 7390 MULTILINEAR ALGEBRA (3) LEC. 3. Pr. MATH 5370 or MATH 6370. Multilinear algebra, symmetry class of tensors, induced operators, generalized matrix functions, and current research topics.

MATH 7400 FUNCTIONAL ANALYSIS I (3) LEC. 3. Pr. MATH 7210. Departmental approval. Bounded linear transformations and functionals on Banach and Hilbert spaces, weak topologies, linear operators, adjoints, compact operators. Banach algebras, spectral theory, Gelfand transform.

MATH 7410 FUNCTIONAL ANALYSIS II (3) LEC. 3. Pr. MATH 7400. C*-algebras, Hermitian, self adjoint elements, functional calculus for commutative algebras. Normal operators on Hilbert space, spectral theorem, applications, symmetric and self-adjoint operators, normal operators, the spectral theorem.

MATH 7440 PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Second order linear elliptic and hyperbolic equations stressing non-linear and numerical problems, characteristic domains of dependence, energy integrals, finite difference schemes, Sobolev spaces, maximum principle.

MATH 7450 PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7440. Parabolic and hyperbolic equations, stressing numerical problems, characteristics, domains of dependence, energy integrals, reaction-diffusion problems, Navier-Stokes equations, fixed-point and Galerkin methods.

MATH 7460 ADVANCED PERTURBATION METHODS (3) LEC. 3. Departmental approval. Solutions of nonlinear problems and integrals using WKB, Rayleigh-Janzen, Generalized Scales, Latta, van der Pol, Watson, Laplace, Adomian, homotopy, Pade, Liouville-Green and Burmann transformations. May count either AERO 7460/7466 or MATH 7460/7466.

MATH 7500 TOPOLOGY I (3) LEC. 3. Departmental approval. Separation and countability axioms, covering properties, completeness, connectedness, metric spaces and metrizability, product and quotient spaces, function spaces.

MATH 7510 TOPOLOGY II (3) LEC. 3. Pr. MATH 7500. Homotopy, elementary properties of retracts, fundamental groups, covering spaces, computations of fundamental groups.

MATH 7530 CONTINUUM THEORY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Topics such as inverse limits, decompositions, hyperspaces, special mappings, topological structures from the pathological (indecomposable continua), to the straightforward (Peano continua).

MATH 7540 CONTINUUM THEORY II (3) LEC. 3. Pr. MATH 7530. Topics in continuum theory such as confluent mappings, epsilon mappings, chains, to-the-boundary theorems, relationship to inverse limits, advanced topics.

MATH 7550 SET THEORETIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Compactifications, covering properties, metrization theorems and generalized metrizable spaces, topological groups.

MATH 7560 SET THEORETIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7550. Topological Groups, Cardinal invariants, use of set-theoretic axioms such as Martin's Axiom, independence results, advanced topics.

MATH 7600 ADVANCED NUMERICAL MATRIX ANALYSIS (3) LEC. 3. Departmental approval. Topics selected from: discretization matrices, sparse matrices, QR-algorithm, symmetric eigenvalue problems, singular value decomposition, pseudo-inverses, simplex method, matrix algorithms for vector computers.

MATH 7610 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667) and (MATH 5630 or MATH 6630) and (MATH 5640 or MATH 6640). Finite difference methods for ordinary and partial differential equations.

MATH 7630 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7610. Finite element methods for partial differential equations.

MATH 7700 GRAPH THEORY (3) LEC. 3. Algorithmic, enumerative and theoretical aspects of graph theory: matchings and factors, colorings, Hamiltonicity, connectivity, trees, extremal graphs, planarity. May count either MATH 6750 or MATH 7700.

MATH 7710 COMPUTATIONAL GEOMETRY (3) LEC. 3. Departmental approval. Design and time-complexity of computer algorithms for geometry problems studying the geometric ideas needed for computer-aided design, computer graphics and robotics.

MATH 7720 INTRODUCTION TO CODING THEORY (3) LEC. 3. Introduction to methods and algorithms for reliable communications through error control coding. BCH, Reed- Solomon, Reed-muller codes, convolutional codes, Berlekamp-Massey, Viterbi, and iterated decoding algorithms.

MATH 7730 ADVANCED TOPICS IN CODING THEORY (3) LEC. 3. Pr. MATH 7720. Departmental approval. Structure and theoretical properties of codes and related algorithms. Relations to other combinatorial and algebraic objects stressed.

MATH 7740 ADVANCED COMBINATORIAL DESIGNS (3) LEC. 3. Topics of current interest and research in combinatorial design theory. Areas included: latin squares, embeddings, Wilson's constructions, quadruple systems, Hadamard designs, graph designs, orthogonal arrays.

MATH 7750 ADVANCED TOPICS IN GRAPH THEORY (3) LEC. 3. Pr. MATH 6750 or MATH 7700. Topics of current interest and recent research in graph theory. May include edge colorings, algebraic graph theory, network flows, factor theory.

MATH 7760 INTRODUCTION TO ALGEBRAIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Homology of chain complexes, the axioms of homology and their verification, computations of homology groups.

MATH 7770 INTRODUCTION TO ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7760. Homology with coefficients and universal coefficient theorem theorems, Cohomology and universal coefficient theorems, homology of products of spaces, cup and cap products, duality in manifolds.

MATH 7780 ADVANCED ALGEBRAIC TOPOLOGY I (3) LEC. 3. Departmental approval. Advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7790 ADVANCED ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7780. Continuation of MATH 7780; advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7800 PROBABILITY I (3) LEC. 3. Pr., a full year of undergraduate mathematical analysis at a level commensurate with MATH 5200/5210. Measure-theoretic foundations, independence, conditioning, martingales, Markov property, stationarity, random walks, Markov chains, Poisson processes.

MATH 7810 PROBABILITY II (3) LEC. 3. Pr. MATH 7800. Classical and modern topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both MATH 7810 and STAT 7810.

MATH 7820 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances). Credit will not be given for both MATH 7820 and STAT 7820.

MATH 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances).

MATH 7870 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY I (3) LEC. 3. Pr. MATH 7210 or MATH 7500. Borel classification of sets, the Baire classification of real functions. Derivatives and approximately continuous functions. The Lebesegue density topology.

MATH 7880 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY II (3) LEC. 3. Pr. MATH 7870. Analytic and coanalytic sets. Lebesegue measurable, universally measurable and Marczewski measurable sets and functions. Baire properties. Singular sets. Category analogs to real analysis.

MATH 7950 SEMINAR (1-3) AAB. SU. Course may be repeated for a maximum of 6 credit hours.

MATH 7960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 10 credit hours.

MATH 7970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated with change in topics.

MATH 7980 RESEARCH AND SPECIAL PROJECT IN APPLIED MATHEMATICS (1-10) RES. SU. Departmental approval. For students working on the Master of Applied Mathematics degree with concentration in numerical analysis. Course may be repeated for a maximum of 10 credit hours.

MATH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

MATH 8310 HOMOLOGICAL ALGEBRA I (3) LEC. 3. Pr. MATH 7320. Departmental approval. Homology and cohomology. Hom and Tensor functors; the adjoint isomorphisms, injective/projective modules, flat modules, the classification of certain rings using homological tools.

MATH 8330 INTRODUCTION TO LIE GROUPS (3) LEC. 3. Pr. MATH 7310 or MATH 7370. Introduce Lie groups via matrix groups. Topics include exponential map, Lie algebras, classical groups, structures and classifications, manifolds, representations.

MATH 8960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Statistics Courses

STAT 1010 DATA EPISTEMOLOGY (3) LEC. 3. This course will provide the basic tools to understand, interpret and reason with data in order to critically think about data-driven knowledge. Acquiring notions of logical reasoning and data literacy, the students will know how to analyze and ask the correct questions regarding data collection, representation and interpretation.

STAT 2010 STATISTICS FOR SOCIAL AND BEHAVIOR SCIENCES (4) LEC. 3. LAB. 2. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617. Introduction to basic principles of statistical reasoning and statistical procedures used in data analysis in the social and behavioral sciences.

STAT 2017 HONORS STATISTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (4) LEC. 3. LAB. 2. Pr. Honors College. Introduction to statistical data analysis, statistical packages, and APA-style statistical reporting use in research in Psychology and other social and behavioral sciences.

STAT 2510 STATISTICS FOR BIOLOGICAL AND HEALTH SCIENCES (3) LEC. 3. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683. Introduction to statistical concepts, reasoning and methods used in data analysis, descriptive statistics, sampling distributions, statistical inference, confidence intervals, regression or correlation, contingency tables. Students who have previous credit in any higher-numbered math course may not receive credit.

STAT 2600 BUSINESS ANALYTICS I (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or P/C COMP 1000 or COMP 1003. Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results. Minimum 2.0 overall cumulative undergraduate GPA.

STAT 2610 STATISTICS FOR BUSINESS AND ECONOMICS (3) LEC. 3. Pr. MATH 1690. Introduction to statistical analysis, theory, and interpretation used in business and economics.

STAT 2710 STATISTICAL COMPUTING (1) LEC. 1. Pr. (P/C STAT 2010 or P/C STAT 2017) and (P/C STAT 2510 or STAT 2513) and P/C STAT 2610 and P/C STAT 3010. Introduction to basic statistical computing programs and methods..

STAT 3010 STATISTICS FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr. MATH 1610 or MATH 1613 or MATH 1617 or MATH 1710. Introduction to statistical methods and analysis used in engineering and science.

STAT 3600 PROBABILITY AND STATISTICS I (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Calculus-based introduction to probability and statistics with an emphasis on practical problem-solving.

STAT 3610 PROBABILITY AND STATISTICS II (3) LEC. 3. Pr. STAT 3600. Departmental approval. Continuation of STAT 3600.

STAT 3611 PROBABILITY AND STATISTICS II LABORATORY (1) LAB. 2. Departmental approval. Coreq. STAT 3610. The application of statistical techniques from STAT 3610.

STAT 4000 INTRODUCTION TO DATA SCIENCE (3) LEC. 3. Pr. STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2600 or STAT 3010 or STAT 3600 or STAT 3603. Departmental approval. This course will provide an entry level introduction to the field of data science. The course will cover the essential statistical and computational tools including programming and analytical models, as well as teamwork, communication, and critical thinking.

STAT 4610 APPLIED REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 3610 or STAT 3010. Least squares estimation, hypothesis testing and confidence interval estimation in regression; simple, polynomial and multiple linear regression; residual and lack-of-fit analysis; use of dummy variables; multiple and partial correlation analysis; model building algorithms and model comparisons; transformations.

STAT 4620 APPLIED NONPARAMETRIC STATISTICS (3) LEC. 3. Review of elementary probability; goodness-of-fit tests; for singles and several location parameters; tests for scale parameters; distribution tests; measures of association; bootstrap and permutation tests.

STAT 4630 APPLIED TIME-SERIES ANALYSIS (3) LEC. 3. ARIMA models: the autoregressive process, the moving average process, and the ARMA process; forecasting, errors and confidence intervals, updating forecast models; estimation; model building and assessment; applications in econometrics.

STAT 4650 INTRODUCTION TO BAYESIAN STATISTICS (3) LEC. 3. LAB. 0. Pr. STAT 3610. This course will develop an introduction to the Bayesian thinking and the Fundamental Concepts in Bayesian Statistics.

STAT 4970 SPECIAL TOPICS IN STATISTICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interest of students. Course may be repeated for a maximum of 6 credit hours.

STAT 4980 UNDERGRADUATE RESEARCH IN STATISTICS AND DATA SCIENCE (1-3) IND/RES. Directed research in Statistics and Data Science. Departmental Approval. Course may be repeated for a maximum of 3 credit hours.

STAT 5000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT3610 or STAT3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time dependent data with a focus on Data Science.

STAT 5110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 5210 R PROGRAMMING FOR DATA SCIENCE (3) LEC. 3, LEC. 3. Pr. STAT 2510 or STAT 3010 or STAT 3610. Fundamental concepts on R programming language and popular R packages. Topics include basic syntax, R objects, control flow, file input and output, building R packages, data manipulation, visualization, interface to C, parallel computing, building web apps.

STAT 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/ 6336.

STAT 5600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or (STAT 3010 and MATH 1620) or (STAT 3010 and MATH 1627). Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, maximum likelihood estimation, Bayesian statistics, hypothesis testing, prediction, sampling and resampling methods, multivariate statistics.

STAT 5610 FUNDAMENTALS OF STATISTICAL INFERENCE I (3) LEC. 3. Pr. STAT 3600 and STAT 3610. Probability and independence; discrete and continuous distributions, random variable, moments; joint, marginal, conditional distributions; exponential families; bivariate transformations, covariance and correlation; multivariate distributions, sums of random variables, sampling distributions for normal data, order statistics; convergence of random variables, principles of data reduction; the likelihood principle.

STAT 5620 FUNDAMENTALS OF STATISTICAL INFERENCE II (3) LEC. 3. Pr. STAT 5610. Properties of random samples; generating a random sample; point and interval estimation; hypothesis testing; Analysis of Variance: one-way ANOVA, multi-way ANOVA and ANCOVA; linear regression, multiple regression and GLM methods, logistic regression.

STAT 5630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling, systematic sampling ratio estimations.

STAT 5650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 5000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT 5670 and MATH 5670.

STAT 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 5670 or MATH 5670. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 5680 and MATH 5680.

STAT 5690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 5690 and MATH 5690.

STAT 6000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT 3610 or STAT 3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time-dependent data.

STAT 6110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610 or P/C STAT 7000. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 6210 R PROGRAMMING FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 2510 or STAT 3010 or STAT 3610. Fundamental concepts on R programming language and popular R packages. Topics include basic syntax, R objects, control flow, file input and output, building R packages, data manipulation, visualization, interface to C, parallel computing, building web apps.

STAT 6330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/ 6336.

STAT 6600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or (STAT 3010 and MATH 1620) or (STAT 3010 and MATH 1627). Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, Maximum Likelihood Estimation, Bayesian statistics, hypothesis testing, prediction, Sampling and Resampling methods, multivariate statistics.

STAT 6610 FUNDAMENTALS OF STATISTICAL INFERENCE I (3) LEC. 3. Pr. STAT 3600 and STAT 3610. This class is first of a two-semester sequence in probability and statistics taught at a calculus-based level. Students should gain an understanding of probability and random variables in order to have the foundation to conduct statistical inference in STAT 5620/6620.

STAT 6620 FUNDAMENTALS OF STATISTICAL INFERENCE II (3) LEC. 3. Pr. STAT 6610. This class is second of a two-semester sequence in probability and statistics taught at a calculus-based level. Students should gain an understanding of inference for the practice of statistics.

STAT 6630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling systematic sampling ratio estimations.

STAT 6650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 6000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 6670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT and MATH 6670.

STAT 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 6680 and MATH 6680.

STAT 6690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 6690 and MATH 6690.

STAT 6830 STATISTICS AND PROBABILITY FOR TEACHERS (3) LEC. 3. Pr. STAT 3010 or STAT 3600 or STAT 3603. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on statistics and probability, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving. Admission to a program in Secondary Mathematics Education or department approval required.

STAT 7000 EXPERIMENTAL STATISTICS I (4) LEC. 4. Departmental approval. Paired and independent sample t-tests, ANOVA, F-tests, contrasts, tests for trends, multiple comparisons, CR and RCB designs of experiments, regression.

STAT 7010 EXPERIMENTAL STATISTICS II (3) LEC. 3. Pr. STAT 7000. Advanced topics in experimental design: writing linear models for experiment-expected mean squares, variance components, nested designs, Latin Square Designs, split plot designs, ANOVA and multiple regression.

STAT 7020 REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Introduction to the method of least squares as it applies to regression and analysis of variance. Simple linear regression, multiple regression, model selection and diagnostics.

STAT 7030 CATEGORICAL DATA ANALYSIS (3) LEC. 3. Pr. STAT 3600 or MATH 3600 or STAT 7000. Departmental approval. Methods for analysis or categorical response data. Topics include Chi-square tests, Likelihood Ratio tests, Logistic Regression, and Loglinear Modeling.

STAT 7040 BIOSTATISTICS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Epidemiology, biometry, methods of survival analysis.

STAT 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017. Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for STAT 7100 and SOCY 7100.

STAT 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 1. Pr. STAT 7020 or WILD 7150. Data from the life sciences and advanced statistical techniques for data analyses and computaMon are brought together through a cross-fertilization of graduate students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects.

STAT 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Pr. STAT 7000 and STAT 7020. Introduction to the analysis of data collected under differential experimental designs. Credit will not be given for both STAT 7270 and PSYC 7270.

STAT 7300 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Pr. STAT 3610. Departmental approval. Advanced concepts of experimental design including blocking, regression approach to analysis of variance, fractional factorials in base-2, and base-3 designs. Emphasis throughout is on improving industrial products and processes. Credit will not be given for both STAT 7300 and INSY 7300.

STAT 7310 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3. Pr. STAT 7300 or STAT 7306 or INSY 7300 or INSY 7306. Fractional factorial experimentation applied for the purpose of process and quality improvement and optimization, introduction to analysis of covariance, multiple regression analysis, and response surface analysis. Credit will not be given for both STAT 7310 and INSY 7310.

STAT 7600 STATISTICAL THEORY AND METHODS I (3) LEC. 3. Pr. STAT 3600. Departmental approval. Random variables, probability theory, random variables, probability distributions, sampling distributions, convergence.

STAT 7610 STATISTICAL THEORY AND METHODS II (3) LEC. 3. Pr. STAT 7600. Likelihood ratio, regression, ANOVA, categorical data, non-parametric methods, decision theory.

STAT 7620 NONPARAMETRIC STATISTICS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Distribution-free methods of statistical inference. Sign, Wilcoxon signed-rank, and Mann-Whitney tests for location, the Chi-Square and Kolmogorov-Smirnov tests for goodness-of-fit. Measures of association.

STAT 7630 BAYESIAN STATISTICS (3) LEC. 3. LAB. 0. Pr. STAT 6620 or STAT 7610. This course will develop an understanding of Bayesian principles and methodologies and cover the modeling and computation required to perform advanced data analysis from the Bayesian perspective.

STAT 7650 COMPUTATIONAL STATISTICS (3) LEC. 3. Pr. STAT 7020 and STAT 7610. This course covers the theory and practice of common algorithms used for simulation, computing, and optimization in Statistics.

STAT 7670 APPLIED LONGITUDINAL DATA ANALYSIS (3) LEC. 3. To introduce students to statistical models and methods for the analysis of longitudinal date, i.e. data collected repeatedly on individuals (humans, animals, etc) over time (or other conditions).

STAT 7700 GENERALIZED LINEAR MODELS (3) LEC. 3. Pr. STAT 7600. Departmental approval. Exponential families and links functions, model fitting, likelihood methods, residual diagnostics, count data, estimating equations.

STAT 7780 SURVIVAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Kaplan-Meier estimator, log-rank tests, Cox proportional hazard model, fully parametric models.

STAT 7800 LINEAR MODELS (3) LEC. 3. Pr. STAT 7610 and MATH 2660. Departmental approval. A rigorous development of some of the important topics of applied statistics: the multivariate normal distribution analysis of variance, regression, aspects of experimental design.

STAT 7810 MODERN STOCHASTIC PROCESSES I (3) LEC. 3. Pr. (MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676) and MATH 6210. Classical and Modern Topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both STAT 7810 and MATH 7810.

STAT 7820 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 7810 or MATH 7816 or STAT 7810 or STAT 7816. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion.) Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances). Credit will not be given for both STAT 7820 and MATH 7820.

STAT 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 7810 or STAT 7816.

STAT 7840 APPLIED MULTIVARIATE STATISTICAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Multivariate normal distribution, Hotelling's T2, MANOVA, discriminate analysis, principal components.

STAT 7850 THEORY OF STATISTICAL INFERENCE (3) LEC. 3. Pr. STAT 7610. Central limit theorem, Convergence, M-estimate, Statistical functional, U-statistics

STAT 7860 APPLIED TIME SERIES ANALYSIS (3) LEC. 3. Pr. STAT 3610. Departmental approval. Autoregressive and moving average models, differencing, estimation and forecasting, spectral theory.

STAT 7930 STATISTICAL CONSULTING PRACTICUM (3) PRA. 3. Pr. STAT 7000 and STAT 7010 and STAT 7020. This is a course in applied statistics, providing training in statistical consulting. Applications of commonly encountered statistical methods are explored in the consulting environment. Written and oral communication skills are emphasized, and ethical aspects of consulting are introduced. This course provides students with an opportunity to gain practical experience in consulting through various projects with clients, through the AU Statistical Consulting Center.

STAT 7940 CAPSTONE PROJECT (3) LEC. 3. Discuss various topics while working on an industry-level project. Students will complete a semester-long project under the supervision of instructors.

STAT 7950 SEMINAR (1) SEM. SU. Exploration of statistical concepts, fostering active learning through presentations, guest lectures, discussions, and student-led research presentations. Course may be repeated for a maximum of 2 credit hours.

STAT 7960 SPECIAL PROBLEMS IN STATISTICS (1-10) RES. Credit will not be given for both MATH 7960 and STAT 7960. Course may be repeated for a maximum of 10 credit hours.

STAT 7970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interests of students. Course may be repeated for a maximum of 6 credit hours.

STAT 7980 SPECIAL PROJECT (3) LEC. 3. SU. Departmental approval. Non-thesis project in Statistics for Master's degree in Statistics (non-thesis option).

STAT 7990 RESEARCH AND THESIS (1-10) DSR. Research for Master's thesis in Statistics. Course may be repeated with change in topic.

STAT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (3) LEC. 3. Pr. STAT 7000. or approved equivalent. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models.

STAT 8410 ADVANCED QUANTITATIVE METHODS MANAGEMENT II (3) LEC. 3. or approved equivalent. Introduction to multivariate techniques in business research. Study of the theory and applications of ANOVA, ANCOVA, MANOVA, MANCOVE, Discriminate Analysis & Polytomous Logistic Regression.

STAT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3. Pr. STAT 7100 and STAT 8400 and STAT 8410. or approved equivalent. Third course in statistical modeling. Emphasis on applications of Principal Components Analysis, and Structural Equation Modeling to management research.

STAT 8990 RESEARCH AND DISSERTATION (1-10) LEC. 1-10. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics. Course may be repeated for a maximum of 30 credit hours.

Applied Mathematics Option (AMTH)

The Applied Mathematics curriculum is designed for students preparing to pursue graduate studies in Mathematics or Applied Mathematics. It is also suitable for those pursuing careers requiring expertise in applied mathematical methods, including engineering, physical sciences, computer science, and fields such as biological, behavioral, or managerial sciences.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Humanities	3	Core Science[4]	4
Core Social Science[2]	3	Core History or Literature[1]	3
Core History	3	**MATH 1620 Calculus II**	**4**
MATH 1610 Calculus I	**4**	COMP 1220 Introduction to Computing with Python ***or*** 1230 Introduction to Computing with MATLAB	2
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core Social Science or Humanities[3]	3
Core Science[4]	4	**MATH 2650 Linear Differential Equations**	**3**
MATH 2630 Calculus III	**4**	**MATH 3100 Introduction to Advanced Mathematics**	**3**
MATH 2660 Topics in Linear Algebra	**3**	STAT 3600 Probability and Statistics I	3
Interdisciplinary Electives[5]	3	Interdisciplinary Elective[5]	3
	17		**15**

Junior

Fall	Hours	Spring	Hours
Core Social Science[2]	3	Core Fine Arts	3
MATH 5200 Analysis I	**3**	**MATH 5210 Analysis II**	**3**
MATH 5630 Introduction to Numerical Analysis I	**3**	**MATH 5640 Introduction to Numerical Analysis II**	**3**
Interdisciplinary Elective[5]	3	Interdisciplinary Elective[5]	3
Electives	4	Elective	4
	16		**16**

Senior

Fall	Hours	Spring	Hours
MATH 5000 Math Modeling	**3**	**Math Elective[5]**	**9**
MATH 5670 Probability and Stochastic Processes I	**3**	Elective	3
Math Elective[5]	**3**	UNIV 4AA0 Achieve the Creed[6]	0
Interdisciplinary Elective[5]	3		
	12		**12**

Total Hours: 120

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

2 Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

4 Core Science: One of the sequences PHYS 1600/PHYS 1610, BIOL 1020/BIOL 1030, CHEM 1030/CHEM 1040 with labs, or GEOL 1100/GEOL 1110.

5 For guidelines regarding Math Elective and Interdisciplinary Elective, see advisor.

6 This course must be taken the semester of graduation.

Applied Mathematics — Actuarial Science Option (ACTU)

The Actuarial Science curriculum offers a balanced coursework combining rigorous applied mathematics with advanced training for the actuarial profession. It prepares students for careers in the insurance industry and other sectors that rely on actuarial expertise. Actuaries are increasingly employed in financial services, including commercial and investment banking, retirement funds, corporations, and government. The program's courses align closely with the exams administered by the Society of Actuaries and the Casualty Actuarial Society, and the program is flexible enough to allow graduates to pursue further studies in Mathematics and related fields.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History	3	Core Science[3]	4
Core Social Science	3	Core History or Literature[1]	3
Core Humanities	3	COMP 1220 Introduction to Computing with Python ***or*** 1230 Introduction to Computing with MATLAB	2
MATH 1610 Calculus I	**4**	**MATH 1620 Calculus II**	**4**
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Science[3]	4	Core Social Science or Humanities[2]	3
ECON 2020 Principles of Microeconomics	3	ECON 2030 Principles of Macroeconomics	3
MATH 2630 Calculus III	**4**	**MATH 2650 Linear Differential Equations**	**3**
MATH 2660 Topics in Linear Algebra	**3**	**MATH 4790 Actuarial Seminar in the Mathematics of Finance**	**3**
MATH 2790 Mathematics of Interest Theory	**3**	**STAT 3600 Probability and Statistics I**	**3**
	17		**15**

Junior

Fall	Hours	Spring	Hours
Core Literature	3	FINC 3610 Principles of Business Finance	3
Electives	3	Electives	4
ACCT 2810 Fundamentals Of Accounting	3	**MATH 4800 Introduction to Actuarial Mathematics**	**3**
MATH 4820 Actuarial Seminar in Probability	**3**	**MATH 3100 Introduction to Advanced Mathematics**	**3**
STAT 3610 Probability and Statistics II	**3**	Core Fine Arts	3
	15		**16**

Senior

Fall	Hours	Spring	Hours
MATH 5000 Math Modeling	**3**	**MATH 5810 Actuarial Mathematics II**	**4**
MATH 5800 Actuarial Mathematics I	**3**	**Math Electives[4]**	**3**
Electives	3	Electives	6
Math Elective[4]	**3**	UNIV 4AA0 Achieve the Creed	0
	12		**13**

Total Hours: 120

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

2 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be CORE HUMANITIES.

3 Core Science: One of the sequences PHYS 1600/PHYS 1610, BIOL 1020/BIOL 1030, CHEM 1030/CHEM 1040 with labs, or GEOL 1100/GEOL 1110.

4 MATH or STAT courses at the 3000 level or higher; no more than one 3000-level course. Subject to advisor's approval.

Applied Mathematics — Applied Discrete Mathematics Option (APDM)

The Applied Discrete Mathematics curriculum prepares students for graduate study in Mathematics or theoretical Computer Science, and for careers in fields supported by discrete mathematics. This includes graph theory, operations research, discrete optimization, computer science, communications, and information sciences. An Accelerated Bachelor's/Master's program leading to a Master's in Data Science is also available for students in this curriculum.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Social Science[2]	3	Core Science[4]	4
Core History	3	Core History or Literature[1]	3
Core Humanities	3	**MATH 1620 Calculus II**	**4**
MATH 1610 Calculus I	**4**	COMP 1220 Introduction to Computing with Python ***or*** 1230 Introduction to Computing with MATLAB	2
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core Social Science or Humanities[3]	3
Core Science[4]	4	**MATH 2650 Linear Differential Equations**	**3**
MATH 2660 Topics in Linear Algebra	**3**	**MATH 3100 Introduction to Advanced Mathematics**	**3**
MATH 2630 Calculus III	**4**	**STAT 3600 Probability and Statistics I**	**3**
COMP 1210 Fundamentals of Computing I	3	COMP 2210 Fundamentals of Computing II	4
	17		**16**

Junior

Fall	Hours	Spring	Hours
Core Social Science[2]	3	Core Fine Arts	3
MATH 5750 Introduction to Graph Theory	**3**	**MATH 5330 Computational Algebra**	**3**
MATH 5310 Introduction to Abstract Algebra I	**3**	**Analysis Elective[5]**	**3**
Elective	4	Elective	3
Interdisciplinary Elective[5]	3	Interdisciplinary Elective[5]	3
	16		**15**

Senior

Fall	Hours	Spring	Hours
Algebra/Linear Algebra Elective[5]	**3**	**Discrete Math Elective[5]**	**3**
Discrete Math Electives[5]	**6**	**Math Elective[5]**	**6**
Interdisciplinary Elective[5]	3	Elective	3
		UNIV 4AA0 Achieve the Creed[6]	0
	12		**12**

Total Hours: 120

1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.
2. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.
3. If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.
4. Core Science: One of the sequences PHYS 1600/PHYS 1610, BIOL 1020/BIOL 1030, CHEM 1030/CHEM 1040 with labs, or GEOL 1100/GEOL 1110.

[5] For guidelines regarding Discrete Math electives, Math Electives, Applied Analysis Elective, Algebra/Linear Algebra Elective and Interdisciplinary Electives, see advisor.

[6] This course must be taken the semester of graduation.

Mathematics (MATH)

The Mathematics curriculum provides a comprehensive foundation in mathematics, preparing students for graduate studies or careers that require strong mathematical knowledge and problem-solving skills. It is well-suited for those planning to teach mathematics at the college or university level or seeking flexibility with a liberal arts emphasis.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core Social Science[2]	3	Core Science[4]	4
Core Humanities	3	Core History or Literature[1]	3
Core History	3	**MATH 1620 Calculus II**	**4**
MATH 1610 Calculus I	**4**	COMP 1220 Introduction to Computing with Python ***or*** 1230 Introduction to Computing with MATLAB	2
	16		**16**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core Social Science or Humanities[3]	3
Core Science[4]	4	**MATH 2650 Linear Differential Equations**	**3**
MATH 2630 Calculus III	**4**	**MATH 3100 Introduction to Advanced Mathematics**	**3**
MATH 2660 Topics in Linear Algebra	**3**	**STAT 3600 Probability and Statistics I**	**3**
Elective	3	Elective	3
	17		**15**

Junior

Fall	Hours	Spring	Hours
Core Social Science[2]	3	Core Fine Arts	3
MATH 5200 Analysis I	**3**	**MATH 5210 Analysis II**	**3**
MATH 5310 Introduction to Abstract Algebra I	**3**	**MATH 5320 Introduction to Abstract Algebra II**	**3**
Math Elective[5]	**3**	**Math Elective[5]**	**3**
Elective	4	Elective	4
	16		**16**

Senior

Fall	Hours	Spring	Hours
MATH 5500 Introduction to Topology	**3**	**Math Elective[5]**	**6**
Applied Math Elective[6]	**3**	Elective	6
Math Elective[5]	**3**	UNIV 4AA0 Achieve the Creed	0
Elective	3		
	12		**12**

Total Hours: 120

[1] Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

[2] Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

[3] If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

[4] CORE SCIENCE: PHYS 1600–PHYS 1610, BIOL 1020–BIOL 1030, CHEM 1030–CHEM 1040 with labs, or GEOL 1100–GEOL 1110.

[5] Math Elective: Courses designated MATH or STAT at the level of 3000 or higher, no more than one 3000-level course. Subject to advisor's approval.

[6] Applied Math Elective: MATH 5630, MATH 5640, MATH 5670, or MATH 5000.

Mathematics Minor

Fifteen semester hours of courses labeled MATH or STAT at the level of 3000 or higher; at least three courses must be designated MATH. A minimum grade of C in each of these courses is required.

Statistics Minor

Code	Title	Hours
Statistics Minor		
Select 15 hours of courses labeled STAT or MATH at the level of 3000 or higher; at least four courses must be designated STAT.		15
Total Hours		**15**

A minimum grade of C in each of these courses is required.

Department of Physics

Physics majors acquire a firm foundation for careers in physics and related fields and excellent preparation for further study. Through the judicious use of electives, this curriculum provides not only a thorough understanding of physics, but also the ability to solve problems in other fields of interest to the student.

Majors

- Physics (p. 1334)
- Physics - Pre-professional concentrations:
  - Physics — Pre-Medicine, Pre-Dental, Pre-Optometry (p. 1335)
  - Physics — Pre-Physical Therapy, Pre-Physician Assistant (p. 1337)

Minors

- Physics (p. 1335)

Courses

PHYS 1000 FOUNDATIONS OF PHYSICS (4) LEC. 3. LAB. 2. Science Core. Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics. Students who have previous credit in any higher-numbered physics course may not receive credit.

PHYS 1001 FOUNDATIONS OF PHYSICS LABORATORY (1) LAB. 2. Coreq. PHYS 1003. Core-curriculum laboratory course in physics focusing on practical applications and hands-on experience. Topics include: Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics.

PHYS 1100 PHYSICS ORIENTATION (1) LEC/SEM. SU. The course will provide incoming Physics majors with an orientation to the Physics program and will develop critical thinking and professional skills that complement academic and research training. Students will be exposed to aspects of physics research through a broad range of topical discussions with the instructor, other faculty and/or outside speakers.

PHYS 1150 ASTRONOMY (4) LEC. 3. LAB. 3. Science Core. Open to non-science majors. Earth, the solar system, stars, neutron stars, black holes, supernova, galaxies, the expanding universe, and modern cosmological theories.

PHYS 1400 PHYSICS FOR AVIATORS (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1150 or MATH 1610 or MATH 1617) and SCMH 1010. Departmental approval. The course provides students with an overview of introductory physics topics such as kinematics, laws of motion, conservation laws, thermodynamics, waves, basic electrical circuits, magnetic fields, and optics essential as a foundation of aviation. The course will specifically utilize examples and problems related to aviation.

PHYS 1500 GENERAL PHYSICS I (4) LEC. 3. LAB. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 1710 or P/C MATH 1720 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation and cosmology, concept of conservation laws, solids and fluids, thermodynamics. Math at level of MATH 1130 or higher is expected. Credit will not be given for both PHYS 1500 and PHYS 1600 or PHYS 1607.

PHYS 1510 GENERAL PHYSICS II (4) LEC. 3. LAB. 3. Pr. PHYS 1500 or PHYS 1600 or PHYS 1607. Science Core. Electricity and magnetism, AC circuits, waves, nuclear physics, radioactivity and particle physics. Physics at the level of PHYS 1500 or higher is expected. Credit will not be given for both PHYS 1510 and PHYS 1610 or PHYS 1617.

PHYS 1600 ENGINEERING PHYSICS I (4) LEC. 3. LAB. 3. Pr. MATH 1610 or MATH 1613 or MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation, cosmology, conservation of energy, momentum and angular momentum, special relativity, and fluids using introductory calculus. Math at the level of MATH 1610 or higher is required as a prerequisite. Credit will not be given for both PHYS 1500 and PHYS 1600 or PHYS 1607.

PHYS 1607 HONORS PHYSICS I (4) LEC. 3. LAB. 3. Pr. Honors College. Science Core. Honors version of PHYS 1600. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1610 or higher is required as a prerequisite. Credit will not be given for both PHYS 1500 and PHYS 1600 or PHYS 1607.

PHYS 1610 ENGINEERING PHYSICS II (4) LEC. 3. LAB. 3. Pr. (PHYS 1600 or PHYS 1607) and (MATH 1620 or MATH 1623 or MATH 1627). Science Core. Thermodynamics, electricity and magnetism, simple AC circuits, waves, and geometric optics. Physics at the level of PHYS 1600 or higher is expected. Math at the level of MATH 1620 or higher is required as a prerequisite. Credit will not be given for both PHYS 1510 and PHYS 1610 or PHYS 1617.

PHYS 1617 HONORS PHYSICS II (4) LEC. 3. LAB. 3. Pr. Honors College. MATH 1620 and PHYS 1600 or PHYS 1607. Science Core. Honors version of PHYS 1610. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1620 or higher is required as a prerequisite. Physics at the level of PHYS 1600 or higher is expected. Credit will not be given for both PHYS 1510 and PHYS 1610 or PHYS 1617.

PHYS 2100 INTERMEDIATE MECHANICS (3) LEC. 3. Pr. (PHYS 1610 or PHYS 1617) and (P/C MATH 2630 or P/C MATH 2637 or P/C MATH 2633). Principles and applications of Newtonian mechanics, noninertial reference frames, harmonic motion, central forces, rigid bodies, introduction to Lagrangian and Hamiltonian mechanics.

PHYS 2200 INTRODUCTORY QUANTUM PHYSICS AND RELATIVITY (3) LEC. 3. Pr. PHYS 1617 or PHYS 1610. Observational foundations of quantum physics, relativity and developments of several branches of physics up to their present frontiers.

PHYS 2300 PHYSICS LABORATORY SKILLS (3) LEC. 1. LAB. 5. Pr. PHYS 1617 or PHYS 1610. The measurement process and its unavoidable uncertainties; standard laboratory instruments; data analysis techniques and tools.

PHYS 2400 MATHEMATICAL AND COMPUTATIONAL METHODS OF PHYSICS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1610 or PHYS 1617). This course introduces students of physics and related fields to mathematical tools and techniques that are needed later in the physics curriculum. Topics include complex numbers, linear algebra, linear and partial differential equations, Fourier series and integrals, and vector calculus with physical application. Students will be introduced to the Python-based computational toolkits to aid in their problem solving.

PHYS 3100 INTERMEDIATE ELECTRICITY AND MAGNETISM (3) LEC. 3. Pr. (PHYS 1617 or PHYS 1610) and (MATH 2630 or MATH 2637 or MATH 2730). Electrostatics, Magnetostatics, Laplace's equation, boundary-value problems, multipole expansions, dielectric and magnetic materials. Faraday's law, AC circuits, and Maxwell's equations.

PHYS 3200 STATISTICAL THERMODYNAMICS (3) LEC. 3. Pr. PHYS 2200. The basic laws of thermodynamics, kinetic theory, and statistical mechanics including entropy, the partition function, free energy, and the quantum statistics of Fermions and Bosons.

PHYS 3500 PHYSICS OF THE WORLD AROUND US (3) LEC. 3. Interdisciplinary topic e.g. Biophysics, Astrophysics, Physics of Weather, Physics of Music, or Environmental Physics. Course may be repeated for a maximum of 12 credit hours.

PHYS 3610 APPLICATIONS OF MODERN PHYSICS (3) LEC. 3. Pr. PHYS 2200. Survey of contemporary subdisciplines in physics and technology that are based on the principles of quantum mechanics such as atomic/molecular physics, statistical mechanics, condensed matter/material science, astrophysics, nuclear physics, and elementary particle physics.

PHYS 3620 OBSERVATIONAL ASTRONOMY (3) LEC. 3. Pr. PHYS 1600 and (MATH 1620 or MATH 1627). This course will introduce students to astronomy from an observational perspective. Students will first learn about astronomical images and data analysis and discuss the physics of the solar system, stars, galaxies, and the universe. As part of the course, students will collect and analyze astronomical data using departmental telescopes and access publicly available data from facilities to demonstrate astrophysical principles.

PHYS 4100 FUNDAMENTALS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 2200 and MATH 2650. Schrodinger equation, stationary and time-dependent solutions, spin and the exclusion principle, perturbation theory, scattering and resonances, the interpretation of quantum mechanics.

PHYS 4200 FUNDAMENTAL EXPERIMENTS IN PHYSICS (3) LEC. 1. LAB. 5. Pr. PHYS 2300. Experiments that demonstrate the fundamental ideas and facts of physics. Data will be collected, analyzed, interpreted and reported in comprehensive lab reports.

PHYS 4930 DIRECTED STUDIES IN PHYSICS (1-5) IND. Departmental approval. Student will study a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours.

PHYS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

PHYS 4980 UNDERGRADUATE RESEARCH IN PHYSICS (1-5) IND. Departmental approval. Student will work under the direction of a faculty member on a problem of mutual interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

PHYS 5100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 4100. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 5200 TEACHING AND LEARNING OF STEM (3) LEC. 3. This course will provide students with a basic knowledge of the relevant research in cognitive psychology and learning science and the ability to apply that knowledge to enhance their ability to learn and teach science, particularly at the undergraduate level. This course will involve readings, discussion, and application of the ideas through the creation of learning activities. It is suitable for advanced undergraduates and graduate students with some science background.

PHYS 5300 OPTICS (3) LEC. 2. LAB. 2. Pr. PHYS 1617 or PHYS 1610. An overview of optics to include geometrical optics, electromagnetic waves, interference of light, diffraction of light, optical detectors, instrumentation and displays.

PHYS 5500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 5600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.

PHYS 5610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 5620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Pr. PHYS 3100. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 5900 PHYSICS TEACHING SEMINAR (1) LEC. 1. LAB. 0. SU. Introduction to issues, resources and best practices related to the teaching of physics. Physics undergraduate student or instructor approval required.

PHYS 6100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 6200 TEACHING AND LEARNING OF STEM (3) LEC. 3. This course will provide students with a basic knowledge of the relevant research in cognitive psychology and science education and the ability to apply that knowledge to enhance their ability to learn and teach science, particularly at the undergraduate level. The course will involve readings, discussion, and application of the ideas through the creation of learning activities. It is suitable for advanced undergraduates and graduate students with some science background. Prerequisite: B.S. in a STEM discipline or 20+ credit hours of STEM coursework.

PHYS 6300 OPTICS (3) LEC. 2. LAB. 2. An overview of optics to include geometrical optics, electromagnetic waves, interference of light, diffraction of light, optical detectors, instrumentation and displays.

PHYS 6500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 6600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.

PHYS 6610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 6620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 6900 PHYSICS TEACHING SEMINAR (1) LEC. 1. LAB. 0. SU. Graduate Students in Physics or Departmental Approval. Introduction to issues, resources and best practices related to the teaching of physics.

PHYS 7100 CLASSICAL MECHANICS (3) LEC. 3. Lagrangian and Hamiltonian formulations of mechanics, canonical transforms. Hamilton-Jacobi theories, action angle variables, rigid rotators, normal modes, and mechanics of continuous media.

PHYS 7200 ELECTRICITY AND MAGNETISM I (3) LEC. 3. Electrostatics, special function expansions, magnetostatics, linear media and Maxwell's equations.

PHYS 7250 ELECTRICITY AND MAGNETISM II (3) LEC. 3. Time dependent Maxwell theory, wave propagation and dispersion, diffraction, scattering, radiation, relativistic covariance and applications.

PHYS 7300 QUANTUM MECHANICS I (3) LEC. 3. Schrodinger wave equation, discrete and continuous spectra, matrix formulation, perturbation theory.

PHYS 7350 QUANTUM MECHANICS II (3) LEC. 3. Time-dependent approximation methods, relativistic wave equations, and second quantization.

PHYS 7400 STATISTICAL PHYSICS (3) LEC. 3. Thermodynamic quantities, equilibrium ensembles for classical and quantum systems, fluctuations, phase transitions and critical phenomena.

PHYS 7850 GRADUATE PHYSICS RESEARCH SEMINAR (1) LEC. 1. LAB. 0. SU. This course is designed to develop and expand incoming graduate student's knowledge and experience with state-of-the-art research as it is done in the Auburn University Department of Physics.

PHYS 7900 DIRECTED STUDIES (1-5) IND. SU. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7930 DIRECTED STUDIES (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7950 PHYSICS COLLOQUIUM (1) SEM. SU. Offers a series of talks presented by invited speakers on broad fields of physics. Check with graduate advisor for credit allowed. Course may be repeated for a maximum of 6 credit hours.

PHYS 7970 SPECIAL TOPICS IN PHYSICS (1-5) SEM. Seminar or lecture series in a rapidly advancing specialty of physics. Course may be repeated for a maximum of 6 credit hours.

PHYS 7990 RESEARCH AND THESIS (1-10) MST. May be repeated as often as is appropriate. Course may be repeated with change in topics.

PHYS 8100 RELATIVISTIC QUANTUM MECHANICS (3) LEC. 3. Dirac equation, 1D barrier scattering, 3D central potentials, S-matrix theory, Feynman diagrams, quantum electrodynamics, renormalization, tree and loop level problems.

PHYS 8200 INTRODUCTION TO ATOMIC PHYSICS (3) LEC. 3. Hydrogen atom, Hartree-Fock theory, radiative transitions, photoionization, autoionization, electron-atom scattering.

PHYS 8600 PLASMA PHYSICS (3) LEC. 3. A detailed study of plasma physics including particle orbit theory, magnetohydrodynamics, plasma waves and transport phenomena.

PHYS 8700 SOLID STATE PHYSICS (3) LEC. 3. Atomic and electronic structures of solids and the associated electical, optical and transport properties.

PHYS 8900 DIRECTED STUDIES (1-5) IND. SU. Students will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8930 DIRECTED STUDIES IN ADVANCED PHYSICS (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8970 SPECIAL TOPICS IN ADVANCED PHYSICS (1-5) LEC. Departmental approval. Topic at the forefront of physics research will be chosen by the lecturer. Course may be repeated for a maximum of 10 credit hours.

PHYS 8990 RESEARCH AND DISSERTATION (1-10) DSR. May be repeated as often as is appropriate. Course may be repeated with change in topics.

Physics (PHYS)

The Physics degree prepares students to explore and describe the natural world through mathematical reasoning, analytical thinking, and experimental techniques. Physics majors investigate the fundamental laws that govern matter, energy, space, and time—from subatomic particles to the structure of the universe. Coursework in mechanics, electromagnetism, thermodynamics, quantum physics, and computational modeling develops strong problem-solving skills and scientific literacy. The program emphasizes hands-on lab experience that builds confidence in experimental methods and data analysis, along with a flexible structure that lets students tailor their degree to match their career goals. With a solid foundation in critical thinking and quantitative reasoning, physics graduates are prepared for success in research, engineering, medicine, data science, education, and more. The major is constructed to combine well as a double major with another STEM degree including Engineering.

Curriculum in Physics (PHYS)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	Core History or Literature[1]	3
MATH 1610 Calculus I	**4**	ENGL 1120 English Composition II	3
PHYS 1100 Physics Orientation	**1**	**MATH 1620 Calculus II**	**4**
COMM 1000 Public Speaking	3	**PHYS 1607 Honors Physics I *or* 1600 Engineering Physics I**	**4**
Core Fine Arts	3		
	14		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core Humanities or Social Science[2]	3
Core History	3	**PHYS 2400 Mathematical and Computational Methods of Physics[3]**	**3**
MATH 2630 Calculus III	**4**	**PHYS 2300 Physics Laboratory Skills**	**3**
PHYS 1617 Honors Physics II *or* 1610 Engineering Physics II	**4**	Electives	3

		PHYS 2200 Introductory Quantum Physics and Relativity	**3**
	14		**15**

Junior

Fall	**Hours**	**Spring**	**Hours**
Core Social Science[1]	3	Core Social Science	3
PHYS 2100 Intermediate Mechanics	**3**	**PHYS 3200 Statistical Thermodynamics**	**3**
PHYS 3100 Intermediate Electricity and Magnetism	**3**	**PHYS 4100 Fundamentals of Quantum Mechanics**	**3**
Science Electives[4]	4	Science Elective[4]	4
Electives	3	Electives	3
	16		**16**

Senior

Fall	**Hours**	**Spring**	**Hours**
PHYS 4200 Fundamental Experiments in Physics	**3**	**Professional Elective[5]**	**6**
Professional Elective[5]	**6**	**Physics Elective[5]**	**3**
Electives	7	Electives	6
		UNIV 4AA0 Achieve the Creed[6]	0
	16		**15**

Total Hours: 120

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the Bulletin.

2 If a LIT sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

3 Substitution of MATH 2650 and one of MATH 2660 or MATH 2667 is acceptable

4 Science Electives consist of a sequence of GEOL 1100- GEOL 1110 or CHEM 1030/CHEM 1031 – CHEM 1040/CHEM 1041 or BIOL 1020/BIOL 1021- BIOL 1030/BIOL 1031

5 PHYS and Professional Electives must be at the 3000 level or higher. A Plan of Study indicating choices and physics advisor approval for Physics and Professional electives must be on file in the Dean's Office before scheduling those courses.

6 This course must be taken the semester of graduation.

Physics Minor

Code	Title	Hours
PHYS 2200	Introductory Quantum Physics and Relativity	3
PHYS 2100	Intermediate Mechanics	3
PHYS 3100	Intermediate Electricity and Magnetism	3
PHYS 3200	Statistical Thermodynamics	3
PHYS 4100	Fundamentals of Quantum Mechanics	3
Total Hours		**15**

Physics — Pre-Med (MPHY), Pre-Den (DPHY), Pre-Opt (OPHY)

The Physics – Pre-Health tracks provide students with a strong foundation in the core principles of physics, including mechanics, electromagnetism, and biophysics, while preparing them for the scientific and technological challenges of modern healthcare. Through a combination of coursework, laboratory training, and research experiences, students develop critical thinking, problem-solving, and experimental skills that are highly valued by medical schools and healthcare professions. The curriculum combines a solid background in physics with supporting studies in biology, chemistry, and health sciences. Graduates are prepared for medical school, biomedical

research, healthcare technology development, and other advanced fields, with a skill set that emphasizes scientific inquiry, quantitative reasoning, and practical experience.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CORE HISTORY I	3	MATH 1610 Calculus I	4
CHEM 1030 Fundamentals Chemistry I[1]	3	CHEM 1040 Fundamental Chemistry II[1]	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
PHYS 1100 Physics Orientation	1		
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
CORE LITERATURE	3	CHEM 2080 Organic Chemistry II	3
CHEM 2070 Organic Chemistry I	3	CHEM 2081 Organic Chemistry II Laboratory	1
CHEM 2071 Organic Chemistry I Laboratory	1	**BIOL 3000 Genetics**	**3**
PHYS 1600 Engineering Physics I	**4**	BIOL 3001 General Genetics Laboratory	1
MATH 1620 Calculus II	4	**PHYS 1610 Engineering Physics II**	**4**
SCMH 1890 Pre-Health Professions Orientation	1	COMM 1000 Public Speaking	3
	16		**15**

Junior

Fall	Hours	Spring	Hours
BIOL 3200 General Microbiology	**3**	**BIOL 4100 Cell Biology**	**3**
BIOL 3201 General Microbiology Laboratory	**1**	**BIOL 4101 Cell Biology Laboratory**	**2**
MATH 2630 Calculus III	4	PHIL 1030 Ethics and the Health Sciences	3
PSYC 2010 Introduction to Psychology	3	**BCHE 5190 Biochemistry II**	**3**
BCHE 5180 Biochemistry I	**3**	**PHYS 2300 Physics Laboratory Skills**	**3**
		PHYS 2200 Introductory Quantum Physics and Relativity	**3**
	14		**17**

Senior

Fall	Hours	Spring	Hours
CORE LIT/HISTORY II	3	CORE SOCIAL SCIENCE[2]	3
CORE FINE ARTS	3	**PHYS 3200 Statistical Thermodynamics**	**3**
PHYS 3100 Intermediate Electricity and Magnetism	**3**	Physics Elective[3]	6
PHYS 2100 Intermediate Mechanics	**3**	General Elective[3]	3
Physics Elective[3]	3	UNIV 4AA0 Achieve the Creed	0
	15		**15**

Total Hours: 122

Long range schedules for COSAM courses are online at http://aub.ie/cosamlrs
Courses in BOLD will be used to calculate GPS in major.
Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.
Students should declare a major in the semester they earn 60 hours.
Students must complete all requirements for that major prior to graduation.
Students planning a Physics major should consult with a pre-health advisor.

1 The Chemistry CHEM 1110/CHEM 1111-CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031-CHEM 1040/CHEM 1041. See advisor for details.
2 Students who have AP or transfer credit for US History should see an advisor for CORE SOC SCI choices.
3 Total electives required may change with choice of major.

Physics — Pre-Physical Therapy (TPHY), Pre-Physician Assistant (APHY)

The Physics – Pre-Health tracks provide students with a strong foundation in the core principles of physics, including mechanics, electromagnetism, and biophysics, while preparing them for the scientific and technological challenges of modern healthcare. Through a combination of coursework, laboratory training, and research experiences, students develop critical thinking, problem-solving, and experimental skills that are highly valued by medical schools and healthcare professions. The curriculum combines a solid background in physics with supporting studies in biology, chemistry, and health sciences. Graduates are prepared for medical school, biomedical research, healthcare technology development, and other advanced fields, with a skill set that emphasizes scientific inquiry, quantitative reasoning, and practical experience.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I	4	CORE HISTORY I	3
CHEM 1030 Fundamentals Chemistry I[1]	3	CHEM 1040 Fundamental Chemistry II[1]	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	3	BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory	1	BIOL 1031 Organismal Biology Laboratory	1
SCMH 1890 Pre-Health Professions Orientation	1		
	16		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I[3]	3	BIOL 3000 Genetics	3
CHEM 2071 Organic Chemistry I Laboratory	1	BIOL 3001 General Genetics Laboratory	1
CORE HISTORY II	3	PSYC 2010 Introduction to Psychology	3
PHYS 1600 Engineering Physics I	4	BIOL 3200 General Microbiology	3
CORE LITERATURE	3	CORE SOCIAL SCIENCE[2]	3
COMM 1000 Public Speaking	3	BIOL 3201 General Microbiology Laboratory	1
	17		**14**

Junior

Fall	Hours	Spring	Hours
BIOL 2500 Human Anatomy and Physiology I	3	BIOL 2510 Human Anatomy and Physiology II	3

BIOL 2501 Human Anatomy and Physiology I Laboratory	1	BIOL 2511 Human Anatomy and Physiology II Laboratory	1
PHYS 1610 Engineering Physics II	4	Psychology Elective	3
MATH 1620 Calculus II	4	PHIL 1030 Ethics and the Health Sciences	3
PSYC 3120 Developmental Psychology	3	MATH 2630 Calculus III	4
CORE FINE ARTS	3		
	18		**14**

Senior

Fall	Hours	Spring	Hours
PHYS 2200 Introductory Quantum Physics and Relativity	3	PHYS 3200 Statistical Thermodynamics	3
PHYS 3100 Intermediate Electricity and Magnetism	3	PHYS 2300 Physics Laboratory Skills	3
Elective	5	PHYS 3500 Physics of the World Around Us	3
MATH 2650 Linear Differential Equations	3	Elective	2
		PHYS 2100 Intermediate Mechanics	3
	14		**14**

Total Hours: 121

Long range schedules for COSAM courses are online at http://aub.ie/cosamlrs (http://aub.ie/cosamlrs/)

Courses in BOLD will be used to calculate GPA in major.

Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin (http://www.auburn.edu/bulletin/)) under Core Curriculum.

Students must complete all requirements for the major prior to graduation.

Students planning a Physics major should consult with the pre-health advisor.

1 The Chemistry 1110/1111-1120/1121 sequence can substitute for CHEM 1030/1031-1040/1041. See advisor for details.
2 Students who have AP or transfer credit for US History should see an advisor for CORE SOC SCI choices.
3 Students planning a major in Biomedical Sciences should take CHEM 2080/81 as their professional elective in their sophomore or junior year.

Pre-Health Professional Curricula

Pre-health professional curricula are offered in interdisciplinary health sciences, pre-anesthesiologist assistant, pre-dentistry, pre-medicine, pre-optometry, pre-pharmacy, pre-physical therapy, pre-physician assistant, and pre-veterinary medicine. Advisors are available to guide students concerning admissions requirements to the professional schools. The department in which students major will advise them where applicable. Completion of these curricula does not assure admission to a professional school. Competition for admission to professional schools is keen; the number of qualified applicants exceeds the number of places available.

Pre-Anesthesiologist Assistant

The Auburn University/Edward Via College of Osteopathic Medicine-Bluefield Rocovich Early Admission Program (REAP) is a unique opportunity for Auburn University students interested in a career as an Anesthesiologist Assistant (CAA). The Rocovich EAP provides early admission to VCOM-Bluefield's Master of Health Science in Anesthesia (MHSA) Program for highly competitive Auburn students each year who have met the program requirements. Candidates selected for admission into the program are notified in the spring of their junior undergraduate year.

All interested pre-medical/pre-health sciences students should confer with the College of Sciences and Mathematics (COSAM) pre-health advisors for specific course requirements and other details about the program. COSAM offers a major in Biomedical Sciences

that is an excellent choice for students interested in this program. These students can obtain a Bachelor of Science in Biomedical Sciences after successfully completing the first year of the MHSA program.

Pre-Dentistry, Pre-Medicine, Pre-Optometry

These programs are designed to prepare students for dental, medical and optometry schools and lead to a Bachelor of Science degree in one of several majors offered through the college. The requirements are very exacting and demand high scholastic competence and performance.

Auburn University students complete these requirements by enrolling in a core of courses shown in the curriculum model. Each student also declares a major. Students should confer with the College of Sciences and Mathematics (COSAM) pre-health advisors for specific course requirements since these can vary from school to school. The prerequisite courses for most U.S. dental, medical and optometry schools are listed in the curriculum model, either as required courses or as electives. Students may choose to major in a curriculum in another college or school, but they should meet with the COSAM Pre-Health Counseling Specialist as freshmen and/or sophomores for assistance in becoming competitive applicants.

In the junior year, students should attend the mandatory meetings concerning the application process that are conducted by the COSAM Chairman of the Pre-Professional Advisory Committee (PPAC) in October. Also, students in pre-dentistry, pre-medicine or pre-optometry should take the Dental Admission Test (DAT), the Medical College Admission Test (MCAT) or the Optometry Admission Test (OAT) at least a year before the date of entry to professional school and submit applications to the professional schools of their choice at that time.

Pre-Pharmacy

This program meets the requirements for admission to the Auburn University Harrison College of Pharmacy, which is fully accredited by the American Council on Pharmaceutical Education. Complete information about the professional curriculum in pharmacy may be found in the Harrison College of Pharmacy section of this *Bulletin*. To be considered for admission, the applicant must complete the course requirements listed in the curriculum model and meet other admissions criteria set by the Harrison College of Pharmacy.

Although not required, students may want to complete an undergraduate degree before entering pharmacy school. Any major may be acceptable as long as the pre-pharmacy requirements are completed. The College of Sciences and Mathematics offers a major in Biomedical Sciences that is an excellent choice for students interested in this option. Students should confer with the COSAM pre-health advisors for specific course requirements.

Early admission into Harrison College of Pharmacy is possible through the Early Assurance Program. Please visit Harrison College of Pharmacy's website for more information about that program. If a student is admitted to Harrison College of Pharmacy prior to the completion of the full four years, he or she may obtain a Bachelor of Science in Biomedical Sciences by successfully completing the first three years of the Biomedical Sciences/Pre-Pharmacy curriculum and the first three semesters of pharmacy school. Students should consult their advisors about this option.

Pre-Physical Therapy

This program prepares students applying to schools of physical therapy and leads to a bachelor's degree in one of the majors offered in the College of Sciences and Mathematics. Students should confer with their academic advisors for specific course requirements since these can vary from school to school. Students may also choose to major in a curriculum in another college or school, but they should meet with the COSAM Pre-Health Counseling Specialist as freshmen and/or sophomores for information about becoming competitive applicants. Students should review the websites of the schools of their choice during the freshman year to determine any special admission requirements of those schools. Students should take the Graduate Record Examinations (GRE) and complete an official application for admission to the schools of their choice about a year in advance of the expected date of enrollment.

Pre-Physician Assistant

This program is designed to prepare students for enrollment in physician assistant programs and leads to a Bachelor of Science in one of several majors offered through the college. The academic requirements are very demanding and high scholastic competence and performance are expected. Auburn University students complete these requirements by enrolling in a core of courses shown in the curriculum model. Each student also declares a major. Students should confer with the COSAM pre-health advisors for specific course requirements since these can vary from school to school. Students may choose to major in a curriculum in another college or school, but they should meet with the COSAM Pre-Health Counseling Specialist as freshmen and/or sophomores for assistance in becoming competitive applicants and applying.

Students in the pre-physician assistant program should take the GRE or PA-CAT at least a year before the date of entry to professional school and submit an application to the schools of their choice at that time.

Pre-Veterinary Medicine

Students in the Pre-Veterinary Medicine (PVET) curriculum must select a major by the end of their sophomore year. Students in COSAM typically select microbiology (VMCB), organismal biology (VIBO) or genetics (VGEN) as majors. Pre-Veterinary options in the College of Agriculture include animal sciences (ANPV) and poultry science (POPV), A pre-vet option in wildlife (WLPV) sciences also exists in the College of Forestry, Wildlife and Environment. The minimum requirements for admission to the College of Veterinary Medicine at Auburn University are incorporated into the curriculum models for all these majors.

It is possible to gain admission to the College of Veterinary Medicine by completing only the minimum requirements listed. However, it is preferable to select a major and earn a baccalaureate degree. If a student is admitted to the College of Veterinary Medicine prior to completion of the full four years, he or she may obtain a BS degree by successfully completing the first three years of some of the Pre-Veterinary Medicine curricula and the first year of veterinary medical school. Students should consult their advisors regarding which curricula offer this option. All minimum requirements, including courses repeated due to time limitations, must be completed by the end of the spring term preceding the date of admission. Competition for admission to the professional schools is keen with the number of qualified applicants exceeding the number of places available. For additional information, see College of Veterinary Medicine section of this *Bulletin* and the Pre-Veterinary Medicine curricula in the College of Agriculture, COSAM, and the College of Forestry, Wildlife and Environment.

Programs

- Pre-Anesthesiologist Assistant
  - Biomedical Sciences (p. 1346)
- Health Sciences
  - Biomedical Sciences (p. 1343)
- Pre-Medicine, Pre-Dental, Pre-Optometry. Majors in:
  - Biomedical Sciences (p. 1345)
  - BA Chemistry (p. 1283)
  - Genetics (p. 1348)
  - Microbiology (p. 1264)
  - Physics (p. 1335)
  - Organismal Biology (p. 1267) (p. 1267)
- Pre-Pharmacy Major in:
  - Biomedical Sciences (p. 1347)
- Pre-Physical Therapy and Pre-Physician Assistant Majors in:
  - Biomedical Sciences (p. 1343)
  - Microbiology (p. 1265)
  - Physics (p. 1337)
  - Organismal Biology (p. 1268)
- Pre-Veterinary Medicine Majors in:
  - Genetics (p. 1350)
  - Microbiology (p. 1352)
  - Organismal Biology (p. 1353)

Courses

SCMH 1010 CONCEPTS OF SCIENCE (4) LEC. 3. LAB. 2. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. After taking SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science Core. May count either SCMH 1010 or SCHM 1013 or SCHM 1017.

SCMH 1017 HONORS CONCEPTS OF SCIENCE (4) LEC. 3. LAB. 2. Pr. Honors College. Interdisciplinary course for Honors students which presents major scientific concepts in physical and biological sciences. After taking SCMH 1017, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, GEOL 1107, PHYS 1000, or PHYS 1150. Science core. Credit will not be given for both SCMH 1017 and SCMH 1010.

SCMH 1100 COSAM ORIENTATION (1) LEC. 1. Introduction to the College of Sciences and Mathematics and its resources, exploration of STEM careers, orientation to campus resources and facilities, and assistance with academics and transition to Auburn.

SCMH 1890 PRE-HEALTH PROFESSIONS ORIENTATION (1) LEC. 1. SU. Orientation and guidance tailored for non-freshmen and transfer students planning to seek admission into health professions schools and programs such as dentistry, medicine, optometry, pharmacy, physician assistant, and physical therapy.

SCMH 1897 HONORS PRE-HEALTH PROFESSIONS ORIENTATION (1) LEC. 1. SU. Pr. Honors College. Orientation and guidance tailored for non-freshmen and transfer students planning to seek admission into health professions schools and programs such as dentistry, medicine, optometry, pharmacy, physician assistant, and physical therapy.

SCMH 1950 COSAM MAJOR AND CAREER EXPLORATION (1) LEC. 1. Introduction to majors offered by the College of Sciences and Mathematics, motivation and skills for academic success, departmental resources and facilities, and exploration of careers in Sciences and Mathematics.

SCMH 3010 INQUIRY EXPERIENCES FOR SCIENCE TEACHERS (3) LEC. 2. LAB. 2, LLB. 0. This course introduces students to the nature and process of science through project-based instruction. It highlights experimental design, data analysis, and presenting scientific work both orally and in writing. This is a writing enriched course in the required AUTeach course sequence.

SCMH 3050 SERVICE-LEARNING EXPERIENCES IN UNDERSERVED POPULATIONS (3) LEC/PRA. 2. Service learning with a focus on underserved populations. Students engage in experiential learning to meet community needs, enhancing their cultural competence and civic responsibility. Ideal for those in helping professions, STEM, and Pre-Health, it strengthens community partnerships and understanding of complex social issues. Departmental approval required.

SCMH 3810 PRE-PHYSICAL THERAPY PRACTICUM (1) PRA. 2. SU. Departmental approval. Direct observation of physical therapists at an approved facility in the Auburn-Opelika area.

SCMH 3890 PRE-MEDICAL PRECEPTORSHIP (1) LAB. 2. SU. Departmental approval. Direct observation and interaction with physicians at East Medical Center and in individual medical offices.

SCMH 3950 SEMINAR ON MCAT AND DAT SCIENTIFIC FOUNDATIONS (2) LEC. 2. SU. Pr. SCMH 1890 and BIOL 1030 and CHEM 2070. A deep dive into the foundational scientific concepts required for the Medical College Admission Test (MCAT) and the Dental Admission Test (DAT). The course emphasizes interactive discussions and practice of the core science subjects pertinent to the tests, supplemented by problem-solving sessions and mock exams to ensure comprehensive preparation. Department approval.

SCMH 4700 PEDAGOGY OF PEER-LED INSTRUCTION (1) LEC. 1. Pedagogical training course on effective instructional strategies in the STEM disciplines integrating educational theory, pedagogy, content, and practice. Departmental approval required.

SCMH 4920 SCIENCES AND MATHEMATICS INTERNSHIP (1-4) DSL. 8-16. SU. Practical on-the-job training in some area related to Sciences and Mathematics. Course may be repeated for a maximum of 6 credit hours.

SCMH 4970 UNDERGRADUATE SPECIAL TOPICS IN SCIENCES AND MATHEMATICS (1-4) LEC. 1-4. Undergraduate study of specialized topics related to Sciences and Mathematics. Departmental approval required. Course may be repeated for a maximum of 8 credit hours.

SCMH 4980 SCIENCES AND MATHEMATICS UNDERGRADUATE RESEARCH (1-5) IND/RES. Departmental approval. Directed research in an area of specialty within Sciences and Mathematics and interdisciplinary fields. Course may be repeated for a maximum of 6 credit hours.

SCMH 5010 CLINICAL APPLICATIONS I (3) LEC. 2. A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 5020 CLINICAL APPLICATIONS II (3) LEC. 2, CLN/LEC. 1. Pr. SCMH 5010. A continuation of SCMH 5010.

SCMH 5050 PHYSICAL EXAMINATION TECHNIQUES FOR CLINICAL APPLICATIONS (1) LEC. 1. Undergraduate-level course focused on mastering physical examination techniques for medical clinic applications; enhances students' understanding of anatomy and physiology through hands-on patient interactions; develops critical professionalism and communication skills necessary for effective patient care. Departmental approval required.

SCMH 5940 GLOBAL STUDY/TRAVEL IN SCIENCES AND MATHEMATICS (1-12) AAB. Departmental approval. Application required. Students international study travel on topics relevant to Sciences and Mathematics. Course may be repeated for a maximum of 12 credit hours.

SCMH 5970 ADVANCED SPECIAL TOPICS IN SCIENCES AND MATHEMATICS (1-3) LEC. 1-3. Advanced study of specialized topics related to Sciences and Mathematics. Departmental approval required. Course may be repeated for a maximum of 6 credit hours.

SCMH 6010 CLINICAL APPLICATIONS I (3) LEC. 2, CLN/LEC. 2. Departmental approval. A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 6020 CLINICAL APPLICATIONS II (3) LEC. 2, CLN/LEC. 2. Pr. SCMH 6010. Departmental approval. A study of the clinical/societal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 6050 PHYSICAL EXAMINATION TECHNIQUES FOR CLINICAL APPLICATIONS (1) LEC. 1. Graduate-level course focused on mastering physical examination techniques for medical clinic applications; enhances students' understanding of anatomy and physiology through hands-on patient interactions; develops critical professionalism and communication skills necessary for effective patient care. Departmental approval required.

SCMH 6970 ADVANCED SPECIAL TOPICS IN SCIENCES AND MATHEMATICS (1-3) LEC. 1-3. Departmental approval. Advanced study of specialized topics related to Sciences and Mathematics. Course may be repeated for a maximum of 6 credit hours.

SCMH 8150 DOCTORAL SEMINAR ON CURRENT TOPICS IN SCM RESEARCH (3) LEC. 3. The class is a rigorous, seminar style course on Current Topics in SCM Research. Each class will familiarize you with the key insights in a current research topic (i.e., the “hot topics”) in the SCM area. The instructor has chosen to cover a broad range of active research to give you an overview of topics that people are working on currently and are likely to work on in the future.

Biomedical Sciences (BMSC)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CORE HISTORY I	3	CORE HISTORY II	3
CHEM 1030 Fundamentals Chemistry I[1]	3	CHEM 1040 Fundamental Chemistry II[1]	3
CHEM 1031 Fundamental Chemistry I Laboratory[1]	1	CHEM 1041 Fundamental Chemistry II Laboratory[1]	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
SCMH 1950 COSAM Major and Career Exploration	1		
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
Core Literature	3	**BIOL 3200 General Microbiology**	**3**
SCMH 1890 Pre-Health Professions Orientation	1	**BIOL 3201 General Microbiology Laboratory**	**1**
MATH 1610 Calculus I ***or*** 1150 Pre-Calculus Algebra and Trigonometry[2]	4	STAT 2510 Statistics for Biological and Health Sciences	3
Professional Elective[3]	**4**	COMM 1000 Public Speaking	3
		Experiential Learning Elective[4]	**1**
	16		**15**

Junior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**BCHE 5190 Biochemistry II**	**3**
BIOL 3000 Genetics	**3**	**BIOL 5500 Immunology**	**3**
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
PSYC 2010 Introduction to Psychology	3	Core Social Science	3
PHIL 1030 Ethics and the Health Sciences	3	Core Fine Arts	3
	16		**16**

Senior

Fall	Hours	Spring	Hours
BMSC Elective[5]	**6**	**BIOL 5600 Biomedical Physiology**	**5**
BIOL 4100 Cell Biology	**3**	**BMSC Elective**[5]	**6**
BIOL 4101 Cell Biology Laboratory	**2**	Free Elective	3
Free Elective	3	UNIV 4AA0 Achieve the Creed[6]	0
	14		**14**

Total Hours: 120

Options for courses labeled CORE are in the *Auburn University Bulletin*, under Core Curriculum.

1 The General Chemistry CHEM 1110/CHEM 1111 - CHEM 1120/CHEM 1121 sequence or the General Chemistry Honors Sequence can substitute for CHEM 1030/CHEM 1031 - CHEM 1040/CHEM 1041. See advisor.
2 Choice as determined by the specific mathematics requirements of the intended professional school.
3 **Professional Electives**: Foreign Language, BIOL 2500 and BIOL 2501, SCMH 3950, SCMH 4700, or any 3000+ BIOL, CHEM, PHYS courses.
4 **Experiential Learning Electives**: Approved Undergraduate Research (such as SCMH 4980 or other departmental research course), Internship course such as SCMH 4920, or Study Abroad course such as SCMH 5940.
5 **BMSC Electives**: see academic advisor for most updated list.
6 Students may only register for UNIV 4AA0 during the semester they plan to graduate.

Biomedical Sciences (BMSC) - IBMS, ABSM, TBMS

Interdisciplinary Health Sciences (IBMS), Pre-Physical Therapy (ABSM), Pre-Physician Assistant (TBMS)

The Health Sciences major (IBMS) provides students with a comprehensive understanding of the biological, behavioral, and social aspects of health, wellness and disease. This interdisciplinary program prepares students for a wide range of careers in healthcare, public health, health education, and research, as well as graduate or professional study in medicine, physician assistant, pharmacy, physical therapy, or other health-related fields. This concentration also builds in a minor to broaden and enrich students' knowledge and skillset.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CORE SOCIAL SCIENCE	3	CORE FINE ART	3
CORE HISTORY 1	3	CHEM 1040 Fundamental Chemistry II[1]	3
CHEM 1030 Fundamentals Chemistry I[1]	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
CHEM 1031 Fundamental Chemistry I Laboratory	1	**BIOL 1020 Principles of Biology**	**3**

SCMH 1950 COSAM Major and Career Exploration		1	**BIOL 1021 Principles of Biology Laboratory**	**1**
		14		**14**

Sophomore

Fall	Hours		Spring	Hours	
Foundational Elective[1]		**4**	**Foundational Elective**[1]		**4**
CORE LITERATURE		3	**BIOL 2510 Human Anatomy and Physiology II**		**3**
BIOL 2500 Human Anatomy and Physiology I		**3**	**BIOL 2511 Human Anatomy and Physiology II Laboratory**		**1**
BIOL 2501 Human Anatomy and Physiology I Laboratory		**1**	COMM 1000 Public Speaking		3
MATH 1610 Calculus I		4	CORE HIST or LIT[2]		3
SCMH 1890 Pre-Health Professions Orientation		1			
		16			**14**

Junior

Fall	Hours		Spring	Hours	
CORE SOC SCI or HUM[3]		3	Psychology Elective		3
BIOL 1030 Organismal Biology		**3**	STAT 2510 Statistics for Biological and Health Sciences		3
BIOL 1031 Organismal Biology Laboratory		**1**	**BMSC Elective Group A**[5]		**6**
Minor Course		3	Minor Course		3
PSYC 2010 Introduction to Psychology		3			
BMSC Elective Group A[5]		**3**			
		16			**15**

Senior

Fall	Hours		Spring	Hours	
BMSC Elective Group A[5]		**6**	**BMSC Elective Group B**[5]		**3**
BMSC Elective Group B[5]		**3**	KINE 3000 or HADM 2100 Med. Term.		3
Minor Course[4]		3	Minor courses[4]		6
Elective		4	Elective		3
		16			**15**

Total Hours: 120

Long range schedules for COSAM courses are online at https://auburn.edu/cosam/departments/student-services/academic-advising/long-range-planning.html
Courses in BOLD will be used to calculate GPA in major.
Options for courses labeled CORE are in the Auburn University Bulletin (https://bulletin.auburn.edu/) under Core Curriculum.

1 Foundational Electives: PHYS 1500/PHYS 1510 and labs for PT; CHEM 2070/CHEM 2080 and labs for Pre-Pharm; BIOL 3000/BIOL 3001/BIOL 3200/BIOL 3201 for PA.
2 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 & 2 or American Lit 1 & 2). For complete HIST and LIT sequence options, see the Bulletin.
3 If a LIT sequence is chosen, this course must be a core social science. If a HIST sequence is chosen, this course must be a core humanities.
4 Students must complete a formal minor. Please see advisor for recommended minor. Other minors by college approval.
5 Please see advisor for full list of BMSC Group A and B options.

Biomedical Sciences (BMSC) — Pre-Med (MBMS), Pre-Den (DBMS), Pre-Opt (OBMS)

The Biomedical Sciences (BMSC) major is designed for students aspiring to enter medical school or other professional health programs. This rigorous program provides a strong foundation in the biological and physical sciences, with a curriculum emphasizing human biology, physiology, biochemistry, and molecular genetics. Electives offer an in-depth exploration of many clinically related subjects. Students develop critical thinking and analytical skills through coursework, laboratory experiences, and research opportunities. Courses for professional development and exam preparation are also offered. Graduates are well-equipped for further study in medicine, dentistry, optometry, or biomedical research.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CORE HISTORY I	3	CORE HISTORY II	3
CHEM 1030 Fundamentals Chemistry I[1]	3	CHEM 1040 Fundamental Chemistry II[1]	3
CHEM 1031 Fundamental Chemistry I Laboratory[1]	1	CHEM 1041 Fundamental Chemistry II Laboratory[1]	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
SCMH 1950 COSAM Major and Career Exploration	1		
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
Core Literature	3	**BIOL 3200 General Microbiology**	**3**
SCMH 1890 Pre-Health Professions Orientation	1	**BIOL 3201 General Microbiology Laboratory**	**1**
MATH 1610 Calculus I ***or*** 1150 Pre-Calculus Algebra and Trigonometry[2]	4	STAT 2510 Statistics for Biological and Health Sciences	3
Professional Elective[3]	**4**	COMM 1000 Public Speaking	3
		Experiential Learning Elective[4]	**1**
	16		**15**

Junior

Fall	Hours	Spring	Hours
BCHE 5180 Biochemistry I	**3**	**BCHE 5190 Biochemistry II**	**3**
BIOL 3000 Genetics	**3**	**BIOL 5500 Immunology**	**3**
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
PSYC 2010 Introduction to Psychology	3	Core Social Science	3
PHIL 1030 Ethics and the Health Sciences	3	Core Fine Arts	3
	16		**16**

Senior

Fall	Hours	Spring	Hours
BMSC Elective[5]	**6**	**BIOL 5600 Biomedical Physiology**	**5**
BIOL 4100 Cell Biology	**3**	**BMSC Elective[5]**	**6**
BIOL 4101 Cell Biology Laboratory	**2**	Free Elective	3

Free Elective	3	UNIV 4AA0 Achieve the Creed[6]	0
	14		**14**

Total Hours: 120

Options for courses labeled CORE are in the *Auburn University Bulletin*, under Core Curriculum.

1 The General Chemistry CHEM 1110/CHEM 1111 - CHEM 1120/CHEM 1121 sequence or the General Chemistry Honors Sequence can substitute for CHEM 1030/CHEM 1031 - CHEM 1040/CHEM 1041. See advisor.

2 Choice as determined by the specific mathematics requirements of the intended professional school.

3 **Professional Electives**: Foreign Language, BIOL 2500 and BIOL 2501, SCMH 3950, SCMH 4700, or any 3000+ BIOL, CHEM, PHYS courses.

4 **Experiential Learning Electives**: Approved Undergraduate Research (such as SCMH 4980 or other departmental research course), Internship course such as SCMH 4920, or Study Abroad course such as SCMH 5940.

5 **BMSC Electives**: see academic advisor for most updated list.

6 Students may only register for UNIV 4AA0 during the semester they plan to graduate.

Biomedical Sciences — Pre-Anesthesiologist Assistant (NBMS)

The Pre-Anesthesiologist Assistant major (NBMS) is specifically designed for students preparing for graduate-level education in anesthesiologist assistant programs. This interdisciplinary major provides a strong foundation in the biological sciences, chemistry, physics, and health-related coursework essential for success in the field of anesthesiology. Students will gain a deep understanding of human anatomy, physiology, and biochemistry, while developing critical thinking and clinical reasoning skills. Graduates of this major are well-equipped to apply to Master of Science in Anesthesia (MSA) programs and pursue careers as certified anesthesiologist assistants.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
Core History I[2]	3	MATH 1610 Calculus I	4
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	CORE HISTORY II	3
BIOL 1021 Principles of Biology Laboratory	**1**		
SCMH 1950 COSAM Major and Career Exploration	1		
	15		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
STAT 2510 Statistics for Biological and Health Sciences	3	**BIOL 1030 Organismal Biology**	**3**
PHYS 1500 General Physics I	4	**BIOL 1031 Organismal Biology Laboratory**	**1**
Core Literature	3	PHYS 1510 General Physics II	4
SCMH 1890 Pre-Health Professions Orientation	1	COMM 1000 Public Speaking[1]	3
	15		**15**

Junior

Fall	Hours	Spring	Hours
BIOL 2500 Human Anatomy and Physiology I	**3**	**BIOL 2510 Human Anatomy and Physiology II**	**3**
BIOL 2501 Human Anatomy and Physiology I Laboratory	**1**	**BIOL 2511 Human Anatomy and Physiology II Laboratory**	**1**
BIOL 3000 Genetics	**3**	**BIOL 3200 General Microbiology**	**3**
PSYC 2010 Introduction to Psychology	3	**BIOL 3201 General Microbiology Laboratory**	**1**
CORE FINE ARTS	3	PHIL 1030 Ethics and the Health Sciences	3
BCHE 5180 Biochemistry I	**3**	Core Social Science	3
		BCHE 5190 Biochemistry II	**3**
	16		**17**

Senior

Fall	Hours	Spring	Hours
BIOL 5500 Immunology	3	**BMSC Elective**	**8**
BIOL 5600 Biomedical Physiology	5	Free Elective	6
Undergraduate Research	**2**		
BMSC Elective	**4**		
	14		**14**

Total Hours: 120

Biomedical Sciences — Pre-Pharmacy (RBMS)

The Pre-Pharmacy major (RBMS) is designed to prepare students for admission into Doctor of Pharmacy (PharmD) programs. This major provides a strong foundation in the sciences—particularly biology, chemistry, and physiology—along with coursework in mathematics, health sciences, and social sciences. Students gain critical thinking and problem-solving skills essential for success in pharmacy school and the healthcare field. Graduates of the Pre-Pharmacy major are well-equipped to pursue advanced studies in pharmacy and enter careers in community pharmacies, hospitals, research institutions, and pharmaceutical industries.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	Core Fine Arts	3
CHEM 1030 Fundamentals Chemistry I	3	ENGL 1120 English Composition II	3
SCMH 1950 COSAM Major and Career Exploration	1	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
Core History I[2]	3	**BIOL 1020 Principles of Biology**	**3**
Core Social Science	3	**BIOL 1021 Principles of Biology Laboratory**	**1**
	14		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
BIOL 2500 Human Anatomy and Physiology I	**3**	**BIOL 2510 Human Anatomy and Physiology II**	**3**
BIOL 2501 Human Anatomy and Physiology I Laboratory	**1**	**BIOL 2511 Human Anatomy and Physiology II Laboratory**	**1**

Core Literature		3	COMM 1000 Public Speaking[1]	3
MATH 1610 Calculus I		4	Core History or Lit[4]	3
SCMH 1890 Pre-Health Professions Orientation		1		
		16		**14**

Junior

Fall	**Hours**		**Spring**	**Hours**
Core Social Science or HUM[5]		3	STAT 2510 Statistics for Biological and Health Sciences	3
BMSC Elective		**9**	**BMSC Elective**	**6**
BIOL 3200 General Microbiology		3	Core Social Science	3
BIOL 3201 General Microbiology Laboratory		1	BCHE 3200 Principles of Biochemistry	3
		16		**15**

Senior

Fall	**Hours**		**Spring**	**Hours**
BIOL 1030 Organismal Biology		**3**	Professional Elective	3
BIOL 1031 Organismal Biology Laboratory		**1**	**BMSC Elective**	**9**
BMSC Elective		**8**	General Elective	3
General Elective		4		
		16		**15**

Total Hours: 120

Student should declare a major when they have completed 60 hours.

1 Students may choose to take BCHE 5180 to complete the Biochemistry requirement for HCOP.

2 Students must complete a two-course sequence in either HIST or LIT. For complete HIST and LIT sequence options, see the Bulletin.

3 If a LIT sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

Genetics — Pre-Med (MGEN), Pre-Den (DGEN), Pre-Opt (OGEN)

The Genetics major provides a broad perspective on the biological and physical sciences that are fundamental to the study of heredity and evolution. Courses cover the molecular mechanisms that underpin genetic changes as well as cutting-edge analysis of genome-scale data. This flexible major is designed to serve students interested in a broad range of careers related to genetics, including basic research as well as applications in biotechnology, agriculture, and the environment. The introductory coursework provides students with a strong foundation in biology, while upper-level courses can be tailored to include invaluable computational skills. The Genetics major provides students with a strong foundation for careers in healthcare including medicine, pharmacy and genetic counseling. This version of the major is tailored to students interested in pursuing careers in healthcare including medicine, dentistry and optometry.

The genetics major provides a broad foundation in the biological, physical, and mathematical sciences fundamental to the study of heredity and evolution. The major is flexible in order to serve students interested in genetics, either as a basic discipline or in its application in biotechnology, agriculture, environment/conservation, and medicine.

Freshman

Fall	**Hours**		**Spring**	**Hours**
ENGL 1100 English Composition I		3	ENGL 1120 English Composition II	3
MATH 1610 Calculus I		4	CORE HISTORY I	3
CHEM 1030 Fundamentals Chemistry I[1]		3	CHEM 1040 Fundamental Chemistry II[1]	3

CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
SCMH 1890 Pre-Health Professions Orientation	1		
	16		**14**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1
CORE HISTORY II	3	**BIOL 3000 Genetics & BIOL 3001 General Genetics Laboratory**	**4**
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
CORE LITERATURE	3	STAT 2510 Statistics for Biological and Health Sciences	3
	14		**15**

Junior

Fall	Hours	Spring	Hours
BIOL 3200 General Microbiology & BIOL 3201 General Microbiology Laboratory	**4**	**BIOL 4100 Cell Biology**	**3**
COMM 1000 Public Speaking	3	**BIOL 4101 Cell Biology Laboratory**	**2**
PSYC 2010 Introduction to Psychology	3	**BIOL 5220 Introductory Molecular Genetics**	**3**
BIOL 5800 Introduction to Computational Biology	**3**	CORE SOCIAL SCIENCE	3
BCHE 5180 Biochemistry I	**3**	**BCHE 5190 Biochemistry II**	**3**
	16		**14**

Senior

Fall	Hours	Spring	Hours
GENE CORE Elective	**4**	**BIOL 5330 Developmental Genetics**	**3**
BIOL 3030 Evolution and Systematics	**3**	**GENE CORE Elective**	**4**
PHIL 1030 Ethics and the Health Sciences	3	**GENE SUPP Elective**	**4**
CORE FINE ART	3	FREE ELECTIVE	4
FREE ELECTIVE	3	UNIV 4AA0 Achieve the Creed	0
	16		**15**

Total Hours: 120

Long range schedules for COSAM courses are online at http://aub.ie/cosamlrs
Courses in **BOLD** will be used to calculate GPA in major.
Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.
Students should declare a major by the time they earn 60 hours.
Students must complete all requirements for that major prior to graduation.

[1] The Chemistry 1110/1111-1120/1121 sequence can automatically substitute for CHEM 1030/CHEM 1031-CHEM 1040/CHEM 1041.

Genetics Electives

GENE CORE Electives:

- BIOL 3020 Genomic Biology (4 hrs)
- BIOL 4150 Human Genetics (3 hrs)
- BIOL 5260 Prokaryotic Molecular Genetics (3 hrs)
- BIOL 5320 Plant Gene Expression (3 hrs)
- BIOL 5521 Gene Exp & Recom DNA (2 hrs)
- BIOL 5850 Functional Genomics (3 hrs)
- BIOL 5860 Bioinformatics and Genome Analysis (3 hrs)

GENE SUPP Electives:

- Any additional GENE CORE Elective
- BIOL 4410 Vertebrate Development (5 hrs)
- BIOL 4920 Internship (up to 4 hrs)
- BIOL 4970 Special Topics (as appropriate: i.e. Genetics of Mammalian Disease)
- BIOL 4980 UG Research (up to 4 hrs)
- BIOL 5050 Fundamentals of Biophysics (3 hrs)
- BIOL 5230 Virology (3 hrs)
- BIOL 5500 Immunology (3 hrs)
- BIOL 5550 Nanomedicine (2 hrs)
- BIOL 5600 Mammalian Physiology (5 hrs)
- AGRI 3000 Agricultural Genetics (4 hrs)
- ANSC 3500 Animal Breeding (3 hrs)
- APBT 1000 Intro to Applied Biotechnology (1 hr)
- APBT 3100 Applied Biotechnology I (4 hrs)
- APBT 4100 Applied Biotechnology II (4 hrs)
- CSES 5100 Plant Genetics and Crop Improvement (3 hrs)
- FORY 3200 Forest Tree Physiology (3 hrs)

Genetics — Pre-Vet (VGEN)

The Genetics major provides a broad perspective on the biological and physical sciences that are fundamental to the study of heredity and evolution. Courses cover the molecular mechanisms that underpin genetic changes as well as cutting-edge analysis of genome-scale data. This flexible major is designed to serve students interested in a broad range of careers related to genetics, including basic research as well as applications in biotechnology, agriculture, and the environment. The introductory coursework provides students with a strong foundation in biology, while upper-level courses can be tailored to include invaluable computational skills. The Genetics major provides students with a strong foundation for careers in healthcare including medicine, pharmacy and genetic counseling. This version of the major is tailored to meet the requirements for students interested in pursuing careers in veterinary medicine.

Freshman			
Fall	**Hours**	**Spring**	**Hours**
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CORE HISTORY I	3	MATH 1610 Calculus I	4
CHEM 1030 Fundamentals Chemistry I[1]	3	CHEM 1040 Fundamental Chemistry II[1]	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**

BIOL 2100 Professional Development		1			
		15			**15**

Sophomore

Fall	**Hours**		**Spring**	**Hours**	
CHEM 2070 Organic Chemistry I		3	CHEM 2080 Organic Chemistry II		3
CHEM 2071 Organic Chemistry I Laboratory		1	CHEM 2081 Organic Chemistry II Laboratory		1
CORE HIST or LITERATURE		3	**BIOL 3030 Evolution and Systematics**		**3**
Core HUMANITIES or SOCIAL SCI		3	**BIOL 3020 Genom. Bio or BIOL 3200/01 Micro**		**4**
BIOL 3000 Genetics		**3**	STAT 2510 Statistics for Biological and Health Sciences		3
BIOL 3001 General Genetics Laboratory		**1**			
		14			**14**

Junior

Fall	**Hours**		**Spring**	**Hours**	
CORE LITERATURE		3	**BIOL 5220 Introductory Molecular Genetics**		**3**
BIOL 5800 Introduction to Computational Biology		**3**	**BIOL 4100 Cell Biology**		**3**
CORE SOCIAL SCIENCE		3	**BIOL 4101 Cell Biology Laboratory**		**2**
PHYS 1500 General Physics I		4	CORE FINE ARTS		3
BCHE 5180 Biochemistry I		**3**	CORE SOCIAL SCIENCE		3
		16			**14**

Senior

Fall	**Hours**		**Spring**	**Hours**	
GENE CORE Elective		**5**	**BIOL 5330 Developmental Genetics**		**3**
GENE SUPP Elective		**5**	**GENE CORE Elective**		**3**
CORE HUMANITIES		3	**GENE SUPP Electives**		**5**
ANSC 3400 Animal Nutrition		4	**BIOL 4950 Senior Seminar**		**1**
BIOL 4AA0 Professional Development II		0	FREE ELECTIVE		3
			UNIV 4AA0 Achieve the Creed (SM1)*		0
		17			**15**

Total Hours: 120

Long range schedules for COSAM courses are online at http://aub.ie/cosamlrs.
Courses in **BOLD** will be used to calculate GPA in major.
Options for courses labeled CORE are in the Auburn University Bulletin (https://bulletin.auburn.edu/) under Core Curriculum.

1 The Chemistry 1110/1111-1120/1121 sequence can substitute for CHEM 1030/CHEM 1031-CHEM 1040/CHEM 1041. See advisor for details.

* Taken semester of graduation.

Code	**Title**	**Hours**
Genetics Electives		
GENE CORE Electives		
BIOL 3020	Genomic Biology	
BIOL 4150	Human Genetics	
BIOL 5260	Prokaryotic Molecular Genetics	
BIOL 5320	Plant Gene Expression	

BIOL 5521	Gene Expression and Recombinant DNA Laboratory
BIOL 5850	Functional Genomics
BIOL 5860	Bioinformatics and Genome Analysis
GENE SUPP Electives	
Any additional GENE CORE Elective	
BIOL 3200/BIOL 3201 General Microbiology	
BIOL 4410	Vertebrate Development
BIOL 4920	Internship in Biology (up to 4)
BIOL 4970	Special Topics (as appropriate: i.e. Genetics of Mammalian Disease)
BIOL 4980	Undergraduate Research (up to 6 hours)
BIOL 5050	Fundamentals of Biophysics
BIOL 5230	Virology
BIOL 5500	Immunology
BIOL 5550	Nanomedicine
BIOL 5560	RNA in Biomedicine
BIOL 5600	Biomedical Physiology
BCHE 5190	Biochemistry II
PHYS 1510	General Physics II
AGRI 3000	Agricultural Genetics
ANSC 3500	Animal Breeding
APBT 1000	Introduction to Applied Biotechnology
APBT 3100	Methods of Synthetic Biology
APBT 4100	Applied Biotechnology
CSES 5100	Plant Genetics and Crop Improvement
FORY 3200	Forest Tree Physiology

Microbiology/Pre-Veterinary Medicine Option (VMCB)

The Microbiology major provides students with a strong foundation in coursework that emphasizes understanding life at the cellular and molecular level focusing on bacterial life. Students in this major will be well-prepared careers in basic or applied microbiology (including food and environmental microbiology) or research in biomedical science. This major has been tailored to meet the requirements for students interested in pursuing careers in veterinary medicine.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
CORE HISTORY	3	MATH 1610 Calculus I	4
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1031 Fundamental Chemistry I Laboratory	1	CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
BIOL 2100 Professional Development	1		
	15		**15**

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I	3	CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory	1	CHEM 2081 Organic Chemistry II Laboratory	1

BIOL 3000 Genetics	**3**	**BIOL 3200 General Microbiology**	**3**
BIOL 3001 General Genetics Laboratory	**1**	**BIOL 3201 General Microbiology Laboratory**	**1**
PHYS 1500 General Physics I	4	PHYS 1510 General Physics II	4
CORE LITERATURE	3	CORE HISTORY or LIT[1]	3
	15		**15**

Junior

Fall	Hours	Spring	Hours
BIOL 5200 Clinical Microbiology	**5**	**BIOL 4100 Cell Biology**	**3**
BIOL 4950 Senior Seminar	**1**	ANSC 3400 Animal Nutrition	4
BCHE 5180 Biochemistry I	3	Core Fine Arts	3
BCHE 5181 Biochemistry I Laboratory	1	Core Social Science[2]	3
Core Social Science[2]	3	COMM 1000 Public Speaking	3
Core Social Science or Humanities[3]	3	Students who complete the above 6 semesters and successfully complete the first year of veterinary school may be awarded a BS in microbiology. In the event the first year veterinary college alternative is not followed, the indicated senior year courses must be successfully completed to receive the BS in microbiology.	
	16		**16**

Senior

Fall	Hours	Spring	Hours
BIOL 5500 Immunology	**3**	**MMCB Electives**	**4**
MMCB Electives	**3**	**Biology Elective**	**7**
BIOL 5250 Microbial Evolution and Diversity	**4**	**BIOL 5210 Microbial Physiology**	**3**
BIOL 5220 Introductory Molecular Genetics *or* 5260 Prokaryotic Molecular Genetics	**3**	UNIV 4AA0 Achieve the Creed	0
BCHE 5190 Biochemistry II	3		
BIOL 4AA0 Professional Development II	0		
	16		**14**

Total Hours: 122

ANSC 3400 Animal Nutrition is now required to enter vet school at Auburn. See advisor for details.

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

2 Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

Organismal Biology — Pre-Veterinary Medicine Option (VIBO)

The Integrative Biology option within the Organismal Biology major provides students with a broad perspective on biological sciences. Introductory courses cover concepts in biology and chemistry and lay a strong foundation for more specialized, upper-level coursework that spans the field of biology, including ecology, evolution, physiology, cell biology and microbiology. This flexible major can be fulfilled through a long list of elective courses and is designed to serve students interested in a broad range of careers related to biology,

including basic research as well as applications in biotechnology, agriculture, and the environment. This major has been tailored to meet the requirements for students interested in pursuing careers in veterinary medicine.

Freshman

Fall	Hours	Spring	Hours
BIOL 1020 Principles of Biology	**3**	**BIOL 1030 Organismal Biology**	**3**
BIOL 1021 Principles of Biology Laboratory	**1**	**BIOL 1031 Organismal Biology Laboratory**	**1**
MATH 1610 Calculus I	4	ENGL 1120 English Composition II	3
ENGL 1100 English Composition I	3	CHEM 1040 Fundamental Chemistry II	3
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
CHEM 1031 Fundamental Chemistry I Laboratory	1	Core History	3
BIOL 2100 Professional Development	1		
	16		**14**

Sophomore

Fall	Hours	Spring	Hours
Core Literature	3	Core History or Literature[1]	3
Core Social Science[2]	3	CHEM 2080 Organic Chemistry II	3
CHEM 2070 Organic Chemistry I	3	CHEM 2081 Organic Chemistry II Laboratory	1
CHEM 2071 Organic Chemistry I Laboratory	1	**BIOL 3030 Evolution and Systematics**	**3**
BIOL 3060 Ecology	**4**	**BIOL 3000 Genetics**	**3**
	14		**13**

Junior

Fall	Hours	Spring	Hours
Select 4 Credit hours of the following:	**4**	BIOL 4100 Cell Biology	3
BIOL 3100 Plant Biology		PHYS 1510 General Physics II	4
BIOL 3200 General Microbiology & BIOL 3201 General Microbiology Laboratory		ANSC 3400 Animal Nutrition	4
BIOL 4010 Invertebrate Biodiversity		Core Social Science[2]	3
BIOL 4020 Vertebrate Biodiversity		COMM 1000 Public Speaking	3
BIOL 4950 Senior Seminar	**1**		
Core Social Science or Humanities[3]	3		
Core Fine Arts	3		
PHYS 1500 General Physics I	4		
BCHE 5180 Biochemistry I	3		
Students who complete the above 6 semesters and successfully complete the first year of veterinary school may be awarded a BS in Organismal Biology. In the event the first year Veterinary College alternative is not followed, the indicated senior year courses must be successfully completed to recieve the BS in Organismal Biology.			
	18		**17**

Senior				
Fall	**Hours**		**Spring**	**Hours**
Biology Elective		**4**	**Biology Elective**	**5**
Eco/Evo/Diversity Electives		**5**	**Cell/Mol/Micro Elective**	**3**
Cell/Mol/Micro/ Electives		**4**	**Physiology Elective**	**4**
BCHE 5181 Biochemistry I Laboratory		1	UNIV 4AA0 Achieve the Creed[4]	0
BIOL 4AA0 Professional Development II		0	BCHE 5190 Biochemistry II	3
			BCHE 5191 Biochemistry II Laboratory	1
		14		**16**

Total Hours: 122

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.

2 Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

4 This course must be taken the semester of graduation.

Majors

Minors

College of Veterinary Medicine

CALVIN M. JOHNSON, *Dean*
MELINDA S. CAMUS, *Associate Dean for Academic Affairs*
FRANK F. BARTOL, *Associate Dean for Research and Graduate Studies*
A. NICKIE BAIRD, *Associate Dean for Clinical Affairs*

THE COLLEGE OF VETERINARY MEDICINE offers a Bachelor of Science (BS) in Public and One Health (PAOH), a professional Doctor of Veterinary Medicine (DVM) degree, and graduate degrees (MS and PhD) in Biomedical Sciences (VMBS).

The undergraduate major is co-directed by Dr. Andrea Perkins and Dr. Kelley Steury and administered through the Office of Research and Graduate Studies, under the leadership of Dr. Frank Bartol. Additional information can be found under the Program tab or at https://www.vetmed.auburn.edu/academics/public-and-one-health/.

The professional Doctor of Veterinary Medicine (DVM) degree is administered through the Office of Academic Affairs, under the leadership of Dr. Melinda Camus. Additional information can be found under the Program tab or at https://www.vetmed.auburn.edu/academics/dvm-professional-degree-program/.

The Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Biomedical Sciences are administered through the Office of Research and Graduate Studies, under the leadership of Dr. Frank Bartol. Additional information can be found under the Program tab or at https://www.vetmed.auburn.edu/academics/graduate-students/.

Undergraduate

- Public and One Health - BS (p. 1371)

Graduate

- Biomedical Sciences — MS, PhD (p. 1556)

Professional

- Doctor of Veterinary Medicine — DVM (p. 1792)

Minors

- Public Health (p. 1371)
- Honors Public Health (p. 1370)

Public and One Health Courses

PAOH 2100 INTRODUCTION TO PUBLIC HEALTH (3) LEC. 3. Public Health is the science of preventing disease and promoting health in populations through research, policy development, education, provision of health services, and response to disease outbreaks. This course provides an overview of foundational concepts in public health and One Health, featuring lectures by the primary instructor and guest experts on a variety of topics.

PAOH 2107 HONORS INTRODUCTION TO PUBLIC HEALTH (3) LEC. 3. Pr. Honors College. Public Health is the science of preventing disease and promoting health in populations through research, policy development, education, provision of health services, and response to disease outbreaks. This course provides an overview of foundational concepts in public health and One Health, featuring lectures by the primary instructor and guest experts on a variety of topics. Students will attend the same lectures as PAOH 2100 as well as a small number of additional honors meetings.

PAOH 3010 INTRODUCTION TO EPIDEMIOLOGY (3) LEC. 3. Epidemiology is the study of the distribution, determinants, and dynamics of disease or health events in a population. This course introduces the basic principles and methods of epidemiology with an emphasis on prevention and control of diseases of humans and other animals.

PAOH 3017 HONORS INTRODUCTION TO EPIDEMIOLOGY (3) LEC. 3. Pr. Honors College. Epidemiology is the study of the distribution, determinants, and dynamics of disease or health events in a population. This course introduces the basic principles and methods of epidemiology with an emphasis on prevention and control of diseases of humans and other animals. Students will attend the same lectures as PAOH 3010 as well as a small number of additional honors meetings.

PAOH 4830 GLOBAL AND COMPARATIVE HEALTH SYSTEMS (3) LEC. 3. Departmental approval. Different national approaches to providing health care for the population will be compared to the US system.

PAOH 4837 HONORS GLOBAL AND COMPARATIVE HEALTH SYSTEMS (3) LEC. 3. Pr. Honors College. Departmental approval. Different national approaches to providing health care for the population will be compared to the US system.

PAOH 4910 OBSERVING NEEDS IN PUBLIC HEALTH (3) LEC. 3. Through volunteer service to an agency or organization addressing public health needs, students will develop an understanding of the importance for volunteers to support community needs. Additionally, there will be lectures and class discussions on various topics addressing needs of underserved populations.

PAOH 4920 INTERNSHIP IN PUBLIC & ONE HEALTH (1-6) INT. Departmental approval. Application of concepts and skills in public health or One Health in a professional internship experience. Course may be repeated for a maximum of 6 credit hours.

PAOH 4970 SPECIAL TOPICS IN PUBLIC & ONE HEALTH (1-4) LEC. 1-4. Topics of special interest in Public and One Health. May be repeated with change of topic. Course may be repeated for a maximum of 8 credit hours.

PAOH 4980 UNDERGRADUATE RESEARCH IN PUBLIC & ONE HEALTH (1-3) RES. Departmental approval. Directed, supervised undergraduate research in public health, health, or One Health. Course may be repeated for a maximum of 9 credit hours.

PAOH 5100 ZOONOSES AND INFECTIOUS DISEASES (3) LEC. 3. Pr. BIOL 3200. This course presents a comparative approach to infectious disease in humans and animals, while specifically highlighting zoonoses (diseases shared between humans and animals). Students will learn infectious disease epidemiologic concepts, as well as delve into foodborne, vaccine-preventable, sexually transmitted, and vector-transmitted pathogens, as well as common systems-associated infections in both animals and humans.

PAOH 5200 PROGRAM PLANNING AND THEORIES OF HEALTH PROMOTION (3) LEC. 3. This course provides the fundamentals of health promotion and behavior, including theories of change in health behavior and program implementation (planning, marketing, assessment, evaluation). By the end of the course, students should be equipped to initiate a program implementation aimed at improving health.

PAOH 5400 ENVIRONMENTAL HEALTH (3) LEC. 3. Environmental Health serves as an introduction to the effects and regulation of chemical, physical and biological factors in the environment that affect the health of individuals, communities, and ecosystems.

PAOH 5950 ONE HEALTH SEMINAR (2) LEC. 2. This course will explore public health topics relevant to populations of humans, animals, and the environment through guest seminars, large and small group discussion, and student presentations.

PAOH 6100 ZOONOSES AND INFECTIOUS DISEASES (3) LEC. 3. Pr. BIOL 3200. This course presents a comparative approach to infectious disease in humans and animals, while specifically highlighting zoonoses (diseases shared between humans and animals). Students will learn infectious disease epidemiologic concepts, as well as delve into foodborne, vaccine-preventable, sexually transmitted, and vector-transmitted pathogens, as well as common systems-associated infections in both animals and humans.

PAOH 6200 PROGRAM PLANNING AND THEORIES OF HEALTH PROMOTION (3) LEC. 3. This course provides the fundamentals of health promotion and behavior, including theories of change in health behavior and program implementation (planning, marketing, assessment, evaluation). By the end of the course, students should be equipped to initiate a program implementation aimed at improving health.

PAOH 6400 ENVIRONMENTAL HEALTH (3) LEC. 3. Environmental Health serves as an introduction to the effects and regulation of chemical, physical and biological factors in the environment that affect the health of individuals, communities, and ecosystems.

PAOH 6950 ONE HEALTH SEMINAR (2) LEC. 2. This course will explore public health topics relevant to populations of humans, animals, and the environment through guest seminars, large and small group discussion, and student presentations.

VM-Biomedical Sciences Courses

VBMS 3050 STEWARDSHIP IN THE FACE OF CLIMATE CHANGE: LESSONS FROM THE GREAT BARRIER REEF AND BEYOND (2) AAB/FLD. 30. This 2.5 week course is intended to introduce students to the impact of global warming on the flora and fauna of a unique environment through familiarity with the challenges of maintaining health in domestic, wild and commercial land and marine animals of Australia's diverse ecological land and marine park environments. Activities will include implementation of research methods that assess health, service and outreach efforts that will maintain or improve health, and educational trips that will increase understanding of the fragility and strength of integrated yet every changing flora and fauna. A consistent focus will be the past, present and future impact of humans, and efforts intended to minimize or resolve that impact.

VBMS 3900 REPRODUCTIVE SCIENCE AND HEALTH (3) LEC. 3. P/C, One basic organismal biology, physiology or similar life science course. Sophomore level or higher. Foundational physiologic concepts in reproductive science linked to important animal and human reproductive health issues. May count either ANSC 3600 or VBMS 3600.

VBMS 4980 UNDERGRADUATE RESEARCH (1-3) RES. Directed, supervised undergraduate research in veterinary biomedical sciences (VBMS). Course may be repeated for a maximum of 9 credit hours.

VBMS 4987 HONORS RESEARCH (1-3) RES. Pr. Honors College. Supervised undergraduate research in veterinary biomedical science. May count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

VBMS 4997 HONORS THESIS (1-3) RES. Pr. Honors College. Undergraduate honors thesis development in veterinary biomedical science. May Count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

VBMS 5100 CANCER BIOLOGY & GENETICS (3) LEC. 3. Coreq. BIOL 5220. Biological and genetic mechanisms underlying the development of cancer with a focus on eukaryotic cell mechanisms regulating cell division and communication as well as genetic and phenotype instability. State-of-the-art genomic approaches to personalized medicine and immunotherapy will be discussed. Current literature will be used extensively. Undergraduate courses in genetics and molecular genetics are required or corequisite.

VBMS 6100 CANCER BIOLOGY & GENETICS (3) LEC. 3. Pr. BIOL 3003 and BIOL 5220. Biological and genetic mechanisms underlying the development of cancer with a focus on eukaryotic cell mechanisms regulating cell division and communication as well as genetic and phenotype instability. State-of-the-art genomic approaches to personalized medicine and immunotherapy will be discussed. Current literature will be used extensively. Undergraduate courses in genetics and molecular genetics are required. Additionally, completion of VBMS 7520 Eukaryotic Molecular Biology is encouraged.

VBMS 6111 VETERINARY ANATOMY I (4) LAB. 12. Departmental approval. Gross anatomy of the dog and cat including skeletal and muscular systems, neck, thorax, limbs, abdomen, pelvis, head, and nervous system. Credit will not be given for VMED 5111 and VBMS 6111.

VBMS 6121 VETERINARY ANATOMY II (3) LAB. 9. Pr. VBMS 6111 or VMED 9111. In-depth study of the gross anatomy of the ox, horse, and minor species (chicken) with inclusion of clinical relevance. In-depth presentation of a specific anatomy topics related to course material. May count either VMED 5121 or VBMS 6120.

VBMS 7000 NEUROANATOMY (5) LEC. 3. LAB. 4. Departmental approval. Functional morphology of nervous system from input/output through the long systems; limbic relations to endocrine and autonomic nervous system. Comparative among mammals.

VBMS 7010 PATHWAYS TO SUCCESSFUL RESEARCH (1) LEC. 1. An introduction to topics pertinent to performance of a successful graduate program and in the conduction of responsible research.

VBMS 7020 MICROSCOPIC ANATOMY I (3) LEC. 1. LAB. 4. Departmental approval. A detailed study of microscopic anatomy of basic tissues from multiple animal species. Light microscopy and electron micrograph preparations are used to describe and interpret morphology. Coursework will emphasize the dependence of morphological form on the functional demands of cells and tissue. The lectures characterize the structure and function of the four basic tissues (epithelium, connective tissue, muscle, and nerve) and organ systems. In the lab, students will examine the same structures and learn to identify tissues and organs.

VBMS 7030 MICROSCOPIC ANATOMY II (3) LEC. 1. LAB. 4. Departmental approval. Light microscopy and electron microscopy detailed study of the cardiovascular, hemopoietic, digestive, urinary and respiratory systems of domestic animals.

VBMS 7040 ADVANCED PHYSIOLOGY OF REPRODUCTION (3) LEC. 3. Pr. ANSC 3600 and BIOL 6240 or VBMS 7150. Departmental approval. Developmental, physiological, endocrinological, cellular and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.

VBMS 7070 ENDOCRINOLOGY (4) LEC. 4. Pr. BCHE 7200 and BCHE 7260 and BIOL 6600. Molecular and cellular endocrinology and physiological regulation of hormone synthesis, secretion, and action in mammalian species. Emphasis will be placed on the methodology and key concepts used for endocrine research.

VBMS 7080 MOLECULAR ENDOCRINOLOGY (2) LEC. 2. Pr. VBMS 7070. Departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems, and gene regulation.

VBMS 7090 ADVANCED PHARMACOLOGY (3) LEC. 3. Departmental approval. The principles of pharmacology in animals are addressed with a clinical perspective. The determinants of drug movement, pharmacokinetics (modeling) and pharmacodynamics, with a focus on drug-receptor interactions and their detection will be followed by a discussion of adverse drug events and selected drug categories, including cannabinoids, nonsteroidal anti-inflammatory drugs and antimicrobials. Student contributions to discussions through the review of contemporary, relevant literature is emphasized.

VBMS 7120 PRACTICAL FLOW CYTOMETRY AND CELL SORTING IN RESEARCH APPLICATION (2-4) LEC. 2. LAB. 4, LLB. 3. Combined Lecture and lab covering the principle of flow cytometry, experiment design, and data analysis. Instructor approval is highly recommended. Course may be repeated for a maximum of 4 credit hours.

VBMS 7130 VETERINARY MEDICINE DIAGNOSTIC ULTRASONOGRAPHY (3) LEC. 3. Pr. (VMED 9120 or VMED 9121 or VMED 5120) and VMED 5121. The principles and practice of veterinary medical diagnostic ultrasonography as they are utilized in evaluating normal and abnormal anatomy. All animal species are used in this course. DVM degree required.

VBMS 7140 PHYSIOLOGY I (5) LEC. 5. Departmental approval. Cellular, Cardiovascular, Renal and Respiratory Physiology.

VBMS 7150 PHYSIOLOGY II (4) LEC. 4. Pr. VBMS 7140. Departmental approval. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VBMS 7160 NEUROSCIENCE (4) LEC. 3. LAB. 2. Departmental approval. An overview of neuroscience on the subcellular, cellular and system levels.

VBMS 7170 SMALL ANIMAL SOFT TISSUE SURGERY ADVANCED TOPICS (1) LEC. Advanced topics in small animal soft tissue surgery and current literature are reviewed and discussed.

VBMS 7180 RECEPTOROLOGY (4) LEC. 4. Pr. VBMS 7070. Addresses structural and functional aspects of the four classes of receptors, including the mechanism of ligand binding, activation, inactivation, and their relevance to human and animal diseases. Methods used in addressing these questions will also be introduced.

VBMS 7200 VETERINARY ELECTRODIAGNOSTIC TESTING (3) LEC. 3. SU. Departmental approval. This course will cover principles of electrophysiology, electrodiagnostic testing, and pertinent electrodiagnostic literature. Modalities covered include: electromyography, nerve conduction velocity, late waves, repetitive nerve stimulation, evoked potentials, electroretinogram, electroencephalogram, and urethral pressure profile.

VBMS 7210 RADIATION BIOLOGY (4) LEC. 4. Exploration of biological, physical, and chemical basis of radiotherapy with emphasis on the biological effects of ionizing radiation at the cellular and molecular level. Effects of irradiation on the tumor, normal tissues, and the patient will be addressed. DVM degree; Residency in Radiation Oncology or Radiology or Small Animal Oncology and registered in the Graduate School.

VBMS 7220 STRUCTURE AND FUNCTION OF COMPANION ANIMAL SKIN (3) LEC. 3. The course will cover the comparative aspects of the structure and function of the skin of companion animals in healthy and diseases states.

VBMS 7230 CUTANEOUS DISORDERS OF LARGE AND EXOTIC ANIMALS (3) LEC. 3, IND/LEC. 9-12. In depth review of the common and uncommon dermatologic conditions affecting large animal and exotic animal species, including emphasis on those conditions considered zoonotic.

VBMS 7250 NORMAL RADIOLOGICAL ANATOMY (3) LEC. 3. A detailed study of the normal structure, size and position of the various organs of the cat, dog, horse, cow, and other veterinary species as they appear on plain and contrast radiographs. DVM Degree, acceptance in an established residency program.

VBMS 7260 ADVANCED RADIOLOGY (3-5) LEC. Detailed study of concepts and techniques of all imaging procedures. For graduate students and residents in DCS program or DVM or equivalent. Course may be repeated for a maximum of 5 credit hours.

VBMS 7270 RADIOLOGICAL INTERPRETATIONS (1-3) LEC. The interpretation of various diagnostic imaging modalities used in veterinary medicine and their applications in the diagnostic work-up of clinical cases presenting to the College of Veterinary Medicine. DVM Degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7280 PHYSICS OF DIAGNOSTIC IMAGING (3) LEC. 3. Principles of physics related to the imaging modalities of diagnostic radiology, ultrasonography, magnetic resonance imaging, scintigraphy, computed tomography, and radiation therapy. Students will study physics at the atomic level but must also develop an understanding of construction, function, and hazards of modern imaging equipment. DVM Degree.

VBMS 7290 GRADUATE SEMINAR (3) SEM. Departmental approval. This course offers hands-on experience on presenting cutting-edge research across a wide range of biological disciplines—including (but not limited to) genetics, comparative biology, quantitative biology. The course places emphasis on understanding hypotheses, experimental design, results, and interpretation from past studies. It applies a One Health concept. Course may be repeated for a maximum of 9 credit hours.

VBMS 7300 AVIAN DIAGNOSTIC PATHOLOGY (1-3) LAB. 1-3. SU. Residents enrolled in the Veterinary Biomedical Sciences Avian Pathology specialty program will interpret lesions for the diagnosis of avian diseases using necropsy procedures. Focus will be placed on an integrated comparative understanding of the pathophysiology of disease in commercial poultry. Course may be repeated for a maximum of 3 credit hours.

VBMS 7310 ADVANCED VETERINARY ANESTHESIOLOGY (1) LEC. 1. This course will be delivered in weekly one hour lecture format. The presenter for each lecture will rotate between course students and veterinary faculty. For each hour, the presenter will be required to deliver a lecture on a topic related to the overreaching subject for that semester course. The lecture will be delivered at an in-depth level utilizing currently scientific literature, text books, and other reference materials resulting in delivery of state of the art information. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have a DVM degree or equivalent. Course may be repeated for a maximum of 9 credit hours.

VBMS 7320 EVALUATION OF CURRENT AND EMERGING LITERATURE IN VETERINARY ANESTHESIA (1) LEC. 1. This course will be delivered in weekly one hour lecture format. The presenter for each lecture will rotate between course students and veterinary faculty. For each hour, the presenter will be required to deliver an in-depth evaluation and summary of two medial journal manuscripts related to veterinary anesthesiology. The presenter will be required to discuss the manuscript format, study design, data analysis, results, and conclusions including discussion on the pros and cons of the study. Manuscript selection for each class will be at the discretion of the presenter and copies of the manuscripts will be made available electronically to all faculty and students of the course one week prior to the class. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have a DVM degree or equivalent. Course may be repeated for a maximum of 9 credit hours.

VBMS 7340 LARGE ANIMAL SURGERY AND MEDICINE SEMINAR (1) SEM. 1. Departmental approval. Seminar required of all graduate students in large animal surgery and medicine. Meets at scheduled intervals each year.

VBMS 7350 ADVANCED LARGE ANIMAL UROGENITAL SURGERY (5) LEC. 3. LAB. 6. Departmental approval. Research in surgery. Advanced techniques for urogenital surgical procedures in large domestic animals.

VBMS 7360 ADVANCED LARGE ANIMAL SOFT TISSUE SURGERY (5) LEC. 4. LAB. 2. Departmental approval. Research in surgery. Advanced techniques for soft tissue surgical procedures in large domestic animals.

VBMS 7370 ADVANCED LARGE ANIMAL ORTHOPEDIC SURGERY (5) LEC. 3. LAB. 2. Research and advanced techniques for orthopedic surgical procedures in large domestic animals.

VBMS 7380 ADVANCED FOOD ANIMAL MEDICINE (2) LEC. 2. Departmental approval. In-depth study of food animal medical diseases of all body systems with emphasis on pathophysiologic mechanisms. DVM degree.

VBMS 7400 GYNECOLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Departmental approval. Diseases and problems of the reproductive system in the female domestic animals. Normal and abnormal conditions of various species are covered. DVM degree.

VBMS 7410 ANDROLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Departmental approval. Diseases and problems of the reproductive system in male domestic animals. DVM degree.

VBMS 7420 SCIENTIFIC COMMUNICATION (3) LEC. SU. Building skills towards effective and impactful communication of scientific evidence via writing, for thesis/dissertation and scientific journals, and via oral presentation.

VBMS 7440 ADVANCED EQUINE ARTHROSCOPIC SURGERY (5) LEC. 3. LAB. 6. Departmental approval. Research in surgery. Advanced techniques for arthroscopic surgical procedures in the horse. DVM degree.

VBMS 7450 SELECTED TOPICS IN GRADUATE EDUCATION RESEARCH (3) LEC. 3. Departmental approval. This course offers a deep dive into molecular or quantitative research. This course can be designed for students looking to build strong analytic and computational skills. The course emphasizes practical techniques for working with large and complex datasets across a range of research domains. Students will learn to write clear, efficient, and reproducible code while developing workflows that support rigorous, transparent analysis. Course may be repeated for a maximum of 9 credit hours.

VBMS 7460 MICROBIAL PATHOGENESIS (3) LEC. 3. Departmental approval. Mechanisms of infection and disease production by bacteria, viruses, and parasites in animals.

VBMS 7470 ADVANCED EPIDEMIOLOGY (3) LEC. 3. Departmental approval. Advanced epidemiological techniques and their application to disease research, clinical retrospective and prospective studies, and disease outbreak investigation. Introductory statistics course

VBMS 7480 METHODS IN IMMUNOLOGY (5) LEC. 1. LAB. 8. Pr. VBMS 7500. Departmental approval. Theoretical concepts underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.

VBMS 7500 CELLULAR AND MOLECULAR IMMUNOLOGY (3) LEC. Departmental approval. Current literature in immunobiology, emphasis on cellular/ biochemical/genetic basis of immune response.

VBMS 7510 VETERINARY CLINICAL ROTATIONS (3) CLN/LEC. 40. Post-DVM (Doctor of Veterinary Medicine) clinical experiences through various specialty services in the Veterinary Medical Teaching Hospital. Departmental approval required. Course may be repeated for a maximum of 24 credit hours.

VBMS 7520 EUKARYOTIC MOLECULAR BIOLOGY (3) LEC. 3. Genetic mechanisms regulating genomes and gene expression by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

VBMS 7530 EXPERIMENTAL TECHNIQUES IN MOLECULAR AND CELL BIOLOGY (3) LEC. 2. LAB. 6. Nucleic acid detection/ amplification/sequencing, primer design, CRISPR, transfection, protein/ antibody chemistry, flow cytometry, immunofluorescence microscopy, fluorochromes, radioisotopes, centrifugation, and cell culture will be discussed.

VBMS 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3. Pr. (VBMS 7520 or BIOL 5230 or BIOL 6230). Departmental approval. Viral gene expression and evasion of host defense mechanisms.

VBMS 7550 ADVANCED GENERAL PATHOLOGY (1-3) LEC. SU. Departmental approval. Structured examination of current textbooks and literature related to the pathologic basis of veterinary diseases. Open to residents in anatomic and clinical pathology and other post-DVM students with special approval. Course may be repeated for a maximum of 3 credit hours.

VBMS 7570 DIAGNOSTIC PATHOLOGY (1-3) LEC. SU. Diagnosis of animal diseases using necropsy procedures and histopathology. Required every semester of all graduate students and residents in pathology. DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7580 SURGICAL PATHOLOGY (1-3) LEC. SU. Histopathologic diagnosis of surgical biopsy or necropsy specimens. Available to residents in anatomic and clinical pathology. Course may be repeated for a maximum of 3 credit hours.

VBMS 7600 ADVANCED CLINICAL PATHOLOGY I (3) LEC. 3. Pr. VMED 5230 or VMED 9230. Departmental approval. The lymphohematopoietic system. Normal components and evaluation of disease states.

VBMS 7610 ADVANCED CLINICAL PATHOLOGY II (3) LEC. 3. Departmental approval. Laboratory evaluation of organ function; disease pattern recognition.

VBMS 7620 DIAGNOSTIC ONCOLOGY (3) LEC. 3. Pr. VMED 9220. Departmental approval. Principles of gross and microscopic interpretation of animal neoplasms using basic and specialized techniques.

VBMS 7630 BASIC AND CLINICAL ONCOLOGY (3) LEC. 3. Comparative aspects of the etiology, pathophysiology, diagnosis and treatment of cancer.

VBMS 7640 MECHANISMS OF DISEASE (3) LEC. 3. Pr. VMED 9220. Departmental approval. Understanding of disease through in-depth discussion of pathophysiology of various disease processes, disorders and diagnostic modalities. Focus will be placed on an integrated comparative understanding of the pathophysiology of disease in major veterinary species as it pertains to current and historically significant disease, as well as emerging diseases. Emphasis is placed on the morphologic, molecular and genetic aspects of disease processes.

VBMS 7650 VETERINARY DERMATOPATHOLOGY I (1-3) LEC. SU. This course aims to share theoretical and practical foundations on dermatopathology with residents in the Anatomic Pathology and/or Veterinary Dermatology program(s). The lectures will consist of 1-hour long Powerpoint presentations or case discussions on relevant integumentary diseases, with summarized clinical features and a particular focus on the histopathology perspective of cases that usually warrant biopsy. At the end of the course, it is expected that residents learn the fundamental terminologies used in dermatopathology, in addition to pattern recognition of major cutaneous diseases that afflict domestic animals. Course may be repeated for a maximum of 3 credit hours.

VBMS 7660 VETERINARY DERMATOPATHOLOGY II (1-3) LEC. SU. This course aims to share theoretical and practical foundations on dermatopathology with residents in the Anatomic Pathology and/or Veterinary Dermatology program(s). The lectures will consist of 1-hour long PowerPoint presentations or case discussions on relevant integumentary diseases, with summarized clinical features and a particular focus on the histopathology perspective of cases that usually warrant biopsy. At the end of the course, it is expected that residents learn the fundamental terminologies used in dermatopathology, in addition to pattern recognition of major cutaneous diseases that afflict domestic animals. Course may be repeated for a maximum of 3 credit hours.

VBMS 7680 PATHOLOGY SEMINAR (1) LEC. 1. Pr. VMED 9220. Departmental approval. Weekly conference to discuss gross and histologic pathology in animal tissues. Open to residents in anatomic and clinical pathology. Course may be repeated for a maximum of 3 credit hours.

VBMS 7690 READINGS IN IMMUNOLOGY AND INFECTIOUS DISEASE (1-3) LEC. 1-3. To familiarize students with current scientific literature in immunology and infectious diseases and the methods employed. Course may be repeated for a maximum of 6 credit hours.

VBMS 7710 ADVANCED EUKARYOTIC MOLECULAR BIOLOGY (3) LEC. 3. Pr. VBMS 7520. Current literature in molecular mechanisms of information transfer and regulation in eukaryotes.

VBMS 7720 DEVELOPMENTAL MOLECULAR BIOLOGY (3) LEC. 3. Genetic mechanisms by which eukaryotes differentiate from single cells to complex multicellular organisms will be covered. Important examples of biomedical dysfunction will be used to illustrate developmental pathways. Current literature will be used extensively.

VBMS 7750 GRADUATE COLLOQUIUM IN VETERINARY CLINICAL SCIENCE (1) CLN. 1. SU. Departmental approval. Forum to present topics relevant to the students clinical and research interests. This a mandatory seminar for graduate students in the Department of Clinical Science. DVM degree Course may be repeated for a maximum of 5 credit hours.

VBMS 7760 ADVANCED VETERINARY NEUROSURGERY (4) LEC. 1. LAB. 3. Enrolled in the CVM's MS or PHD program. Veterinary neurosurgery. All aspects of veterinary neurosurgery will be covered. Content delivery is via didactic lecture, small group discussion, and skills laboratories.

VBMS 7770 ADVANCED SMALL ANIMAL GENERAL SURGERY (3) LEC. 2. LAB. 3. Application of critical thinking skills to perioperative plans and tasks. DVM or VMD degree, or equivalent.

VBMS 7780 VETERINARY WOUND MANAGEMENT AND RECONSTRUCTIVE SURGERY (4) LEC. 2. LAB. 2. Techniques in veterinary wound management and reconstructive surgery in large and small animals. DVM degree or equivalent.

VBMS 7790 SMALL ANIMAL ORTHOPEDICS (2) LEC. 2. Review of orthopedic diseases in small animals, interactive review of recent literature and advanced laboratory sessions intended for residents in small animal surgery. DVM degree or equivalent.

VBMS 7800 ADVANCED SMALL ANIMAL NEUROLOGY (3) LEC. 3. Advanced study of neurodiagnostics and non-surgical therapy of neurological disorders in small domestic animals.

VBMS 7810 ADVANCED SMALL ANIMAL MEDICINE I (3) LEC. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical urogenital diseases of small animals. DVM degree.

VBMS 7820 ADVANCED SMALL ANIMAL MEDICINE II (3) LEC. 3. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical gastrointestinal diseases of small animals. DVM degree.

VBMS 7830 ADVANCED VETERINARY ONCOLOGY (3) LEC. 3. SU. Departmental approval. Special study of veterinary oncology and general tumor biology. DVM degree required. Course may be repeated for a maximum of 6 credit hours.

VBMS 7840 ADVANCED CRITICAL CARE MEDICINE I: PATHOPHYSIOLOGY (2) LEC. 2. Advanced topics in veterinary critical care are discussed. Topics include pathophysiology, pharmacology, and specific therapy of critical illness. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Course may be repeated for a maximum of 5 credit hours.

VBMS 7850 ADVANCED VETERINARY MEDICAL SPECIALTY TRAINING (1-4) LEC. 1. LAB. 2. SU. Advanced veterinary medical specialty training is provided to residents and board-eligible veterinary trainees with hands-on instruction in clinical activities commensurate with the board-certification expectation of various veterinary medical specialties. Up to 3 hours may be used toward BMS degree program, course may be repeated for a maximum of 6 credit hours.

VBMS 7860 SPECIAL TOPICS IN COMPARATIVE OPHTHALMOLOGY (1) LLB/ST1. SU. This weekly 1 hour course will consist of chapter reviews of veterinary ophthalmology and equine ophthalmology. House officers will develop and present power point slides outlining assigned chapters. Course assignments will also include reading and presenting journal articles from the required list for board preparation, as well as taking mock boards practice journal and image recognition questions. Course may be repeated for a maximum of 15 credit hours.

VBMS 7870 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7880 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 1. LAB. 6. Pr. VBMS 7870. Advanced ophthalmology with emphasis on ophthalmic surgery.

VBMS 7890 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC BASIC SCIENCES (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7900 VETERINARY OPHTHALMIC PATHOLOGY (1) LLB. This course aims to share theoretical and practical foundations on ocular pathology with residents in the Anatomic Pathology and/or Veterinary Ophthalmology program(s). The lectures will consist of 1-hour long PowerPoint presentations on significant ocular/orbital abnormalities, with summarized clinical features and a particular focus on the histopathology perspective of cases that usually warrant biopsy, enucleation, evisceration, or orbital exenteration. At the end of the course, it is expected that residents build acquaintance with the fundamental terminologies used in ocular pathology, in addition to the recognition of major pathologic processes of the ocular/orbital structures.

VBMS 7910 THERIOGENOLOGY JOURNAL CLUB (1) LEC. 1. SU. This course is aimed at discussing current literature in the field of theriogenology, or animal reproduction. Any graduate student in the reproductive sciences is encouraged to participate. Course may be repeated for a maximum of 6 credit hours.

VBMS 7930 ADVANCED SMALL ANIMAL ORTHOPEDICS: AXIAL SKELETON (2) LEC. 2. Advanced topics in small animal orthopedics are discussed. Topics include anatomy, pathophysiology, pharmacology, and medical/surgical therapy of axial skeletal disease in small animals.

VBMS 7940 CURRENT TOPICS IN IMMUNOBIOLOGY (1) LEC. 1. The focus of this journal club is to discuss recently published advanced research topics in immunobiology research field pertaining to graduate student's research work. Course may be repeated for a maximum of 12 credit hours.

VBMS 7950 NEUROLOGY & NEUROSURGERY JOURNAL CLUB (1) LEC. 1. LAB. 0, LEC/SEM. 0. This course is aimed at discussing current literature in the field of veterinary neurology & neurosurgery. Any graduate student in the neurology & neurosurgery residency/internship program is encouraged to participate. Course may be repeated for a maximum of 10 credit hours.

VBMS 7960 VETERINARY NEURORADIOLOGY (1) LEC. 1. SU. Departmental approval. This course will cover fundamental concepts and principles of imaging modalities commonly used in veterinary neurology, namely MRI, CT, & radiography. Course material includes imaging of common neurologic lesions including congenital, neoplasia, trauma, vascular, inflammatory, and infectious diseases.

VBMS 7970 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCES (1-5) RES. Departmental approval. Research problems for graduate students, under supervision of faculty, in variety of specialized disciplines related to the biomedical sciences. Faculty approval. Course may be repeated for a maximum of 15 credit hours.

VBMS 7980 NON-THESIS PROJECT (1-3) LEC. SU. Departmental approval. Non-thesis project, to be determined by faculty advisor and student's graduate advisory committee. DVM degree

VBMS 7990 RESEARCH AND THESIS IN BIOMEDICAL SCIENCES (1-10) MST. Credit to be arranged. Course may be repeated with change in topics.

VBMS 8000 ADVANCED SMALL ANIMAL EMERGENCY AND CRITICAL CARE LITERATURE REVIEW (1) LEC. 1. SU. Review of current literature pertaining to Small Animal Emergency and Critical Care. Review includes group discussion of study design, procedural and physiologic concepts, statistical analysis, and relevance of outcomes.

VBMS 8010 EMERGING PEDAGOGIES IN ANATOMIC PATHOLOGY (1-3) LLB. SU. The overall objective of this course is to expose Graduate Teaching Assistants (GTA) to pedagogy strategies related to general pathology with specific emphasis on competency-based medical education for second-year veterinary students. Trainees will be introduced to diverse classroom dynamics, such as case- and problem-based laboratories, flipped classroom, and other collaborative learning techniques.

VBMS 8360 ADVANCED EQUINE MEDICINE I: GI DISEASE (2) LEC. 2. Advanced topics in equine gastrointestinal disease are discussed. Topics include pathophysiology, pharmacology, and specific therapy of GI disease in horses. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have DVM or equivalent.

VBMS 8370 ADVANCED EQUINE MEDICINE II: RENAL/ENDOCRINE (2) LEC. 2. Advanced topics in equine renal and endocrine disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8380 ADVANCED EQUINE MEDICINE III: NEUROMUSCULAR (2) LEC. 2. Advanced topics in equine neuromuscular disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8390 ADVANCED EQUINE MEDICINE IV: CARDIORESPIRATORY (2) LEC. 2. Advanced topics in equine cardiorespiratory disease are discussed. Topics include pathophysiology, pharmacology and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8480 EXPERIMENTAL METHODS IN VETERINARY MEDICINE (3) LEC. 3. Departmental approval. This course is intended to provide the biomedical sciences graduate student with the necessary tools to design and analyze a straightforward Masters-level veterinary biomedical research study, and interpret common statistical methods in the veterinary biomedical literature. Students will review and discuss examples from the veterinary research literature and acquire experience performing analysis using commonly available software packages.

VBMS 8950 BIOMEDICAL SCIENCES SEMINAR (1) SEM. 1. SU. Recent advances in biochemistry, cell biology and molecular biology will be critically presented and discussed by graduate faculty and students. Course may be repeated for a maximum of 10 credit hours.

VBMS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Veterinary Medicine Courses

VMED 9000 ORIENTATION TO VETERINARY MEDICINE (0) SEM. 1. SU. Overview of organized veterinary medicine, history of the profession, professional responsibilities and privileges, and career opportunities within the profession.

VMED 9009 PROFESSIONAL SELF CARE SKILLS (1) LEC. 1. SU. Departmental approval. This course will discuss the factors present within veterinary medicine that put us at risk for empathetic exhaustion, burnout, suicidal ideation and other issues, followed by sharing skills, thoughts and actions that will facilitate resiliency, well-being and fulfillment within the profession.

VMED 9010 VETERINARY JURISPRUDENCE (1) LEC. 1. Provide a foundation in veterinary medical ethics and legal issues associated with veterinary medicine.

VMED 9020 PROFESSIONAL COMMUNICATION SKILLS FOR VETERINARY MEDICINE (1) LEC. 1. LAB. 2. SU. Students will develop skills in communication with faculty, staff, colleagues, pet-owners, and the public sector through lecture and interactive laboratory sessions. These skills will be immediately implementable into everyday student/educational life, clinical practice, and team building settings. Topics include implementation of nonverbal and verbal communication skills during financial discussion, de-escalation, grief and empathy, creating safe spaces for collaborative decision making, and discussing medical errors.

VMED 9030 NATURAL HISTORY AND ANATOMY OF MARINE MAMMALS AND SEA TURTLES (1) LEC. 1, LAB. 0-2. SU. The course will be divided into nine hours of lectures and six hours of labs evenly divided between odontocetes (toothed whales), Pinnipeds (seals, sea lions and walruses) and sea turtles. Lecture topics will include natural history and anatomy of each group. Three fresh tissue wet labs will include dissections of one dolphin (Bottlenose or Spotted), one California Sea Lion and one sea turtle (one of several species found in the northern Gulf of Mexico).

VMED 9040 MARINE MAMMAL STRANDING RESPONSE AND NECROPSY TECHNIQUES (1) LEC. 1, LAB. 0-3. SU. Departmental approval. This course will provide an overview of the stranding response and necropsy techniques for small cetacean, manatees, and pinnipeds (manatee necropsy based on availability). The course will include lectures and necropsies at Dauphin Island Sea Lab.

VMED 9050 PROFESSIONAL DEVELOPMENT AND BUSINESS FUNDAMENTALS (1) LEC. 15. Auburn University CVM Professional Development and Business Fundamentals course is a 1 credit-hour course encompassing the study, understanding and application of pertinent business disciplines guiding the decision-making responsibilities of practice owners, veterinarians, veterinary students, veterinary technicians and practice managers that seek to improve profitability and efficiency allowing for a competitive advantage and long term success in their personal and professional careers.

VMED 9060 ELEVATING YOUR IMPACT: TOOLS FOR COMMUNITY-CENTERED MEDICINE (1) LEC. 12. LAB. 1. SU. This experience will provide students with an introduction to a wide range of animal welfare topics in a hands-on interactive environment. Subject matter experts will present, lead discussions, and facilitate student activities throughout this 2-day intensive weekend elective. Students will have the opportunity to practice spay/neuter techniques using easily buildable string models, become the crime scene investigator on animal cruelty cases, and learn countless other skills that will help them become better advocates for the animals and pet owners in their communities regardless of the specific veterinary field they choose to enter post-graduation.

VMED 9070 APPLIED CLINICAL PATHOLOGY (1) LEC. 1. SU. This course covers the use and interpretation of hematologic, clinical biochemical, coagulation, urinalysis and cytologic laboratory data in the diagnosis of diseases and pathophysiologic processes, building on the foundation established in the first two years of the professional DVM curriculum. The data discussed in this course are taken from clinical cases from the AU teaching hospitals.

VMED 9080 VETERINARY PAIN MANAGEMENT (1) LEC. 1. SU. The veterinary pain management course will serve to increase a student's knowledge base on many aspects of pain management of the veterinary patient. Subjects covered in this course will include in depth review of neuroanatomy and physiology of pain, pathophysiology of pain, pharmacology of medications used for pain management, non-pharmacologic treatments for pain, and specific pain management strategies for various domestic species, and exotic and zoo animals. Content in this class will be delivered through lecture or other formats depending on the presenting faculty. Departmental approval required.

VMED 9090 CANINE AND FELINE DENTISTRY (1) LEC. 1. SU. This elective is designed to build upon Small Animal Dentistry knowledge and teach entry level abilities to help 2nd and 3rd year veterinary students become clinic and practice ready. Departmental approval required.

VMED 9100 PROFESSIONAL PREPAREDNESS (1) LEC. 1. SU. Departmental approval. This course will introduce principles of preparedness for the major challenges students will face both now and after graduation from veterinary school (student loans, home mortgage, vehicle purchase, retirement plan, etc.).

VMED 9110 PHYSIOLOGY I (5) LEC. 5. LAB. 1. Cellular, Cardiovascular, Renal, and Respiratory Physiology.

VMED 9111 VETERINARY ANATOMY I (SMALL ANIMAL) (4) LEC. 2. LAB. 2. Basic concepts of body structure and small animal gross anatomy with veterinary medical applications. Credit will not be given for both VMED 5111 and VBMS 6111.

VMED 9120 PHYSIOLOGY II (4) LEC. 5. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VMED 9121 VETERINARY ANATOMY II (3) LEC. 1. LAB. 2. In-depth study of the gross anatomy of the ox, horse, and minor species with inclusion of clinical relevance.

VMED 9130 GENETIC AND CELLULAR BASIS OF ANIMAL DISEASE (1) LEC. 3. One credit course focused on the relationship between genetics and animal diseases.

VMED 9131 BASIC MICROANATOMY/DOMESTICS ANIMALS (3) LEC. 1. LAB. 2. Functional comparative microstructure of cells, basic tissues, cardiovascular system, urinary system, skeleton and osteogenesis, respiratory system, and blood of domestic animals.

VMED 9140 ADVANCED ANESTHESIA AND PAIN MANAGEMENT (1) LEC. 1. SU. This course is intended to expand on the basic topics covered in the veterinary curriculum. The content will be selected by the participants on the first day and a syllabus generated based on a consensus of topics the group would like to discuss. All topics in the realm of anesthesia and pain management are within the scope of possibilities. This course is not designed to be a review of topics already covered in other classes, but to expand on those topics. Departmental approval required.

VMED 9141 ORGANOLOGY OF DOMESTIC ANIMALS (2) LEC. 1. LAB. 2. Comparative microstructure of the digestive system, lymphoid system, endocrine system, integumentary system, reproductive system, and placentation of domestic animals.

VMED 9150 DIAGNOSTIC IMAGING (2) LEC. 2. LAB. 1. Basic radiographic and ultrasonographic physics; introduction to computed tomography, magnetic resonance imaging, and nuclear imaging.

VMED 9151 VETERINARY NEUROSCIENCES (4) LEC. 3. LAB. 1. Gross and microscopic morphology and physiology of the peripheral and central nervous systems. Course may be repeated for a maximum of 12 credit hours.

VMED 9160 VETERINARY PUBLIC HEALTH (3) LEC. 3. This first half of this class will include instruction on the zoonoses, and the principles of epidemiology or population medicine. For the zoonoses primary mechanisms of transmission and inclusion in differential diagnosis lists will be emphasized. The role of the veterinarian in prevention of human disease from the zoonoses will be stressed. Epidemiologic methods for investigation of disease distribution and dynamics in populations also will be covered. The second half of the course will provide a broad One Health/ Public Health overview of food safety and food security issues, including pet food and animal feeds. Basic concepts and principles will be illustrated and reinforced through the study of food- and water-borne diseases. This part of the course will address food and water-borne pathogens, their public health impacts (historic and present-day), prevention and mitigation measures (sanitary production and processing, pasteurization, and preservation techniques). The history and importance of regulatory controls and oversight in order to assure food and feed safety, consumer confidence, sustainability, and stable markets for American agriculture will be discussed.

VMED 9170 PROFESSIONAL COMMUNICATION SKILLS (1) LEC. 1. SU. Departmental approval. Students will develop skills in communication with colleagues, clients and staff through lecture and interactive laboratory sessions. Students will also improve their ability to give and receive feedback from peers. Professional presentation skills will be developed during the course with a final presentation given in laboratory setting.

VMED 9180 VETERINARY ETHOLOGY (2) LEC. 2. Basic concepts of ethology and other approaches to animal behavior, introduce diagnostic and treatment methods, discuss relevant cases. Course may be repeated for a maximum of 6 credit hours.

VMED 9190 INTRODUCTION TO VETERINARY PHARMACOLOGY (1) LEC. 3. An organized foundation of information to develop clincial thinking skills in veterinary pharmacology. Course may be repeated for a maximum of 16 credit hours.

VMED 9200 VETERINARY PARASITOLOGY I (3) LEC. 3. LAB. 1. Platyhelminthes, trematodes, and nematodes of domestic animals.

VMED 9210 VETERINARY PARASITOLOGY II (2) LEC. 3. LAB. 1. Arthopods, protozoa, helminths, and acanthocephalans of domestic animals. Parasiticides.

VMED 9220 PRINCIPLES OF VETERINARY PATHOLOGY (3) LEC. 4. LAB. 1. General principles of pathology and mechanisms of disease processes affecting animals.

VMED 9230 VETERINARY CLINICAL PATHOLOGY (4) LEC. 47. LAB. 8. Laboratory test principles and results interpretations in evaluation of hematopoietic, coagulation, hepatic, renal, gastrointestinal, acid/base and fluid status of animals.

VMED 9240 PRINCIPLES OF VETERINARY IMMUNOLOGY (3) LEC. 2. LAB. 1. Principles underlying the immune system's ability to protect animals from disease and mechanisms by which immune responses contribute to disease.

VMED 9250 VIROLOGY & PRIONS (2) LEC. 2. LAB. 1. Principles of infectious agents and their pathogenic attributes, infectious diseases of animals, and mechanisms of antimicrobial agents. Course may be repeated for a maximum of 6 credit hours.

VMED 9260 VETERINARY PHARMACOLOGY (3) LEC. 5. LAB. 1. Overview of drugs relevant to veterinary practice; pharmacoynamics, pharmacokinetics, clinical application.

VMED 9280 BACTERIOLOGY & MYCOLOGY (3) LEC. 3. LAB. 1. Veterinary bacterial and fungal pathogens, diseases caused by each, prevention, treatement and presumptive laboratory diagnoses. Course may be repeated for a maximum of 9 credit hours.

VMED 9290 CLINICAL ANATOMY AND INTRO TO AQUATIC ANIMAL MEDICINE (1) DSL/LLB. SU. This course delves into the unique anatomic and physiologic features of aquatic animals and serves as an introduction into topics including aquaculture, aquatic toxicology, aquatic research models, diseases of fish, and aquatic medicine. In addition, basic fish anatomy and diagnostic techniques will be taught in laboratory sessions.

VMED 9300 REPTILE ANATOMY AND MEDICINE (1) LEC. 1. LAB. 1, LLB. 0. SU. This course will be divided evenly between anatomy and natural history of reptiles. There will be 15 one-hour lectures and 2 two-hour wet labs.

VMED 9301 PHYSICAL DIAGNOSES OF LARGE AND SMALL ANIMALS (2) LEC. 2. LAB. 1. Basic approach to physical examination of large and small animals.

VMED 9309 AVIAN ANATOMY AND MEDICINE (1) LLB. SU. This course will be divided between the anatomy and natural history of birds. There will be 15 one-hour lectures and 2 two-hour wet labs.

VMED 9310 INTRODUCTION TO SURGERY (2) LEC. 2. LAB. 2. Current standing in the DVM professional curriculum and completion of the first 3 semesters of the professional program. Introduction to the fundamental principles and techniques of veterinary surgery.

VMED 9311 SURGICAL PRACTICUM (0-1) LAB. 5. SU. Aseptic technique, instrument handling, suture patterns, surgical ties, anesthetic administration/monitoring, surgical incision/tissue handling, wound closure, postoperative patient management. Course may be repeated for a maximum of 1 credit hours.

VMED 9320 LARGE ANIMAL NUTRITION (2) LEC. 2. LAB. 0. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 5320 or VMED 5420. Course may be repeated for a maximum of 6 credit hours.

VMED 9330 EXOTIC COMPANION ANIMAL MEDICINE (2) LEC. 4. Care, diagnosis, and treatment of exotic companion animals. May count either VMED 5330 or VMED 5430. Course may be repeated for a maximum of 6 credit hours.

VMED 9340 EMERGENCY MEDICINE AND CRITICAL CARE (2) LEC. 5. Emergency presentations, critical care management.

VMED 9350 VETERINARY TOXICOLOGY (2) LEC. 2. LAB. 1. Poisons and poisonous plants affecting large and small animals, chemical properties, signs, lesions, diagnosis, treatment.

VMED 9360 PRODUCTION AND PREVENTATIVE MEDICINE (3) LEC. 5. Principles of disease prevention and maximization of production application of food safety principles.

VMED 9370 ONCOLOGY (1) LEC. 3. Diagnostic and therapeutic measures used to manage animals with oncologic diseases.

VMED 9380 PHYSICAL DIAGNOSIS II (1) LEC. 1. LAB. 2. Continued experience in the performance of routine physical examination in small and large animal species. Satisfactory advancement into the second year of the professional (DVM) program.

VMED 9390 ADVANCED ANATOMY AND SURGICAL SKILLS (1) LEC. 1. SU. This elective is based on a flipped classroom model. Each enrollee will be required to prepare one PowerPoint presentation selected from the list of cases provided (or the presenter can elect to bring his or her own case based on past experience) and then discuss it with the group. The presenter will carry out research at home ahead of the class. He will get guidance from instructor who will provide additional notes, video and anatomical resources for each of the listed cases. Departmental approval required.

VMED 9400 EQUINE THERIOGENOLOGY CASE OF THE WEEK (1) LEC. 1. SU. Departmental approval. This course provides students an introduction to equine theriogenology using clinical cases received on the equine theriogenology service of the J.T. Vaughan Large Animal Teaching Hospital.

VMED 9410 APPLIED CLINICAL IMAGING (2) LEC. 3. Define and describe abnormalities of various systems detected through imaging. Course may be repeated for a maximum of 6 credit hours.

VMED 9420 SMALL ANIMAL NUTRITION (2) LEC. 2. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 9320 or VMED 9420. Course may be repeated for a maximum of 6 credit hours.

VMED 9440 CLINICAL VETERINARY PARASITOLOGY (1) LEC. SU. Departmental approval. This course will provide students with a case-based lecture format for expansion of foundational parasite knowledge, focusing on further discussions of the diagnosis, treatment, and prevention of common parasitic problems faced by general practitioners (small animal, large animal, and mixed) in the US. Hosts will include, but not be limited to: dogs, cats, horses, cattle, small ruminants, camelids, poultry and swine.

VMED 9450 EQUINE VETERINARY HUSBANDRY (1) LEC. 1. SU. This course is designed to familiarize veterinary students with the basic principles of equine husbandry as related to veterinary medicine, including uses and medical conditions of certain breeds, biosecurity, infectious disease prevention, parasite control programs, dental and hoof care, transport, and nutrition.

VMED 9460 FELINE MEDICINE ELECTIVE (1) LEC/LLB. SU. Departmental approval. This course provides an opportunity to increase practical knowledge of a variety of topics in feline medicine. Topics are designed to supplement course work, or include areas that are not covered in depth in regular courses.

VMED 9470 PRACTICAL KNOWLEDGE FOR EQUINE PRACTITIONERS (1) LEC. 1. SU. Discussions of common equine practice topics by medicine and surgery clinicians and staff.

VMED 9480 SPECTRUM OF CARE SERIES: INFORMATION LITERACY (1) LEC. 1. LAB. 0, LLB. 0. SU. Pr. VMED 9780. As part of the Spectrum of Care Series, this course focuses on identifying, critically evaluating, and applying different types of veterinary literature in academia and different types of private practice models. Additionally, students will be exposed to clinical, novel experiences and research presentations where they will have the ability to think through clinical presentations, provide high-quality feedback, and reflect on applications to their future practice.

VMED 9490 SPECTRUM OF CARE SERIES: EMERGING TECHNOLOGY (1) LEC. 1, LAB. 0-2, LLB. 0. SU. Pr. VMED 9780. As part of the Spectrum of Care Series, this course focuses on emerging technologies in veterinary medicine with a heavy focus on the use of artificial intelligence. This course will focus on how research goes from the benchtop to clinical practice and explore how new technology is developed. Additionally, students will explore the risks, benefits, limitations, and use of artificial intelligence and emerging technologies in veterinary medicine.

VMED 9500 SPECTRUM OF CARE SERIES: PUBLIC SPEAKING AND SOCIAL MEDIA IN MEDICAL PRACTICE (1) LEC. 1, LAB. 0-2, LLB. 0. SU. Pr. VMED 9780. As part of the Spectrum of Care Series, this course focuses on public speaking and use of social media and its practical use in medical practice. This course will be aimed at discussing the various types of speaking that veterinarians and health care professionals are asked to do, how to prepare to give a talk/ continuing education event, and how to engage guest lecturers about best practices in public speaking.

VMED 9502 CURRENT TOPICS IN VETERINARY MEDICINE (1) LEC. 1. SU. Emerging topics in veterinary medicine, current literature. Course may be repeated for a maximum of 15 credit hours.

VMED 9510 HEMOLYMPHATIC SYSTEM (1) LEC. 3. LAB. 1. Diagnosis, treatment and prevention of diseases affecting the integumentary and hemolymphatic systems. Course may be repeated for a maximum of 3 credit hours.

VMED 9520 CARDIOVASCULAR SYSTEM (2) LEC. 3. LAB. 1. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the cardiovascular system.

VMED 9530 RESPIRATORY SYSTEM (3) LEC. 3. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the respiratory system.

VMED 9540 SMALL ANIMAL ALIMENTARY SYSTEM (2) LEC. 5. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9550 URINARY SYSTEM (2) LEC. 3. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of disease affecting the urinary system.

VMED 9560 ENDOCRINE SYSTEM (2) LEC. 3. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases of the endocrine system.

VMED 9570 THERIOGENOLOGY (4) LEC. 5. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment; and prevention of diseases of the reproductive system.

VMED 9580 NERVOUS SYSTEM (2) LEC. 5. LAB. 1. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of diseases affecting the nervous system.

VMED 9590 MUSCULOSKELETAL SYSTEM (3) LEC. 3. Pathophysiology; pathologic, radiographic and ultrasonographic lesions; diagnosis; treatment; and prevention of diseases affecting the musculoskeletal system.

VMED 9600 ADVANCED EQUINE PHYSICAL DIAGNOSIS I (1) LAB. 1. SU. Departmental approval. An introduction to basic physical examination techniques and clinical conditions commonly used when examining horses clinically. Part 1 of a 2 part series, this course introduces students to common clinical conditions that may be encountered in equine practice.

VMED 9601 VETERINARY CLINICAL ROTATIONS (0-3) CLN. 40. Clinical experiences through various specialty service in the Veterinary Medical Teaching Hospital. Course may be repeated with change in topics.

VMED 9602 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCE (1-10) RES. SU. Research problems in a variety of specialized disciplines for veterinary students and advanced undergraduates.

VMED 9610 ADVANCED EQUINE PHYSICAL DIAGNOSIS II (1) LAB. 1. SU. Departmental approval. This course is a continuation of physical examination techniques and diagnostic procedures used when examining horses clinically. This is the second part of a two part elective to introduce students to common procedures that may be encountered in clinical practice of equine medicine.

VMED 9620 INTEGRATIVE & COMPLEMENTARY MEDICINE (1) LEC. 1. SU. Departmental approval. This course will cover concepts in acupuncture, chiropractic adjustment, massage, and physical therapy as applied to veterinary medicine. The laboratory session will allow for hands on experience through application of techniques.

VMED 9621 CLINICAL ROTATIONS IN VETERINARY MEDICINE (0-2) CLN. 40. Clinical practicum experiences in large and small animal teaching hospitals on the veterinary medical campus. Course may be repeated with change in topics.

VMED 9630 LEGAL PRINCIPLES OF VETERINARY FORENSICS (1) LEC. 1. SU. Fundamental concepts of animal crimes and the role and responsibilities of veterinarians in reporting animal abuse and identifying, documenting, and processing forensic evidence in a criminal case.

VMED 9631 ALTERNATIVE ROTATIONS IN VETERINARY MEDICINE (2) CLN. 40. SU. Clinical practicum experiences in alternative large and small animal disciplines. Course may be repeated with change in topics.

VMED 9640 LARGE ANIMAL ALIMENTARY SYSTEM (2) LEC. 5. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases affecting the large animal alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9660 BASIC SPANISH FOR VETERINARIANS (1) LEC. 1. SU. Departmental approval. Learn basic words and terminology used in veterinary medicine, including species, household and farm items, basic body parts, etc.

VMED 9669 ADVANCED SPANISH FOR VETERINARIANS (1) LEC. 1. SU. Learn how to communicate in Spanish different diseases, treatments and recommendations for pet owners, including but not limited to dogs, cats, horses, cattle and farm animals. At the end of the course, students should be able to obtain a history, explanation of physical exam and diagnostic tests, description of clinical exam findings, treatments and recommendations.

VMED 9670 OPHTHALMOLOGY (1) LEC. 2. LAB. 1. Common procedures for evaluation, diagnoisis and treatment of eye disorders in domestic species are covered to provide basic veterinary ophthalmology knowledge to veterinary students.

VMED 9680 VACCINES (1) LEC. 1. SU. This course will cover animal and human vaccines, including their history, impact, and recent developments in vaccine technology through evaluation of current primary literature.

VMED 9690 REPTILE AND AMPHIBIAN MEDICINE (1) LEC. 1. SU. Diseases, treatment, husbandry, handling, restraint, examination, sample collection in reptiles and amphibians.

VMED 9700 INTRODUCTION TO ANESTHESIA (3) LEC. 3. LAB. 1. Principles and practices of veterinary anesthesia in large and small animals.

VMED 9720 DISASTER MEDICINE FOR VETERINARIANS (1) LEC. 1. SU. Pr. (VMED 9111 or VMED 5111). Explores the role of the veterinarian in preparing and responding to natural and man-made disasters, including animal health emergencies.

VMED 9730 SELECT TOPICS IN FOOD ANIMAL MEDICINE (1) LEC. 1. SU. This course covers a wide variety of topics involving food animals (bovine, swine, small ruminants, camelids and poultry) which are more in depth than in the standard DVM curriculum.

VMED 9750 DIAGNOSTIC VETERINARY ULTRASONOGRAPHY (1) LAB. 1. SU. Departmental approval. Basic physics, instrumentation, and scanning techniques of ultrasonography. Normal sonographic anatomy correlated with the cross-sectional anatomy of body structures and organs.

VMED 9760 INTRODUCTION TO AMERICAN SIGN LANGUAGE (1) LEC. 1, LAB. 0-1. SU. Introduction to American Sign Language using conversational methods. Covers vocabulary, grammatical usage, and culturally appropriate behavior within the deaf community.

VMED 9780 CLINICAL CONCEPTS & PROFESSIONAL DEVELOPMENT (1) LEC. 1. SU. A weekly case-based presentation that illustrates current concepts in the professional DVM curriculum, as well as concepts that are less commonly emphasized in the curriculum. Course may be repeated for a maximum of 6 credit hours.

VMED 9800 APPLIED SMALL ANIMAL NEUROLOGY (1) LEC. 1. SU. Clinical management of commonly occurring neurologic diseases of small domestic animals.

VMED 9801 PRECEPTORSHIP (3) LAB. 320. SU. Training in a practice situation under the direct supervision of a veterinarian or, under certain conditions, in specialized programs. Approval of Preceptorship Committee.

VMED 9802 DATA ANALYSIS OF EPIDEMIOLOGICAL STUDIES (1) LEC. 1. SU. Departmental approval. This course will cover basic data analysis of epidemiological studies that will be especially useful to students considering pursuit of an internship or residency. Epidemiologic techniques emphasized will be outbreak investigation, evaluation of diagnostic tests and disease surveillance.

VMED 9810 INTEGUMENTARY SYSTEM (2) LEC. 2. Diagnosis, treatment and prevention of diseases affecting the integumentary system.

VMED 9820 THERIOGENOLOGY: A CASE-BASED APPROACH (1) LEC. 1. LAB. 1. SU. Class discussions will surround those topics not covered elsewhere in the core reproductive curriculum (e.g., innate breeding behaviors, advanced techniques such as in-vitro production of embryos, in-depth penile injury management, and advanced dystocia management to name a few). There will be an emphasis placed on current research and literature discussion on a weekly basis.

VMED 9830 MARINE MAMMAL MEDICINE (1) LEC. 1. SU. Departmental approval. Students will receive basic, introductory, and cursory instruction on the clinical medicine involved in the management of some marine mammal species commonly found in oceanariums and marine parks. Provided laboratory session(s) will allow for minor hands-on experience to illustrate concepts. Course is off-site at Gulfworld Marine Park in Panama City Beach FL. Students are financially responsible for travel and lodging expenses.

VMED 9840 WILDLIFE DISEASES (1) LEC. 1. SU. Control and role of veterinarian in prevention of disease in wild animals, specifically wildlife indigenous to U.S.

VMED 9850 MARINE ANIMAL ANATOMY AND NECROPSY TECHNIQUES (2) LAB. SU. Departmental approval. This course will provide an overview of dolphin, pinniped and sea turtle anatomy, necropsy techniques and live and dead animal stranding response. This course will be spread over two weekend-long sessions.

VMED 9860 SURGERY THROUGH HISTORY AND APPLICATION (1) LEC/LLB. SU. Pr. P/C VMED 9310. This class will examine the history and development of surgery using many of the historical figures that shaped modern surgery. The overall goal is to obtain a deeper appreciation of the foundations of surgery and how this foundation impacts its current day practice. Classes will focus on the early contributors to both the performance of surgery and the required knowledge supporting its performance, such as aseptic technique and anesthesia.

VMED 9870 AQUATIC ANIMAL MEDICINE (1) LLB. SU. Departmental approval. Students will receive basic, introductory, and cursory instruction on the clinical medicine involved in the management of some aquatic animal species commonly found in oceanariums. Provided laboratory session(s) will allow for minor hands-on experience to illustrate concepts. Course is off-site at Gulfworld Marine Park in Panama City Beach FL. Students are financially responsible for travel and lodging expenses.

VMED 9890 GENOMICS AND PRECISION MEDICINE (1) LEC. 1. SU. With this course, the student is expected to have a thorough understanding of the historical and current status of the studies on genomics and personalized medicine, with a specific focus on veterinary species.

VMED 9900 DVM GRADUATION COURSE (0) LAB/LEC. SU. Successful completion of this course involves submission of all required competency and case logs, as well as all required graduation assessments.

VMED 9940 COMPANION ANIMAL THERIOGENOLOGY (1) LEC. 1. SU. This course gives students an overview of companion animal reproduction. It is clinically based and offers lectures and discussions to provide a better understanding and deeper knowledge of canine and feline reproduction in practice.

VMED 9950 SPECTRUM OF CARE SERIES: CAPSTONE PRESENTATION (1) SEM. 1. SU. Culminating the final course in the SOCS this course will allow students to apply the skills from their previous courses and implement them into a final Capstone Presentation. In this course students will work with a mentor to prepare an oral presentation and deliverable based on a clinical case, research project, or novel learning experience around the practice of veterinary medicine. Students will also be responsible for providing peer-to-peer feedback for fellow students.

VMED 9995 VETERINARY CLINICAL ROTATIONS - EXTERNSHIPS (0) CLN. Successful completion of didactic veterniary curriculum. Students will participate in clinical rotations including specialty rotations.

Minors

- Public Health (p. 1371)
- Honors Public Health (p. 1370)

Honors Public Health Minor

Honors Public Health Minor

The Honors Public Health Minor is 15 hours consisting of five 3-hour courses: four required courses (12 hours) and one elective course (3 hours). Four of the five courses must be taken at the honors level to successfully complete the minor. Three of the PAOH courses are honors level, so the chosen elective must be an honors elective or contracted for honors credit (arranged through Honors college) to make four total honors courses. The elective must be approved by the Advisor. The minor is limited to students in the Honors College.

Course list:

Code	Title	Hours
PAOH 2107	Honors Introduction to Public Health	3
PAOH 3017	Honors Introduction to Epidemiology	3
PAOH 4837	Honors Global and Comparative Health Systems	3
PAOH 4910	Observing Needs in Public Health	3
Honors Elective (approved by Advisor)		3
Total Hours		**15**

Public Health Minor

Public Health

Code	Title	Hours
PAOH 2100	Introduction to Public Health	3
PAOH 3010	Introduction to Epidemiology	3
PAOH 4910	Observing Needs in Public Health	3
PAOH 4830	Global and Comparative Health Systems	3
Elective (approved by Advisor)		3
Total Hours		**15**

Public and One Health (PAOH)

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I	3	ENGL 1120 English Composition II	3
PAOH 2100 Introduction to Public Health	**3**	**BIOL 1030 Organismal Biology & BIOL 1031 Organismal Biology Laboratory**[2]	**4**
BIOL 1020 Principles of Biology & BIOL 1021 Principles of Biology Laboratory[2]	**4**	COMM 1000 Public Speaking	3
MATH 1610 Calculus I	4	Social Science	3
		History or Social Science [1]	3
	14		**16**

Sophomore

Fall	Hours	Spring	Hours
PAOH 3010 Introduction to Epidemiology	**3**	CHEM 1040 Fundamental Chemistry II	3
CHEM 1030 Fundamentals Chemistry I	3	CHEM 1041 Fundamental Chemistry II Laboratory	1
CHEM 1031 Fundamental Chemistry I Laboratory	1	History [1]	3
Literature[1]	3	Humanities or Literature[1]	3
Fine Arts	3	Social Science	3
Restricted Elective[3]	3	Restricted Elective[3]	3
	16		**16**

Junior

Fall	Hours	Spring	Hours
PAOH 5200 Program Planning and Theories of Health Promotion[2]	**3**	**PAOH 4830 Global and Comparative Health Systems**[2]	**3**
STAT 2510 Statistics for Biological and Health Sciences[2]	**3**	**PAOH 5400 Environmental Health**[2]	**3**
BIOL 3200 General Microbiology	3	**PAOH 5950 One Health Seminar**[2]	**2**
BIOL 3201 General Microbiology Laboratory	1	WILD 5750 Analysis for Environmental and Health Sciences	4
Restricted Elective[3]	3	Restricted Elective[3]	3

Free Elective		3	
		16	**15**

Senior

Fall	Hours	Spring	Hours
WILD 5200 Disease Ecology[2]		**3** **PAOH 4910 Observing Needs in Public Health**[2]	**3**
HDFS 5930 Society and Health[2]		**3** UNIV 4AA0 Achieve the Creed	0
Free Elective		2-3 **PAOH 5100 Zoonoses and Infectious Diseases**[2]	**3**
NTRI 2000 Nutrition And Health ***or*** ANSC 3400 Animal Nutrition		3-4 Restricted Elective[3]	3
COMM 4480 Health Communication Campaigns, 4490 Health Media Communication, *or* 5470 Health Communication[2]		**3** Free Elective	3
		15	**12**

Total Hours: 120

1 Student must complete a sequence in either Literature or History.
2 These courses are components of the Public and One Health major.
3 See College for a current list of Restricted Electives. Students must take a minimum of 15 credits.

Veterinary Medicine — DVM

P1

Fall	Hours	Spring	Hours
VMED 9000 Orientation to Veterinary Medicine	0	VMED 9121 Veterinary Anatomy II	3
VMED 9200 Veterinary Parasitology I	3	VMED 9141 Organology of Domestic Animals	2
VMED 9111 Veterinary Anatomy I (Small Animal)	4	VMED 9150 Diagnostic Imaging	2
VMED 9780 Clinical Concepts & Professional Development	1	VMED 9151 Veterinary Neurosciences	4
VMED 9130 Genetic and Cellular Basis of Animal Disease	1	VMED 9210 Veterinary Parasitology II	2
VMED 9110 Physiology I	5	VMED 9301 Physical Diagnoses of Large and Small Animals	2
VMED 9131 Basic Microanatomy/Domestics Animals	3	Electives	0-3
VMED 9180 Veterinary Ethology	2	VMED 9120 Physiology II	4
VMED 9050 Professional Development and Business Fundamentals	1	VMED 9190 Introduction to Veterinary Pharmacology	1
VMED 9010 Veterinary Jurisprudence	1	VMED 9780 Clinical Concepts & Professional Development	1

P2

Fall	Hours	Spring	Hours
VMED 9260 Veterinary Pharmacology	3	VMED 9510 Hemolymphatic System	1
VMED 9250 Virology & Prions	2	VMED 9160 Veterinary Public Health	3

VMED 9280 Bacteriology & Mycology	3	VMED 9490 Spectrum of Care Series: Emerging Technology	1
VMED 9230 Veterinary Clinical Pathology	4	Electives	0-3
VMED 9220 Principles of Veterinary Pathology	3	VMED 9530 Respiratory System	3
Electives	0-3	VMED 9540 Small Animal Alimentary System	2
VMED 9380 Physical Diagnosis II	1	VMED 9640 Large Animal Alimentary System	2
VMED 9240 Principles of Veterinary Immunology	3	VMED 9700 Introduction to Anesthesia	3
VMED 9520 Cardiovascular System	2	VMED 9310 Introduction to Surgery	2
VMED 9480 Spectrum of Care Series: Information Literacy	1	VMED 9580 Nervous System	2

P3

Fall	Hours	Spring	Hours
VMED 9410 Applied Clinical Imaging	2	VMED 9360 Production and Preventative Medicine	3
VMED 9311 Surgical Practicum	0	VMED 9370 Oncology	1
VMED 9550 Urinary System	2	VMED 9320 Large Animal Nutrition ***or*** 9420 Small Animal Nutrition	2
VMED 9560 Endocrine System	2	VMED 9311 Surgical Practicum	1
VMED 9570 Theriogenology	4	VMED 9330 Exotic Companion Animal Medicine	2
VMED 9590 Musculoskeletal System	3	VMED 9340 Emergency Medicine and Critical Care	2
VMED 9500 Spectrum of Care Series: Public Speaking and Social Media in Medical Practice	1	VMED 9621 Clinical Rotations in Veterinary Medicine	2
Electives	0-3	VMED 9621 Clinical Rotations in Veterinary Medicine	2
VMED 9350 Veterinary Toxicology	2	VMED 9621 Clinical Rotations in Veterinary Medicine	2
VMED 9810 Integumentary System	2	VMED 9670 Ophthalmology	1
		VMED 9170 Professional Communication Skills	1

SUMMER

Summer	Hours
VMED 9621 Clinical Rotations in Veterinary Medicine (total of 12 hours of VMED 9621)	2

P4

Fall	Hours	Spring	Hours
VMED 9621 Clinical Rotations in Veterinary Medicine (total 18 hours of VMED 9621)	2	VMED 9621 Clinical Rotations in Veterinary Medicine (total of 14 hours of VMED 9621)	2
		VMED 9801 Preceptorship	3
		VMED 9950 Spectrum of Care Series: Capstone Presentation	1

UNIV 4AA0 Achieve the Creed	0
VMED 9900 DVM Graduation Course	0

TOTAL HOURS - 171

Students are required to have 3 hours of elective credit in the pre-clinical curriculum (semesters 2-5), but may have more. In spring of year 3 (semester 6), students are required to take EITHER VMED 9320 or VMED 9420, but may take both, if their schedule allows.

Most clinical rotations are two weeks long with rare 3-week exceptions. Each student must complete 13 core clinical rotations and 9 elective rotations, which are selected from a pre-approved list.

University College

University College fosters the growth of interdisciplinary and cross-college academic programs. Its programs are designed to provide intellectual opportunities for students whose interests, aptitudes, and career goals range widely across college boundaries. It is the home of the Interdisciplinary University Studies undergraduate major and the Sustainability Studies and Leadership minors.

Majors

- Interdisciplinary University Studies (p. 1377)

Minors

- Informational and Cyber Analysis (p. 1377)
- Leadership (p. 1378)
- Sustainability Studies (p. 1380)

Undergraduate Certificates

- Contemporary Korea

Interdisciplinary Studies Courses

IDSC 1010 LIFE, CAREER, AND EVERYTHING (3) LEC. 3. This course provides an in-depth exploration of each student's strengths and interests, and includes a series of exercises and experiences designed to guide the student in the selection of a degree path.

IDSC 2000 CONTEMPORARY KOREA (3) LEC. 3. Overview of the human, physical, and technological context of the Republic of South Korea through a combination of lectures, readings, presentations, and discussions, utilizing the expertise of Auburn colleagues across the disciplines.

IDSC 2190 FOUNDATIONS OF INTERDISCIPLINARY UNIVERSITY STUDIES (3) LEC. 3. Provides students with an introduction to (1) the major approaches and applications of interdisciplinary studies, (2) an examination of disciplinary and interdisciplinary thinking; and (3) an introduction to concepts and methods of interdisciplinary study.

IDSC 3210 ADVANCED INTERDISCIPLINARY PROBLEM SOLVING (3) LEC. 2. LAB. 2. Pr. IDSC 1010 and (IDSC 2190 or IDSC 2193). This is a synthesis course designed to provide students with practice in applying interdisciplinary methods to the solution of real-world problems and to prepare them to communicate those solutions to a diverse audience.

IDSC 4920 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) INT. 3. Pr. IDSC 1010 and (IDSC 2190 or IDSC 2193) and (IDSC 3210 or IDSC 3213). Capstone course designed to apply Interdisciplinary Degree Coursework to an internship project. Course may be repeated for a maximum of 6 credit hours.

IDSC 4930 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) LEC. 2. LAB. 2. Pr. IDSC 1010 and (IDSC 2190 or IDSC 2193) and (IDSC 3210 or IDSC 3213). Capstone course designed to apply Interdisciplinary Degree Coursework to a senior thesis project. Course may be repeated for a maximum of 6 credit hours.

IDSC 5950 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

IDSC 6950 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

Intl Programs-Special Topics Courses

INTL 1500 DEVELOPING A GLOBAL MINDSET IN AN INTERCONNECTED WORLD (1) LEC/SEM. This interdisciplinary course introduces students to the knowledge and skills needed to become globally competent in the 21st century. It also provides an orientation to the university's international resources, offices, majors, minors, curricula, and co-curricular opportunities. An assessment is also made of the students' initial intercultural intelligence.

INTL 1800 ORAL PROFICIENCY IN ENGLISH FOR INTERNATIONAL STUDENTS (3) LEC. 3. SU. Departmental approval. International students develop lecture note-taking skills, classroom oral presentation skills on general and specific subjects, and debating skills. None for degree-enrolled students; for transient students.

INTL 1820 CLASSROOM COMMUNICATION SKILLS FOR INTERNATIONAL TEACHING ASSISTANTS (3) LEC. 3. SU. Oral language skills required for effective classroom communication.

INTL 1830 WRITING PROFICIENCY IN ENGLISH FOR INTERNATIONAL STUDENTS (3) LEC. 3. SU. Skills that international students need to undertake successful research writing in English.

INTL 1840 READING SKILLS FOR ESL (3) LEC. 3. SU. Comprehend extensive university-level readings, identify author's audience, purpose, viewpoint and tone, read 250 words per minute. None for degree-enrolled student; for transient students, one of the following: pBT TOEFL of 500, iBT TOEFL of 61, IELTS of 6.

INTL 3930 DIRECTED INTERNATIONAL STUDY (2-8) AAB. Directed study-abroad or 'internationalization at home' experiences for upper-division or non-degree students to provide students with field learningand campus or distance experiences that build upon allied coursework and co-curricular activities. Course can be offered on-campus or with one or more weeks abroad. Course may also be used for internationalization instruction on campus or by distance for off-campus students. Course may be repeated for a maximum of 8 credit hours.

INTL 3937 HONORS DIRECTED INTERNATIONAL STUDY (2-8) AAB. Pr. Honors College. Directed study-abroad or 'internationalization at home' experiences for upper-division or non-degreestudents to provide students with field learning and campus or distance experiences that build upon allied coursework and co-curricular activities. Course can be offered on-campus or with one or more weeks abroad. Course may also be used for internationalization instruction on campus or by distance for off-campus students. Course may be repeated for a maximum of 8 credit hours.

INTL 3980 GLOBAL MINDSET CAPSTONE COURSE (2) LEC/SEM. Departmental approval. This course assists students in internationalizing their careers by expanding their capacities to work collaboratively within a multi-disciplinary group setting in an international and intercultural context. Through course content, assignments and reflections, students will learn to effectively communicate their global experiences and how these academic and life experiences enhance their ability to succeed in a globally connected world.

INTL 4400 INTERNATIONAL INTERNSHIP (0-12) AAB/INT. SU. Internship abroad or in the US for 0-12 hours, as approved by faculty supervisor per the plan for internship. Can be used for major, minor or certificate as designated in descriptions of these programs. Can be used for internships abroad as well as for international students on CPT/AT that are undertaking an internship in the US. Prerequisites will depend on the faculty supervisor overseeing individual student's internship. Course may be repeated for a maximum of 12 credit hours.

INTL 4407 HONORS INTERNATIONAL INTERNSHIP (1-12) AAB/INT. 20-40. SU. Pr. Honors College. Internship abroad or in the US for 1-12 hours, as approved by faculty supervisor per the plan for internship. Can be used for major, minor or certificate as designated in descriptions of these programs. Can be used for internships abroad as well as for international students on CPT/AT that are undertaking an internship in the US. Prerequisites will depend on the faculty supervisor overseeing individual student's internship. Course may be repeated for a maximum of 12 credit hours.

INTL 4420 INTERNATIONAL INTERNSHIP - FULL TIME ENROLLMENT (0) INT. 20-40. SU. Mirrors INTL 4400 but offered for zero (0) credit hours. This course is meant to track international students participating in internships for 0 credit hours. This course ensures designation as full-time students for immigration needs when approved by a faculty supervisor per the plan for internship. Can be used for major, minor or certificate as designated in descriptions of these programs. Prerequisites will depend on the faculty supervisor overseeing individual student's internship. Course may be repeated for a maximum of 1 credit hours.

INTL 4427 HONORS INTERNATIONAL INTERNSHIP - FULL TIME ENROLLMENT (0) INT. 20-40. SU. Mirrors INTL 4407 but offered for zero (0) credit hours to reflect full-time enrollment for international Honors students. Internship abroad or in the US for 0 credit hours, approved by faculty supervisor per the plan for internship. Can be used for major, minor or certificate as designated in descriptions of these programs. Can be used for internships abroad as well as for international students on CPT/AT that are undertaking an internship in the US. Course may be repeated for a maximum of 1 credit hours.

INTL 6400 INTERNATIONAL INTERNSHIP (1-9) AAB/INT. SU. Internship abroad for graduate level for 1-9 hours, as approved by faculty supervisor per the plan for internship. The plan will need to specify work required by faculty supervisor, hours of work, credits to be earned upon successful completion of course. Faculty supervisor will be responsible for oversight and grading. This course will assist students where an international internship will aid in their studies and career prospects. Can be used for major, minor or certificate as designated in descriptions of these programs. It will be the responsibility of the supervising faculty to supply accessible syllabus, textbook, videos, and other materials. It is the student's responsibility to their internship with the aid of their faculty supervisor. Prerequisite courses will depend on the faculty supervisor overseeing individual student's internship. Course may be repeated for a maximum of 9 credit hours.

INTL 6620 INTERNATIONAL GRADUATE INTERNSHIP IN THE USA - FT ENROLLMENT (0) INT. 20-40. SU. Mirrors INTL 6670 but offered for zero (0) credit hours to reflect full-time enrollment for international students. Domestic internship for international graduate students and for domestic graduate students wishing to work with international companies in the USA. This course can be utilized by students where no such course exists in their college. International graduate students must meet immigration internship requirements; students must check in with International Students and Scholars Services. Course may be repeated for a maximum of 1 credit hours.

INTL 6670 INTERNATIONAL GRADUATE INTERNSHIP IN THE USA (1-9) INT. 20-40. SU. Domestic internship for international graduate students and for domestic graduate students wishing to work with international companies in the USA. This course can be utilized by students where no such course exists in their college. International graduate students must meet immigration internship requirements; students must check in with International Students and Scholars Services within the Office of International Programs. Domestic graduate students must get approval from faculty internship supervisor. Course may be repeated for a maximum of 9 credit hours.

Leadership Courses

LEAD 2000 FOUNDATIONS OF LEADERSHIP (3) LEC. 2. LAB. 1. Introductory course for students pursing the Leadership Minor.

LEAD 2100 WOMEN AND LEADERSHIP (3) LEC. 3. An interactive exploration of the social, political, economic, and cultural implications of women's current and historic leadership roles.

LEAD 2200 INTRODUCTION TO COMMUNITY AND CIVIC ENGAGEMENT (3) LEC. 3. Introduction to Community and Civic Engagement introduces students to the context, issues, skills, and experience of citizenship and civic leadership in a democratic society.

LEAD 3200 LEADERSHIP FOR A GLOBAL SOCIETY (3) LEC. 3. This heavily discussion- and project-based seminar, coupled with reading list and plethora of guests, activities, and online resources, offers participants the tools required or effective leadership in an increasingly global society.

LEAD 4000 LEADERSHIP IN PRACTICE (3) LEC. 3. Pr. LEAD 2000. Capstone course in interdisciplinary leadership minor.

Sustainability Studies Courses

SUST 2000 INTRODUCTION TO SUSTAINABILITY (3) LEC. 3. Introduction to the interdisciplinary study of sustainability. May count either SUST 2000 or HONR 1027/HONR 1037.

SUST 2007 HONORS INTRODUCTION TO SUSTAINABILITY (3) LEC. 3. Pr. Honors College. Introduction to the interdisciplinary study of sustainability. May count either SUST 2000 or HONR 1027/HONR 1037.

SUST 3600 UNDERSTANDING NATURE, SELF, AND SOCIETY (3) LEC. 3. The course examines the intersection between nature, self, and society, and draws on sociological scholarship and nature writing. Through readings, class conversations, imaginative writing reflections, and short field trips, students will be able to critically interrogate our social relationship with nature and study the social dynamics that shape the meanings we attach to nature. Credit will not be given to both SOCY 3600 and SUST 3600.

SUST 4900 DIRECTED STUDIES IN SUSTAINABILILITY (1-3) IND. Departmental approval. Advanced individual research and/or coursework in the field of sustainability studies. Course may be repeated for a maximum of 3 credit hours.

SUST 5000 SENIOR CAPSTONE IN SUSTAINABILITY (3) LEC. 3. Pr. SUST 2000. Capstone research seminar for students completing the Minor in Sustainability Studies.

Certificate in Contemporary Korea

Code	Title	Hours
Required Courses		**9**
IDSC 2000	Contemporary Korea	
INTL 3930	Directed International Study	
Electives (Only need to select one course)		**3-5**
INTL 4400	International Internship	
or POLI 3610	Asian Politics	
or COMM 3450	Intercultural Communication	
or FLKN 2010	Intermediate Korean I	
Total Hours		**12-14**

Informational and Cyber Analysis Minor

Code	Title	Hours
Requirements for Minor:		
SOCY 5120	Critical Thinking and Structured Analysis	3
BUAL 2650	Business Analytics II	3
Select 9 hours from the following or other approved area:		9
BUAL, COMP, ECON, GEOG, HIST, ISMN, POLI, SOCY, STAT, VBMS. Please see program advisor for approved courses within each area. The student is responsible for ensuring all pre-requisites are met.		
Admission Requirements:		
Application Form		
Writing Sample		
Continuation Requirements:		
12 of 15 hours must consist of upper-division courses unless an exception is approved.		
Successful completion and/or re-certification of Intelligence Oversight (I/O) training and CITI Basic course.		
Students must maintain a portfolio of relevant documents and material.		
Total Hours		**15**

Interdisciplinary Studies (IDSC)

The Bachelor of Science in Interdisciplinary University Studies allows students to attain a broad education and acquire diverse skill sets unique to a profession they desire to enter. Students seeking an interdisciplinary university studies degree have the opportunity to create a personalized academic program by customizing a curriculum that demonstrates proficiency in broad skills as well as discipline-specific knowledge.

Students may be admitted as freshmen. For progression to Advanced Interdisciplinary Problem Solving (IDSC 3210), a student must first (1) complete Life, Career, and Everything (IDSC 1010) with a grade of C or better, (2) complete Foundations of Interdisciplinary University Studies (IDSC 2190) with a grade of C or better, and (3) complete an approved individualized curriculum plan. Students with more than 90 hours of coursework must receive special permission to be admitted to the major.

Students must also earn a grade of C or better in Public Speaking (COMM 1000), and in one advanced written communication class to be selected from Writing in Law and Justice (ENGL 3020), Technical Writing (ENGL 3040), Writing in the Health Professions (ENGL 3060), Business Writing (ENGL 3080) or Advanced Composition (ENGL 4000). Students may elect to use COMM 1000 to meet 3 hours of the Humanities Core requirements. Students must take IDSC 3210 before they will be allowed to take the Capstone course. IDSC 3210 cannot be taken until the student has passed IDSC 2190 with a grade of C or better. All students must also complete a capstone experience (IDSC 4930 or IDSC 4920) with a grade of C or better. In the capstone experience, students integrate acquired knowledge through a research project (IDSC 4930), or an internship program (IDSC 4920). Students must earn 3

hours of capstone credit and may earn a maximum of 6 hours of capstone credit. Students electing to take the capstone course twice must use elective hours for the additional three hours.

The student creates two or three identifiable areas of emphasis using coursework from two or three different schools or colleges. The emphases must have a total of 45 hours of approved coursework. A student identifying two areas of emphasis must have at least 21 hours of coursework in one emphasis (the majority of which is from one college or school) and up to 24 hours in the other (the majority of which is from the second college or school) for a total of 45 hours. A student identifying three areas of emphasis must have 15 hours of coursework in each emphasis. For two- or three emphasis plans, at least 27 of the 45 hours must be at or above the 3000 level. Students may use existing minors in their emphasis areas or they may work with the departmental representative in a specific area to develop an emphasis. Minors used in emphases become part of the interdisciplinary studies degree and will not be listed on the official transcript or the diploma. Note that the IDSC faculty review committee will not approve a combination of minors or areas of emphasis that substantially recreates an existing degree program in those areas.

Interdisciplinary University Studies

Code	Title	Hours
Auburn University Core Curriculum [1]		41-42
Major Coursework [2]		
Interdisciplinary Foundations and Capstone		**12**
IDSC 1010	**Life, Career, and Everything [3]**	
IDSC 2190	**Foundations of Interdisciplinary University Studies [3]**	
IDSC 3210	**Advanced Interdisciplinary Problem Solving [3]**	
IDSC 4930	**Interdisciplinary Capstone Experience [3]**	
or IDSC 4920	**Interdisciplinary Capstone Experience**	
Advanced Written Communication [4]		**3**
Individual Plan of Study incorporating multiple emphases [5]		**45**
Electives		18-19
Minimum Hours		120

1. COMM 1000 (https://bulletin.auburn.edu/search/?P=COMM%201000) must be used to satisfy 3 hours of Humanities in the Core Curriculum.
2. Major course hours are used to calculate the GPA in the major.
3. Must earn a C or better in each IDSC course. Students must earn a C or better in lower level IDSC courses to successfully progress to upper level IDSC courses.
4. Must earn a C or better in one of the following: ENGL 3020, ENGL 3040, ENGL 3060, ENGL 3080, ENGL 4000
5. The Individual Plan of Study will include a total of 45 hours selected across two emphases (at least 21 hours in one emphasis and no more than 24 hours in the second emphasis) or across three emphases (each with at least 15 hours). Emphases must be selected from at least two different Schools or Colleges. A plan of study substantially recreating an existing degree program in a School or College will not be approved. See the IDSC Advisor for other requirements associated with two- and three-emphases plans of study.

Leadership Minor

Auburn University offers an interdisciplinary Leadership Minor (LEAD). In order to pursue a minor in leadership, students should file a minor declaration, in consultation with the LEAD advisor/coordinator, as early as possible. The declaration is ideally completed within the first semester of taking courses toward the minor. The completion and filing of the declaration is a prerequisite to enrolling the senior capstone class (LEAD 4000) in the LEAD minor. Courses required in the student's major may not be counted toward the minor even if they are on the list of accepted courses. Courses counted toward Core Curriculum requirements may not be counted toward the minor. At least 3 hours must be taken from each of five competency areas, with 9 of the 15 hours at the 3000 level or above. The competency areas are: I.) Leadership Knowledge and Theory, II.) Communication, III.) Problem Solving and Decision Making, IV.) Civic Engagement, and V.) Service Learning.

15 semester Hours in minor (minimum 9 hours at 3000-level or above)

Code	Title	Hours
Leadership Foundations		
LEAD 2000	Foundations of Leadership	3
Leadership Theory and Practice		
LEAD 4000	Leadership in Practice	3
Communication		
Select 3 hours:		3
COMM 2400	Introduction to Workplace Communication	
COMM 2410	Small Group Communication	
COMM 3100	Professional Presentations	
COMM 3400	Organizational Communication	
COMM 3450	Intercultural Communication	
HOSP 2000	Principles of Service Management	
MNGT 3460	Organizational Behavior	
PRCM 3080	International Public Relations	
PSYC 3580	Social Psychology	
Problem Solving and Decision Making		
Select 3 hours:		3
COMM 3110	Persuasion	
COMM 3300	Communication and Conflict	
COMM 3700	Argumentation	
GSHS 2000	Global Studies Human Sciences	
HDFS 3080	Development of Interpersonal Relationships	
MNGT 3100	Principles of Management	
or MNGT 3810	Management Foundations	
MUSI 2750	Music and Science	
POLI 3340	Introduction to Conflict Resolution	
SOCY 2000	Social Issues	
SOCY 4000	Socialization	
Civic Engagement		
Select 3 hours:		3
AAAS 2000	Introduction to African American & Africana Studies	
CADS 1700	Giving and Sharing	
COMM 3800	Family Communication	
CPLN 5090	Community Development	
CPLN 5400	Historic Preservation Planning	
ENFB 3140	Essentials of Entrepreneurship	
HUSC 2000	Hunger: Causes, Consequences, and Responses	
LBAR 3910	Practicum in Liberal Arts	
LEAD 2200	Introduction to Community and Civic Engagement	
LEAD 3200	Leadership for a Global Society	
POLI 2120	Urbanization and the City	
POLI 4050	American Local Government	
POLI 5370	Nonprofit Management	
or POLI 5550	Issues in Public Administration	
RSOC 3620	Community Organization	
SOCY 1000	Sociology: Global Perspective	
SOCY 3300	Sociology of the Family	

SOCY 3500	Social Inequalities
WMST 2100	Introduction to Women's and Gender Studies
Total Hours	**15**

Sustainability Studies Minor

Problems of environmental degradation, social justice, and economic inequality have never been more pressing, and the demand for people with the determination and skills to address them has never been greater. With a diverse selection of courses from colleges across the university, the interdisciplinary minor in sustainability studies offers students the opportunity to gain wide-ranging expertise and hands-on experience with the most crucial issues in contemporary society.

For more information on the Minor in Sustainability Studies, see the program's website at https://cla.auburn.edu/academic-sustainability/.

Minor in Sustainability Studies

15 semester hours in minor (minimum 9 hours at 3000-level or above)

Code	Title	Hours
SUST 2000	Introduction to Sustainability	3
SUST 5000	Senior Capstone in Sustainability	3
Approved Electives [1]		9
Total Hours		**15**

[1] Approved electives, see Minor in Sustainability Studies website for listing. https://cla.auburn.edu/academic-sustainability/.

Exploratory Major

The Exploratory major, offered through the Exploration Center in Career Discovery and Success (p. 169), allows new first-time college students to investigate their options before declaring a degree-granting major. Exploratory majors take EXPL 1010 Exploratory Investigations I, taught by a cross-trained team of academic advisors and career counselors who provide intensive and personalized support designed to help students choose the major that most closely meets their academic aptitudes and interests as well as their long-term goals.

While exploring, students work on college-readiness skills and receive academic advising on what courses will best keep them on track with potential majors. The goal is to help students choose a major with confidence while making progress toward their degree.

This option is ideal for students who are uncertain which broad academic area they wish to pursue, especially if their interests range across more than one of Auburn's colleges. All students who enter Auburn University as an Exploratory major must select a degree-granting major by the end of their second semester.

Students who enter Auburn as transfer students are not eligible to enroll as Exploratory. The Exploration Center does support current Auburn students and incoming transfer students through appointments and exploration resources. For more information on these services, please see the page on Career Discovery and Success (p. 169) in the Academic Services section of this bulletin.

Additional information may be obtained by calling (334) 844-7277 or emailing explore@auburn.edu.

Courses

EXPL 1010 EXPLORATORY MAJOR INVESTIGATIONS I (2) LEC. 2. For students in the Exploratory Major. This course introduces students to the majors offered at Auburn, and through a program of readings, research, professional outreach, analysis, and reflection helps them decide on a degree-granting major.

EXPL 1020 EXPLORATORY MAJOR INVESTIGATIONS II (1) LEC. 1. Pr. EXPL 1010. For students in their second and final semester as an Exploratory Major. This course continues and deepens the exploration through readings, research, professional outreach, analysis, and reflection to help students select a degree-granting major.

Honors College

The Honors College at Auburn University offers a select cohort of high-ability students a unique academic experience designed to provide many of the advantages of a small college in addition to the myriad opportunities available at a large and diverse research university. Because of their academic potential, Honors College students have access to a more academically challenging set of courses and programs. Due to their rigorous Honors-level courses, access to graduate courses, specialized advising, and regular exposure to diverse social and co-curricular programs, Honors College students have closer connections to faculty and with other students, providing a sense of community and identity within the larger university context.

Eligibility

Students may gain admission to the Honors College as an entering freshman based on ACT/SAT scores (29 or SAT equivalent targeted minimum), high school GPA (3.85 minimum), an application essay, and a record of leadership and service. Students already enrolled at Auburn having a 3.4 cumulative, unadjusted GPA may also be considered for admission.

Curriculum

The Honors curriculum provides Honors College students the opportunity for challenging scholarly courses across the university and within their disciplines, culminating in a sustained, in-depth experience in their major fields of study.

The four Honors College graduation distinctions, *University Honors Scholar, University Honors Research Scholar, Honors Scholar,* and *Honors Research Scholar*, are conferred at the time of graduation and printed on students' diplomas and transcripts.

University Honors Scholar

To earn the designation University Honors Scholar, students are required to complete a minimum of 30 hours of Honors College courses, including a minimum of:

- 3 hours of Honors Participation Courses, AND
- 6 hours of coursework identified as Signature Impact Experiences

Students must also complete their disciplinary requirements and have a minimum 3.4 cumulative unadjusted Auburn GPA at the time of graduation.

University Honors Research Scholar

To earn the designation University Honors Research Scholar, students are required to complete a minimum of 30 hours of Honors College courses, including a minimum of:

- 3 hours of Honors Participation Courses; 1 hour of which **must be** **"**Honors Lyceum: Research at Auburn"
- 3 hours of Honors Research Methods
- 6 hours of Honors Seminars
- 6 hours of designated Honors Research Seminars
- 6 hours of coursework identified as Signature Impact Experiences

Students must also complete their disciplinary requirements and have a minimum 3.4 cumulative unadjusted Auburn GPA at the time of graduation.

OR

Honors Scholar

To earn the designation Honors Scholar, students are required to complete a minimum of 24 hours of Honors College coursework, including a minimum of:

- 3 hours of Honors Participation Courses

Students must also complete their disciplinary requirements and have a minimum 3.2 cumulative unadjusted Auburn GPA at the time of graduation.

-OR-

To earn the designation Honors Scholar, students are required to complete a minimum of 7 hours of Honors coursework, including:

- 6 hours of Honors Research/Honors Thesis/Honors Special Topics or 6 hours of graduate level courses in the major field of study at the 6000 or 7000 level, AND
- 1 hour of an Honors Participation course

Students must also complete their disciplinary requirements and have a minimum 3.2 cumulative unadjusted Auburn GPA at the time of graduation.

Honors Research Scholar

To earn the designation University Honors Research Scholar, students are required to complete a minimum of 24 hours of Honors College courses, including a minimum of:

- 3 hours of Honors Participation Courses; 1 hour of which **must be** **"**Honors Lyceum: Research at Auburn"
- 3 hours of Honors Research Methods
- 6 hours of Honors Seminars
- 6 hours of designated Honors Research Seminars

Students must also complete their disciplinary requirements and have a minimum 3.2 cumulative unadjusted Auburn GPA at the time of graduation.

Honors Course Options

The Honors College curriculum is designed to give students flexibility with their choice of Honors courses in order to fulfill their diverse goals, needs, and interests. The Honors College offers students course work that fall into the following general areas:

Honors Academic Courses

- Honors University Core courses
- Honors Departmental courses
- Honors Study and Travel courses (maximum of 1)
- Honors Seminars (maximum of 2)
- Honors Research Methods courses (maximum of 2)
- Honors Research Seminar (maximum of 2)
- Honors Contract courses

Honors Participation Courses

- Honors Freshmen Exploration (one-time enrollment as a first-year student)
- Honors Lyceum (maximum of 2)
- Honors Book Club (maximum of 2)
- Honors Forum (maximum of 3)

Honors Signature Impact Experiences

- Honors Research
- Honors Thesis
- Honors Special Topics
- Honors Contract courses in the major field of study at the 4000-5000 level
- Graduate-level courses in the major field of study (maximum of 12 hours)

Honors Business Minor

The Honors Business minor is 15 hours consisting of five 3-hour courses: four required courses (12 hours) and one elective course (3 hours). Four of the five courses must be taken at the honors level to successfully complete the minor. The minor is limited to students in the Honors College.

Code	Title	Hours
Required Courses:		
ACCT 2110/2117	Principles of Financial Accounting *	3
FINC 3610/3617	Principles of Business Finance	3

MNGT 3100/3107	Principles of Management	3
MKTG 3310/3317	Principles of Marketing	3
Elective Courses (choose one):		
BUSI 3250/3257	International Business	3
ECON 2030/2037	Principles of Macroeconomics	3

* Students completing this minor in the College of Business summer abroad program will satisfy the Accounting requirement with ACCT 2817: Honors Fundamentals of Accounting.

Honors International Minor in Human Sciences

The Joseph S. Bruno Auburn Abroad in Italy program in which a student can earn the International Minor in one semester while studying abroad in Ariccia, Italy:

Code	Title	Hours
HUSC 3380	CHS at AU in Italy	2
HUSC 4017	Honors CHS at AU in Italy: Integrated Global Studies	6
HUSC 4387	Honors CHS at AU in Italy: Study and Travel	2
HUSC 4947	Honors CHS at AU in Italy: Directed Field Experiences	6
Total Hours		**16**

Study Abroad Program admission required. Please contact the CHS Office of Global Education for more information about program availability and application processes.

Honors Public Health Minor

The Honors Public Health Minor is 15 hours consisting of five 3-hour courses: four required courses (12 hours) and one elective course (3 hours). Four of the five courses must be taken at the honors level to successfully complete the minor. Three of the PAOH courses are honors level, so the chosen elective must be an honors elective or contracted for honors credit (arranged through Honors college) to make four total honors courses. The elective must be approved by the Advisor. The minor is limited to students in the Honors College.

Course list:

Code	Title	Hours
PAOH 2107	Honors Introduction to Public Health	3
PAOH 3017	Honors Introduction to Epidemiology	3
PAOH 4837	Honors Global and Comparative Health Systems	3
PAOH 4910	Observing Needs in Public Health	3
Honors Elective (approved by Advisor)		3
Total Hours		**15**

Policies

A grade of “C” or better in Honors courses is required to earn Honors College credit.

In order to remain in good standing as a member of the Honors College, students must meet the following minimum criteria:

1. Students are required to maintain satisfactory progress in completing the requirements of the Honors curriculum. Satisfactory progress is defined by attaining the following minimums by the end of the specified academic year:
   - First year 7 Honors hours
   - Second year 14 Honors hours
   - Third year 21 Honors hours
2. First-year students must attain a minimum of a 3.0 cumulative unadjusted Auburn GPA and second, third, and fourth-year students must maintain a minimum of 3.2 cumulative unadjusted Auburn GPA. A student whose GPA falls below the minimum is give one semester to correct the deficiency or be suspended from the Honors College.

3. All first-year students in the Honors College must meet with an Honors academic advisor in both fall and spring semesters and submit a Plan of Study prior to registration for spring courses. Any changes to the Plan of Study should be done at a meeting with an Honors College advisor.
4. Second, third, and fourth-year students must meet with an Honors academic advisor at least once a year to ensure retention and understanding of the program and to confirm progress being made toward the completion of the Honors requirements.
5. Students who do not successfully maintain good standing (Honors course progression, GPA, meeting at least once a year with their Honors advisor, and/or submission of the Plan of Study) will be suspended from the Honors College. Students may be reinstated upon attaining the minimum GPA and/or providing the Honors College with an updated Plan of Study for Honors courses. It is the student's responsibility to notify the College when good standing has been attained.
6. Any scholarships awarded by the Honors College are contingent upon maintaining membership in good standing in the Honors College. Suspension from the Honors College will result in a loss of Honors scholarship funding.

Honors College Graduation Distinctions

After completing the requirements of the Honors College curriculum, students graduate with a special designation that is noted on their diploma and transcript.

- To graduate as a *University Honors Scholar* or *University Honors Research Scholar,* students must complete all of the requirements for those designations, the requirements for their disciplines, and have a minimum cumulative unadjusted Auburn GPA of 3.4.
- To graduate as an *Honors Scholar or Honors Research Scholar,* students must complete all of the requirements for those designations, the requirements for their discipline, and have a minimum cumulative unadjusted Auburn GPA of 3.2.

Interdepartmental Undergraduate Programs

Bioprocess Engineering (BPEN)

The curriculum in bioprocess engineering is coordinated by the Samuel Ginn College of Engineering and prepares students to seamless combine engineering and natural sciences to design and develop systems, processes and equipment that convert biological and agricultural materials to value-added products such as food, nutraceuticals, polymers and pharmaceuticals. See Department of Biosystems Engineering (p. 631) in the Samuel Ginn College of Engineering for further information.

Biosystems Engineering (BSEN)

The curriculum in Biosystems Engineering is coordinated by the Samuel Ginn College of Engineering and prepares students for productive careers in the biosystems industries and related natural resource and environmental systems sectors. See the Department of Biosystems Engineering (p. 631) in the Samuel Ginn College of Engineering for further information.

Ecological Engineering (ECEN)

The curriculum in ecological engineering is coordinated by the Samuel Ginn College of Engineering and prepares students to solve environmental problems by applying engineering knowledge to natural ecological and biological systems. See Department of Biosystems Engineering (p. 631) in the Samuel Ginn College of Engineering for further information.

Environmental Science (ENVI)

The curriculum in environmental science is an interdepartmental program based on the strengths of Auburn University in the engineering, biological and physical sciences. See the Department of Crop, Soil and Environmental Sciences (p. 216) in the College of Agriculture for further information.

Forest Engineering (FOEN)

The curriculum in Forest Engineering is coordinated by the Samuel Ginn College of Engineering and the College of Forestry, Wildlife and Environment and prepares students for professional careers in forest products industry and related natural resource and environmental systems sectors. See the Department of Biosystems Engineering (p. 631) in the Samuel Ginn College of Engineering for further information.

Materials Engineering (MATL)

The curriculum in materials engineering is an interdisciplinary curriculum conducted cooperatively by departments in the Samuel Ginn College of Engineering and the College of Sciences and Mathematics. See the Department of Mechanical Engineering (p. 704) in the Samuel Ginn College of Engineering for further information.

Reserve Officers' Training Corps

Departments

- Department of Air Force Aerospace Studies (p. 1388)
- Department of Military Science (p. 1390)
- Department of Naval Science (p. 1391)

Aerospace Studies (AFROTC) Courses

AIRF 1010 HERITAGE AND VALUES I (1) LEC. 1. This is a survey course designed to introduce students to the Department of the Air Force (DAF) and provides an overview of the basic characteristics, missions, communications and organization of the Air and Space Forces. This course can only be taken in Fall Semester.

AIRF 1011 AFROTC LEADERSHIP LABORATORY I (0) LAB. 3. SU. Departmental approval. Required for all AFROTC cadets. Leadership Lab (LLAB) is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force Second Lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander. This course can only be taken in Fall Semester. Course may be repeated with change in topics.

AIRF 1020 HERITAGE AND VALUES II (1) LEC. 1. This is a survey course designed to introduce students to the Department of the Air Force (DAF) and provides an overview of the basic characteristics, missions, communications and organization of the Air and Space Forces. This course can only be taken in Spring Semester.

AIRF 1021 AFROTC LEADERSHIP LABORATORY II (0) LAB. 3. SU. Departmental approval. Required for all AFROTC cadets. Leadership Lab (LLAB) is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force Second Lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander. This course can only be taken in Spring Semester. Course may be repeated with change in topics.

AIRF 2010 TEAM AND LEADERSHIP FUNDAMENTALS I (1) LEC. 1. This course provides a fundamental understanding of both leadership and team building. The lessons and course flow are designed to prepare students for field training and leadership positions in the detachment. This course can only be taken in Fall Semester.

AIRF 2020 TEAM AND LEADERSHIP FUNDAMENTALS II (1) LEC. 1. This course provides a fundamental understanding of both leadership and team building. The lessons and course flow are designed to prepare students for field training and leadership positions in the detachment. This course can only be taken in Spring Semester.

AIRF 3010 LEADING PEOPLE AND EFFECTIVE COMMUNICATION I (3) LEC. 3. Pr. AIRF 2020. Departmental approval. This course utilizes student’s field training experience to take a more in-depth look at leadership. Special emphasis is placed on enhancing communication skills, and why that is important as a leader. Students have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. This course can only be taken in Fall Semester.

AIRF 3011 AFROTC PHYSICAL TRAINING I (0) LAB. 3. SU. Required for all AFROTC cadets. AFROTC Physical Training (PT) and combatives program for cadets pursuing a commission in the Department of the Air Force. This course can only be taken in Fall Semester. Course may be repeated with change in topics.

AIRF 3020 LEADING PEOPLE AND EFFECTIVE COMMUNICATION II (3) LEC. 3. Pr. AIRF 3010. Departmental approval. This course utilizes student’s field training experience to take a more in-depth look at leadership. Special emphasis is placed on enhancing communication skills, and why that is important as a leader. Students have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. This course can only be taken in Spring Semester.

AIRF 3021 AFROTC PHYSICAL TRAINING II (0) LAB. 3. SU. Departmental approval. Required for all AFROTC cadets. AFROTC Physical Training (PT) and combatives program for cadets pursuing a commission in the Department of the Air Force. This course can only be taken in Spring Semester. Course may be repeated with change in topics.

AIRF 4010 NATIONAL SECURITY AND PREPARATION FOR ACTIVE-DUTY I (3) LEC. 3. Pr. AIRF 3020. Departmental approval. This course is designed for college seniors and provides them the foundation to understand their role as military officers and how they are directly tied to our National Security Strategy. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. This course can only be taken in Fall Semester.

AIRF 4011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Course may be repeated with change in topics.

AIRF 4020 NATIONAL SECURITY AND PREPARATION FOR ACTIVE-DUTY II (3) LEC. 3. Pr. AIRF 4010. Departmental approval. "National Security and Preparation for Active-Duty" is designed for college seniors and provides them the foundation to understand their role as military officers and how they are directly tied to our National Security Strategy. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. This course can only be taken in Spring Semester.

AIRF 4021 AFROTC LEADERSHIP LABORATORY (0) LAB. 0. SU. Departmental approval. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Course may be repeated with change in topics.

Military Science (AROTC) Courses

MILS 1010 INTRODUCTION TO ARMY (1) LEC. 1. Coreq. MILS 1011. Introduction to the Reserve Officer Training Corps and the US Army.

MILS 1011 INTRODUCTION TO ARMY LAB (1) LAB. 3. Coreq. MILS 1010. Introduction to the Reserve Officer Training Corps and the US Army.

MILS 1020 FOUNDATIONS OF LEADERSHIP (1) LEC. 1. Coreq. MILS 1021. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 1021 FOUNDATIONS OF LEADERSHIP LAB (1) LAB. 2.5. Coreq. MILS 1020. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 2010 LEADERSHIP AND ETHICS (1) LEC. 1. Coreq. MILS 2011. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.

MILS 2011 LEADERSHIP AND ETHICS LAB (1) LAB. 2. Coreq. MILS 2010. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.

MILS 2020 ARMY DOCTRINE & DECISION MAKING (1) LEC. 1. Coreq. MILS 2021. Introduction to individual and team aspects of military training in small unit operations.

MILS 2021 ARMY DOCTRINE & DECISION MAKING (1) LAB. 2.5. Coreq. MILS 2020. Introduction to individual and team aspects of military training in small unit operations.

MILS 3010 TRAINING MANAGEMENT & WARFIGHTING FUNCTIONS (2) LEC. 2. Coreq. MILS 3011. Departmental approval. Introduction to squad level planning and operations. Admittance into the Advanced Course of Army ROTC.

MILS 3011 TRAINING MANAGEMENT & WARFIGHTING FUNCTIONS LAB (1) LAB. 4. Coreq. MILS 3010. Departmental approval. Practical application of the foundational skills of small unit leadership. Admittance into Advanced Course Army ROTC.

MILS 3020 APPLIED LEADERSHIP IN SMALL UNIT OPERATIONS (2) LEC. 2. Pr. MILS 3010 and MILS 3011. Coreq. MILS 3021. Departmental approval. Introduction to platoon-level planning and operations and the U.S. Army Training Management System.

MILS 3021 APPLIED LEADERSHIP IN SMALL UNIT OPERATIONS LAB (1) LAB. 2.5. Pr. MILS 3010 and MILS 3011. Coreq. MILS 3020. Departmental approval. Series of practical opportunities to lead small groups, receive performance assessments and coaching, and lead again in situations of increasing complexity.

MILS 3030 HISTORY OF THE UNITED STATES ARMY (3) LEC. 3. Survey of the history of the United States Army from the colonial era to present.

MILS 4010 THE ARMY OFFICER (2) LEC. 2. Pr. MILS 3020 and MILS 3021. Coreq. MILS 4011. Plan, conduct and evaluate training and organizational cohesion.

MILS 4011 THE ARMY OFFICER LAB (1) LAB. 4. Pr. MILS 3020 and MILS 3021. Coreq. MILS 4010. Plan, conduct and evaluate training and activities of the ROTC cadet organization.

MILS 4020 COMPANY GRADE LEADERSHIP (2) LEC. 2. Pr. MILS 4010 and MILS 4011. Coreq. MILS 4021. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques.

MILS 4021 COMPANY GRADE LEADERSHIP LAB (1) LAB. 2.5. Pr. MILS 4010 and MILS 4011. Coreq. MILS 4020. Practical application of the principles taught in MILS 4020.

MILS 4040 THE ARMY PROFESSION (0) LEC. 1. SU. U.S. Army current trends and affairs. Army policies and programs. Completion of Army ROTC Advanced Course or Early Commissioning Program.

Naval Science (NROTC) Courses

NAVS 1010 INTRODUCTION TO NAVAL SCIENCE (3) LEC. 3. Basic areas of Naval Science including uniforms and insignia, military courtesy, discipline, warfare components, organizational structure, and supporting elements of the U.S. Navy and U.S. Marine Corps.

NAVS 1011 INTRO TO NAVAL SCIENCE LAB I (1) LAB. 3. An introduction to the Reserve Officer Training Corps and the US Navy and USMC.

NAVS 1020 SEAPOWER AND MARITIME AFFAIRS (3) LEC. 3. Introduction to broad principles, concepts and elements of naval history, seapower, and maritime affairs from past to present.

NAVS 1021 INTRO TO NAVAL SCIENCE LAB II (1) LAB. 3. An introduction to the Reserve Officer Training Corps and the US Navy and USMC.

NAVS 2010 LEADERSHIP AND MANAGEMENT (3) LEC. 3. Fundamentals of leadership and management theory vital to the effectiveness of Navy/Marine Corps officers.

NAVS 2011 LEADERSHIP DEVELOPMENT LAB I (1) LAB. 3. To learn ethics-based leadership skills that develop individual attributes and contribute to effective team building. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 2021 LEADERSHIP DEVELOPMENT LAB II (1) LAB. 3. To learn ethics-based leadership skills that develop individual attributes and contribute to effective team building.

NAVS 2060 NAVIGATION (3) LEC. 3. Theory and principles of piloting involving the use of visual and electronic aids.

NAVS 3011 SMALL UNIT LEADERSHIP LAB I (1) LAB. 3. Introduction to individual and team aspects of military training in small unit operations.

NAVS 3021 SMALL UNIT LEADERSHIP LAB II (1) LAB. 3. Series of practical opportunities to lead small groups, receive performance assessments and coaching, and lead again in situations of increasing complexity.

NAVS 3030 EVOLUTION OF WARFARE (3) LEC. 3. Pr. P/C NAVS 3011 or P/C NAVS 3021. Forms of warfare practices to identify historical continuity and change in the evolution of warfare. Explores the impact of historical precedent, economic factors and technological change on politico-military thought and action.

NAVS 3050 NAVAL SHIP SYSTEMS I (ENGINEERING) (3) LEC. 3. Principles of ship design, construction, and stability. Introduction to thermodynamics and the steam cycle as applied to naval propulsion systems.

NAVS 3060 NAVAL SHIP SYSTEMS II WEAPONS (3) LEC. 3. Theory and employment of systems through a study of fundamental principles of sensor, tracking, computational, and weapons delivery subsystems.

NAVS 4011 ENS AND SECOND LT LAB I (1) LAB. 3. Plan, conduct, and evaluate training and organizational cohesion. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques.

NAVS 4020 LEADERSHIP AND ETHICS (3) LEC. 3. Pr. NAVS 2010. Departmental approval. Integrates an intellectual exploration of Western moral traditions and ethical philosophy with a variety of topics, such as military leadership, core values, and professional ethics.

NAVS 4021 ENS AND SECOND LT LAB II (1) LAB. 3. Discuss current events, affairs, policies and programs that affect the United States Navy and Marine Corps.

NAVS 4030 FUNDAMENTALS OF MANEUVER WARFARE (3) LEC. 3. Historical survey of the development of maneuver warfare in the context of military engagements and developments. Emphasis on the evolution of maneuver warfare in the United States Marine Corps in the 20th century.

NAVS 4050 NAVAL OPERATION AND SEAMANSHIP (3) LEC. 3. Inland and International law governing maritime operations, communication procedures, and other naval/maritime operational procedures.

Air Force Aerospace Studies

Commander, AFROTC Det 005
Professor of Aerospace Studies
Auburn University (334) 844-4355

The Air Force Reserve Officer Training Corps (AFROTC) is an educational program designed to give students the opportunity to become an Air Force or Space Force officer while completing an undergraduate degree. The program is designed to teach the necessary skills needed to accept the challenging opportunities encountered in the Air and Space Forces. AFROTC offers a pathway from college to many exciting career possibilities as an officer: flying, engineering, intelligence, computer systems, aircraft maintenance, management, etc. Interested students should contact the Air Force ROTC department (www.auburn.edu/afrotc (http://www.auburn.edu/afrotc/); email: AFROTC.Recruiter@auburn.edu; Phone: 334-844-4355; or visit us at 243 Nichols Center, Auburn University.)

General Military Course (GMC)

The GMC is the first half of the program and is typically taken during the freshman and sophomore years. This course allows the non-contracted student to “try out” Air Force ROTC without obligation. Students who pick up a High School Scholarship will contract before the semester begins and will have additional expectations to maintain their scholarship. As a member of the GMC, the student will learn basics about the Air Force, Space Force, and the historical development of airpower. The academic classes are one semester hour each. During the spring semester of their sophomore year, the student will compete for the opportunity to attend a Field Training encampment (see Field Training section below for additional information). Successful completion of field training is mandatory for entrance into the Professional Officer Course (POC); typically the junior and senior years of the program. Qualified students may enroll in both freshman and sophomore classes at the same time and spend only one year in the GMC if they only need three more years to graduate. Further, GMC students may be eligible to compete for an AFROTC scholarship that pays tuition and fees, and provides both an allowance for books and a non-taxable monthly stipend while school is in session.

Code	Title	Hours
AIRF 1010	Heritage and Values I	1
AIRF 1020	Heritage and Values II	1
AIRF 2010	Team & Leadership Fund. I	1
AIRF 2020	Team & Leadership Fund II	1

Professional Officer Course (POC)

The POC is the second half of the program, typically taken during the junior and senior years. POC students take on leadership roles, planning and running most cadet activities. This gives them valuable experience that prepares them to become an officer. Students in selected degree programs (e.g. engineering) may spend a third year in the POC to complete their degree. As a junior, the student will learn about various leadership roles and management techniques needed to become an effective Air Force officer. During the senior year, students will learn about foreign policy and national security while preparing them for entrance into active duty. These academic classes are three semester hours each.

Code	Title	Hours
AIRF 3010	Lead People & Effective Comm 1	3
AIRF 3020	Lead People & Effective Comm 2	3
AIRF 4010	Natl Sec. & Active-Duty Prep I	3
AIRF 4020	Natl Sec & Active-Duty Prep II	3

Leadership Laboratory (LLAB)

Each Air Force ROTC student pursuing a commission in the Air Force or Space Force is required to attend Practical Military Training (PMT) for up to six hours per week. PMT consists of a Leadership Laboratory (LLAB) and Physical Training (PT). Although no academic credit is awarded by the university, LLAB is an essential part of officer training. It is a cadet-centered program where the

student will learn such things as military customs and courtesies, drill and ceremonies, and proper wear of uniform. Physical Training is conducted to supplement the student's physical fitness - a requirement of the program. It is designed to help the students achieve passing scores on the Physical Fitness Assessment, offered at least once per semester. LLAB and PT are mandatory for cadets wishing to commission, but participating students who are seeking an Aerospace Studies Minor only are not required to attend.

Curriculum for Leadership Laboratory

Code	Title	Hours
AIRF 1011	AFROTC Leadership Laboratory I	0
AIRF 3011	AFROTC Physical Training I	0
AIRF 1021	AFROTC Leadership Laboratory 2	0
AIRF 3021	AFROTC Physical Training II	0

Field Training (FT)

Cadets completing the General Military Course attend FT during the summer at Maxwell Air Force Base, Alabama. This rigorous program of leadership training, physical conditioning, and academics assesses the cadet’s potential to be an officer. Cadets also receive survival and firearms training, career information, and may have the opportunity to engage in one or more military aircraft orientation flights. Cadets receive travel pay and a daily allowance for attending FT.

Air Force ROTC Scholarships

Air Force ROTC offers scholarships on a competitive basis to high school seniors and college students. These scholarships are offered to highly qualified students, primarily in scientific/technical majors or nursing. Please visit www.afrotc.com (http://www.afrotc.com) for the latest information about scholarships.

Aerospace Studies Minor

Code	Title	Hours
AIRF 1010	Heritage and Values I	1
AIRF 1020	Heritage and Values II	1
AIRF 2010	Team and Leadership Fundamentals I	1
AIRF 2020	Team and Leadership Fundamentals II	1
AIRF 3010	Leading People and Effective Communication I	3
AIRF 3020	Leading People and Effective Communication II	3
AIRF 4010	National Security and Preparation for Active-Duty I	3
AIRF 4020	National Security and Preparation for Active-Duty II	3
Total Hours		**16**

General Military Course

Curriculum in the General Military Course

Code	Title	Hours
AIRF 1010/1020	Heritage and Values I	1
AIRF 2010/2020	Team & Leadership Fund. I	1
Total Hours		**2**

Professional Officer Course

Curriculum in the Professional Officer Course

Code	Title	Hours
AIRF 3010/3020	Lead People & Effective Comm 1	3
AIRF 4010/4020	Natl Sec. & Active-Duty Prep I	3
Total Hours		**6**

Army — Military Science

The purpose of the Army ROTC program is to select, train, and motivate the future leadership of the active Army, Army National Guard and Army Reserve. The curriculum is available to both men and women and prepares students to become effective leaders and managers in a variety of challenging fields.

The Army ROTC curriculum is divided into two courses: a Basic Military Course open to all students and an Advanced Military Course for qualified juniors, seniors and graduate students. The Basic Military Course serves to acquaint Auburn students with the Army and its role in our society; The Advanced Military Course prepares students for service as commissioned officers. Successful completion of both courses and award of a bachelor's degree constitute the normal progression to earning a commission as a Second Lieutenant. Students who are undecided about pursuit of a commission may participate in the Basic Military Course. This affords freshman and sophomore students the opportunity to make an informed decision on the advantages of an officer's commission while incurring no military obligation.

The Basic Military Course

The Basic Military Course consists of a four-semester block of instruction normally taken during the freshman and sophomore years. Successful completion of MILS 1010, MILS 1020, MILS 2010, and MILS 2020 with a leadership lab (MILS 1011, MILS 2021, MILS 2011, and MILS 2021) satisfies the academic requirements for progression to the Advanced Military Course. Two credit hours per semester are earned for the lecture and lab. Subject to departmental approval, students may complete all four courses in one academic year.

The basic military science courses provide unique classroom and hands-on instruction in orienteering, small unit tactics, first aid, physical fitness, and leadership skills. They introduce the student to the Army as a profession, lay the foundation of value-based, ethical decision-making, illuminating the Army's place in society preparing the Cadet for the Advanced Military Course that follows. The Professor of Military Science may admit the student to the Advanced Military Course upon completion of these courses and labs. Contracted Cadets currently receive a tax-free allowance of $420 per month while enrolled.

Courses are offered in the fall and spring semesters and credits earned may be applied as elective credits toward degree requirements in all schools of the university.

Basic Camp — Cadet Summer Training (CST)

Students who are unable to complete the Basic Military Course during their freshman and sophomore years may qualify for admission to the Advanced Course by successfully completing Basic Camp at Fort Knox, Kentucky.

Basic Camp consists of approximately five weeks of training conducted during the summer months. Students desiring to exercise this option are required to submit a formal application and pass a general medical physical and a physical fitness test. Students who participate in the Basic Camp will receive approximately $900 in addition to travel expenses to and from Fort Knox. Uniforms, housing, medical care and meals are furnished by the Cadet Command during training.

Interested students are strongly encouraged to enroll in a military science course and leadership lab during the spring semester of their sophomore year. Deadline for application is May 15. All applicants must contact the Military Science Department no later than May 1.

The Advanced Military Course

Successful completion of the Basic Military Course or approved alternative training, a minimum 2.0 grade-point average, and medical qualifications are pre-requisites for enrollment in the Advanced Military Course. Service veterans, transfer students from junior or military colleges, members of the National Guard or Army Reserve, and former military academy Cadets may qualify for direct entry into the Advanced Military Course two academic years before their projected graduation.

The Advanced Military Course is designed to develop a Cadet's leadership and management potential, physical stamina, Army Values, as well as the character traits desired of an Army officer. The program's objective is to produce the highest caliber junior officer, fully capable of accepting command in the modern Army, exercising management responsibilities and serving the broader community.

The Advanced Military Course consists of a four-semester block of instruction taken during the junior and senior years (MILS 3010, MILS 3020, MILS 4010, and MILS 4020). Successful completion of the courses, with a leadership lab (MILS 3011, MILS 3021, MILS 4011, and MILS 4021) each semester fulfills military science academic requirements for award of an officer's commission. Three credit hours per semester are earned for the lecture and laboratory. Cadets currently receive a tax-free allowance of $420 per month while enrolled.

Students enrolled in the Advanced Military Course are required to successfully complete approximately five weeks of leadership training at Fort Knox, Kentucky, during the summer to become eligible for commissioning. Attendance at Advanced Camp normally occurs in the summer following the junior year. The purpose of the course is to provide each Cadet hands-on experience in leadership development as well as extensive training in military tactics, techniques and related subjects vital to success as a junior officer. Cadets attending the Advanced Camp receive approximately $900 in addition to travel expenses to and from Fort Knox. Uniforms, housing, medical care and meals are furnished by the government during the training.

Additional voluntary training at one or more of a variety of active Army service schools is available to select Cadets each summer. Students may apply for attendance at Airborne School, Air Assault School, The Northern Warfare Training Center and Cadet Troop Leadership Training. Students who successfully complete the appropriate course are authorized to wear the Parachutist, Air Assault or other applicable skill badge.

Students who successfully complete the Army ROTC curriculum, and earn a bachelor's degree, serve on active duty or with the Army National Guard or Army Reserve. Active duty is for a period of three or four years with the opportunity for qualified officers to apply for extended service. Current salary and allowances for a Second Lieutenant exceed $45,000. Medical and other benefits are also provided at no cost.

Professional Military Education Requirements

All Army ROTC cadets seeking a commission are required to pass a Written Communication Skills course (currently fulfilled by the University Core Curriculum) and MILS 3030 History of the US Army. An alternate military history course may be substituted with the approval of the Professor of Military Science.

Simultaneous Membership Program

Second, third- and fourth-year students are eligible to participate in the Simultaneous Membership Program with the Army National Guard or Army Reserve. Cadets who participate in this program affiliate with an Army unit, thus affording them the opportunity for enhanced leadership development. Students in this program receive a monthly salary, additional tax-free benefits and GI Bill educational benefits (if otherwise qualified).

Military Science Minor

Code	Title	Hours
12 Credits in MILS 3000:4999	**Military Science**	**12**
MILS 3030	**History of the United States Army**	**3**
Total Hours		**15**

Scholarship Programs

Each year the Army offers a limited number of four-year, three-year and two-year scholarships to those young men and women who have demonstrated outstanding scholastic, athletic and leadership potential. Scholarships are available on a campus competitive basis and pay most or all of the cost of tuition and fees for both resident and non-resident students or they can opt for a housing and food scholarship of $10,000 per year ($5,000 per semester). Additionally, scholarship students receive a book stipend of $600 per semester and the $420 per month tax-free allowance.

POC is the Admissions and Scholarship Officer, 334-844-5641/4305.

Naval Science

CAPTAIN MICHAEL L. WITHERSPOON
Commanding Officer and Professor of Naval Science

The mission of the Naval Reserve Officer Training Corps is to develop NROTC students mentally, morally, and physically and to imbue them with the highest ideals of duty, honor, and loyalty; to commission college graduates as naval officers who possess a basic professional background, are motivated toward careers in the naval service, and have a potential for future development in mind and character so as to assume the highest responsibilities of command, citizenship, and government. All NROTC programs are open to qualified applicants.

To be eligible for enrollment as a midshipman, an applicant must be a United States citizen; have no moral obligations or personal convictions that will prevent bearing of arms, and supporting and defending the Constitution of the United States against all enemies, foreign and domestic; meet age requirements of at least 17 years on or before 1 September of the year of enrollment and less than 27

years on 30 June of the year an applicant expects to graduate; meet physical requirements for the NROTC Program; and be accepted for admission as a full-time student at Auburn University. Applicants with prior or current active duty in the U.S. Armed Forces may be granted age waivers equal to the number of months served, not to exceed 36 months. Those granted the maximum age waiver must be less than 30 years of age on 30 June of the year they expect to graduate.

NROTC Programs

Four-Year NROTC Navy-Marine Corps Scholarship

Entrance into the Navy-Marine Corps Scholarship Program is via nationwide competition. Applicants typically apply during their senior year of high school, but anyone who meets eligibility requirements and has completed less than 30 semester hours of college credit may apply. Qualifications for enrollment, applications, and information bulletins are available at https://www.nrotc.navy.mil, high schools, colleges, recruiting stations, and the Auburn NROTC Unit, located on the second floor of W. F. Nichols Center. The Department of the Navy pays tuition, fees, $375 per semester for textbooks, and provides a monthly stipend. Freshmen on scholarship receive $250, sophomores $300, juniors $350, and seniors $400 per month. The NROTC program divides degrees into three Tiers with Tier I containing engineering majors, Tier II remaining technical majors, and Tier III liberal arts (for a complete list, see the Auburn NROTC home page). Tiers do not apply to Marine Options. Although the program emphasizes engineering and science majors, students may enroll in any Auburn University major leading to a baccalaureate degree. In addition to the requirements of their major, scholarship students must complete 24 semester hours (21 for Marine Options) of Naval Science courses, calculus I and II (Navy option only), calculus-based physics I and II (Navy option only), a military history/national security policy course and a world cultures course. Summer activities include two at-sea training cruises and one summer period of career orientation lasting approximately four weeks. Marine Option students participate in a six-week officer candidates school, in Quantico, VA, in lieu of the second at-sea training cruise. Successful completion of the ROTC program leads to a commission as an Ensign, U.S. Navy or Second Lieutenant, U.S. Marine Corps.

College Program

The College Program is a non-scholarship option that offers a two- or three-year program. There is no calculus or physics requirement and no preference for technical majors. Interested students should apply directly to the Auburn NROTC Unit during their senior year of high school. Those already at Auburn should apply the spring of their freshman year for the three-year program or the spring of their sophomore year for the two-year program (two year not available for Marine options). College Program students will complete Naval Science and other university courses, a few specific university courses, and attend one summer training session at sea for Navy Option midshipmen or Quantico, VA, for Marine Option midshipmen. Upon graduation, College Program midshipmen may be commissioned as Ensigns, U.S. Navy or Second Lieutenants, U.S. Marine Corps.

Uniforms, Naval Science textbooks, and equipment necessary for the NROTC Program are furnished in all programs.

Active Duty Service Requirements upon Graduation

Active-duty service requirements for scholarship midshipmen vary depending on the warfare area they enter. The basic requirement is eight years, five of which must be on active duty. The remaining three years may be completed on active duty or in the reserves. Specific requirements per warfare community are as follows:

- Surface and Submarine Warfare - 8 years total, at least 5 on active duty
- Naval Aviator (Navy and Marine pilot) - 8 years active duty after qualification as a Naval Aviator
- Naval Flight Officer (Navy and Marine non-pilot aviators) - 6 years active duty after qualification as a Naval Flight Officer
- Marines and Nurse Corps - 8 years total, at least 4 on active duty

Curriculum

The Naval Science curriculum consists of one 3-credit class per semester for eight semesters. In addition, all NROTC students attend one 1-credit Naval Science laboratory class period. Naval Science subjects are listed in this *Bulletin*. Naval Science course hours are considered part of the normal load, which is defined as 15 to 18 credits per semester.

Naval Science Minor

The Department of Naval Science offers a minor to any student, regardless of NROTC affiliation, who completes 15 semester hours of Naval Science, nine semester hours must be courses numbered 3000 or above. The following courses qualify:

Code	Title	Hours
NAVS 1010	Introduction to Naval Science	3
NAVS 1020	Seapower and Maritime Affairs	3

NAVS 2010	Leadership and Management	3
NAVS 2060	Navigation [1]	3
NAVS 3030	Evolution of Warfare [2]	3
NAVS 3050	Naval Ship Systems I (Engineering) [1]	3
NAVS 3060	Naval Ship Systems II Weapons [1]	3
NAVS 4020	Leadership and Ethics	3
NAVS 4030	Fundamentals of Maneuver Warfare [2]	3
NAVS 4050	Naval Operation and Seamanship [1]	3
Total Hours		**30**

1 Navy Option Only
2 Marine Option Only

Faculty

The following is a list of full-time teaching faculty at Auburn University. The date indicates the year of first appointment to any position in the institution.

A

AAKUR, SATHYANARAYANAN, Assistant Professor, 2024 (COMP)

ABBASI, MEHRNAZ, Assistant Professor, 2023, PhD Texas Tech University, MS BS Shahid Beheshti University of Medical Sciences, Tehran, Iran (NDHM)

ABBATE, ANTHONY, Assistant Research Professor, 2023, PhD Auburn University, MS University of Florida, BS High Point University (ENPL)

ABDEL-HADI, ALI, Lecturer, 2015 (MECH)

ABEBE, ASH, Department Chair, Professor, 2007, PhD Western Michigan, BS Addis Ababa (MATH)

ABIEDALLA, YOUNIS, Assistant Research Professor, 2023, PhD, MS Auburn (DRDD)

ACOSTA, YADRIANNA, Assistant Professor, 2022, PhD MSE University of Michigan, BS University of Puerto Rico – Mayagüez (INSY)

ADAIR, RUSTY, Professor of Practice, 2021 (MNGT)

ADAMS, GARRY, Associate Professor, 2003, PhD Florida State, MBA BS Southern Illinois (MNGT)

ADAMS, MARK L., Godbold Professor, AMNSTC Director, 2014, PhD MS California Institute of Technology, BEE Auburn University (ELEC)

ADAMS, LAUREN, Lecturer (CMJN)

ADAMS, STEPHEN, Lecturer, MS Auburn University, MM BS Stephen F. Austin State University, BM East Texas Baptist University (PHYS)

ADANUR, SABIT, Professor, 1992, PhD MS North Carolina State, BS Istanbul Tech (PFEN)

ADANUR, SABIT, Professor, 1992, PhD MS North Carolina State, BS Istanbul Tech (MECH)

ADHIKARI, SUSHIL, Alumni Professor and Director, CBB, 2008, PhD Mississippi State, MS Asian Institute of Tech Thailand, BS Tribhuvan (BSEN)

ADLER-BAEDER, FRANCESCA, Professor, 2001, PhD MS North Carolina-Greensboro, BA Pembroke (HDFS)

ADRIAN, MARK, Associate Research Professor, 2022, PhD The University of Alabama, Huntsville, MS BS The University of Iowa (PHYS)

AGHAZADEH, SARAH, Assistant Professor, PhD University of Maryland-College Park, MA BS San José State University (CMJN)

AGNE, ROBERT, Associate Professor, 2004, PhD University of Colorado-Bolder, MA BS University of Dayton (CMJN)

AGRAWAL, VINAMRA, Assistant Professor (AERO)

AHMED, ANWAR, Professor, 1998, PhD MS Wichita State, BS Peshawar (AERO)

AHNELL, SARA, Clinical Assistant Professor, 2024 (CTCH)

AISTRUP, JOSEPH, Professor (POLI)

AJEDA, ANN, Assistant Professor, 2019, PhD The University of Oklahoma, MS Texas AM University, BS Lyon College (GEOL)

AKINGBEMI, BENSON T., Alumni Professor, 2004, DVM PhD Ibadan University Nigeria (VMAP)

AL FAKIR, RAZAN, Assistant Professor, 2024 (SLHS)

ALABI, JAENA, Librarian II, 2011, MLIS MA BA Alabama ()

ALAVALAPATI, JANAKI, Emmett F. Thompson Dean, 2015 (FOWS)

ALBERT, TANESHIA, Associate Professor, MFA The Florida State University, BA Dillard University (CADS)

ALCEDO, KAREL, Assistant Professor, 2025 (BIOL)

ALEXANDER, HEATHER, Dwain G. Luce Endowed Associate Professor, 2021 (FOWS)

ALEXANDER, COURTNEY WATTS, Assistant Professor, 2020, PharmD Auburn, BS Alabama (PYPP)

ALEXANDER, SYMONE L., Assistant Professor, 2021, PhD Case Western Reserve University, BS Howard University (CHEN)

ALI, HANEEN, HADM Program Director and Associate Professor, 2024 (POLI)

ALLEN, BRENDON, Assistant Professor, 2021, PhD BS University of Florida, MS Brigham Young University (MECH)

ALLEN, JOHN, NTTF, Operations Manager (ARCH)

ALLEN, SCOTT, Visiting Assistant Professor, 2024 (ARCH)

ALLISON, LYDIA, Assistant Clinical Professor (SLHS)

ALMOND, GREGORY T., Associate Clinical Professor, 2002, DVM Tennessee, Diplomate American College of Veterinary Radiology (VMCS)

ALTINDAG, DUHA, Associate Professor, 2011, PhD MS Louisiana State, BA Bogazici (ECON)

AMIN, RAJESH H., Professor, 2009, PhD MS BS Wayne State (DRDD)

AN, MYOUNG, Associate Research Professor (COMP)

AN, LI, Solon Martha Dixon Endowed Professor, PhD MS Michigan State University, MS Chinese Academy of Sciences, BS Peking University, China (FOWS)

ANDERSON, J. BRIAN, Professor, Graduate Program Officer, Associate Chair for Research, 2010, PhD ME University of Florida, BS North Carolina State University (CIVL)

ANDERSON, CHRIS, Professor, 2008, PhD Ohio State University, MS University of South Florida, BS Virginia Tech (FOWS)

ANDERSON, WESLEY, Assistant Professor Extension Specialist, 2021, PhD University of Florida, MS Texas Tech University, BS Davidson College (FOWS)

ANDRUS, MIRANDA R., Clinical Professor, 2000, PharmD Samford University (PYPP)

ANDRZEJEWSKI, CAREY E., Emily R. Gerald S. Leischuck Endowed Professor for Educational Leadership, 2008, PhD MA Ohio State, MA Texas Woman’s, BS Berry (EFLT)

ANGELO, ADRIENNE, Professor, 2009, PhD Emory, BA Groucher (FLNG)

ANTIC, ALEKSANDER, Visiting Assistant Professor, 2023 (MECH)

APPEL, ART, Associate Dean for Research; Associate Director, Endowed Professor, 1985, PhD MS California-Riverside, BA UCLA (ENPL)

ARD, MADISON, Instructor and Child Life Practicum Coordinator, MSW BS Auburn University (HDFS)

ARIK, MEHMET, Associate Professor, 2022, PhD University of Minnesota, MS University of Miami, BS Istanbul Technical University (MECH)

ARMBRUSTER, JONATHAN W., Professor and Director-Auburn University Museum of Natural History, 1998, PhD BS Illinois (BIOL)

ARMSTRONG, CHANCE, Associate Clinical Professor, 2002, DVM MS Auburn University, Diplomate American College of Veterinary Theriogenologists (VMCS)

ARMSTRONG-WRIGHT, DEBRA, Pre-Law Program Coordinator, 2024 (POLI)

ARNOLD, CHRISTOPHER, Associate Professor, 2003, MCP Auburn, BInd Auburn (INDD)

ARNOLD, ROBERT D., Professor, 2012, PhD Buffalo-SUNY, BS Plattsburgh State-SUNY (DRDD)

ARSENIOU, GEORGIOS, Assistant Professor Extension Specialist, 2023, PhD Michigan State University, MS University of Applied Sciences of Stuttgart, Germany, BS Aristotle University of Thessaloniki, Greece (FOWS)

ASHURST, W. ROBERT, Uthlaut Family Professor and Associate Chair; Director, Design and Innovation Center, 2004, PhD California Berkeley, BS Auburn (CHEN)

AUAD, MARIA L., Charles Gavin Distinguished Professor and Associate Dean for Graduate Studies and Faculty Development, Samuel Ginn College of Engineering, 2006, PhD University of Mar del Plata, BS University of Mar del Plata (PFEN)

AUAD, MARIA L., Charles Gavin Distinguished Professor and Associate Dean for Graduate Studies and Faculty Development, Samuel Ginn College of Engineering, 2006, PhD University of Mar del Plata, BS University of Mar del Plata (CHEN)

AVILA-FLORES, ADRIANA, Associate Professor and Undergraduate Program Officer (BIOL)

AYALA LOPEZ, CHRISTIAN, Assistant Research Professor, 202510, MS Rice University, BAR Auburn University, BIA Auburn University (ARCH)

AYASOUFI, ANAHITA, Senior Lecturer, 2015 (MECH)

AYDELOTT, STEVE, Senior Lecturer, 2024 (BSCI)

AYOUN, BAKER M., Professor, 2007, PhD Oklahoma State, MBA Yarmouk Jordan, BBA Mu’tah Jordan (HOSP)

AZHAR, SALMAN, Professor and Chair, Graduate Programs, 2006, JD Alabama, PhD Texas AM, MBC Florida, BS Auburn (BSCI)

B

BABL, RYAN M., Assistant Professor, Physical Therapy, PhD University of Mississippi, DPT University of Alabama at Birmingham, MS University of Southern Mississippi, BS University of Nebraska (KINE)

BAGGETT, HANNAH C., Associate Professor, 2015, PhD North Carolina State, MAT BA University of North Carolina-Chapel Hill (EFLT)

BAGINSKI, MICHAEL E., Associate Professor, 1985, PhD MS BS Penn State (ELEC)

BAILEY, RICH, Instructor, 2024 (AVTN)

BAIRD, A. NICKIE, Associate Dean, Clinical Affairs, 2022, DVM Auburn University, MS Texas AM, BS NC State, Diplomate American College of Veterinary Surgeons (VMCS)

BAKER, LAKAMI, Russell Professor Associate Professor, 2008, PhD Texas-San Antonio, MS Texas, BS Prairie View AM (MNGT)

BAKER-COOK, BETHANY, Assistant Professor, 2021, PhD University of Saskatchewan, Canada, MSc. University of Glasgow, Scotland (POUL)

BALDWIN, STEWART, Professor, 1997, PhD BA Colorado (MATH)

BALKCOM, KRIS, Extension Specialist (CSES)

BALL, JESSICA, Assistant Clinical Professor, 2023, DVM Auburn University (VMCS)

BALLEN, CISSY J., Associate Professor (BIOL)

BALTUSKONIS, PHILIP, Assistant Professor, PhD MA University of Mississippi, BA D'Youville University (HIST)

BANERJEE, TANNISTA, Professor, 2011, PhD MA Purdue, BA Jadavpur (ECON)

BANERJEE, RAHUL, Assistant Professor (CHEM)

BANERJEE, PRIYANKA, Assistant Professor, 2024 (ANSC)

BANIYA, ROJAN, Assistant Professor, 2024 (HOSP)

BANNON, SUSAN, Associate Professor and Director, Learning Resources Center, 1985, EdD Louisiana State, MEd BS Auburn (EFLT)

BARGER, PRISCILLA, Assistant Research Professor, 2005, PhD BS Auburn University, MS University of West Georgia (VMPB)

BARKER, DANA, Part-time Instructor (GEOL)

BARNES, ROBERT W., Professor, Associate Chair for Undergraduate Studies, and Feagin Chair, 2000, PhD MSE Texas, BCE Georgia Tech (CIVL)

BARNETT, MARK O., Professor, 2000, PhD University of North Carolina, MS BS University of Tennessee (CIVL)

BARRY, NANCY H., Professor, 2007, PhD MME Florida State, BM Middle Tennessee State (CTCH)

BARTLEY, PAUL, Assistant Professor Landscape Environment Steward (HORT)

BARTO, RON, Lecturer, 2021 (SCMN)

BARTOL, FRANK F., Associate Dean for Research and Graduate Studies Alumni Professor, 1983, PhD MS Florida, BS Virginia Tech (VMAP)

BARTON, CALLIE, Lecturer (CHEM)

BASHIR, ADIL, Associate Professor (ELEC)

BASKIYAR, SANJEEV, Professor, 1999, PhD MSEE Minnesota, BE Indian Inst. of Science (COMP)

BASSAR, RON, Associate Professor, 2022, PhD University of California, Riverside; BA Prescott College (BIOL)

BATCHELOR, WILLIAM D., Dean and Professor, 2010, PhD Florida, MS BS Georgia (AGRI)

BATCHELOR, WILLIAM, Professor, 2015 (BSEN)

BAUGHMAN, REBECCA, Lecturer (AVTN)

BAUMANN, STEPHANIE, Lecturer and Coordinator of Undergraduate Internships, 2022, PhD MS Georgia State University, MA BA Virginia Tech (HDFS)

BAUMANN, JENNIE, Assistant Professor, 2024 (CTCH)

BAWEJA, HARSIMRAN S., Associate Professor and Director of Physical Therapy, 2023, PhD University of Florida, BPT Sardar Patel University, India (KINE)

BAXTER, ANGELA, Affiliate Faculty (CHEM)

BAYNE, JENNA, Associate Clinical Professor, 2021, DVM Western College of Veterinary Medicine, University of Saskatchewan; PhD Auburn University, Diplomate American College of Veterinary Medicine - Large Animal (VMCS)

BEARD, PHILLIP, Lecturer (ENGL)

BECKINGHAM, BRYAN S., Mary and John H. Sanders Associate Professor and Director, Center for Polymer and Advanced Composites, PhD MS Princeton University, BS Clarkson University (CHEN)

BECKINGHAM, LAUREN, Associate Department Chair, Ginn Faculty Fellow, and W. Allen and Martha Reed Associate Professor, 2016, PhD MS Princeton University, BS Michigan Technological University (CIVL)

BECKMANN, JOHN, Assistant Professor, 2018, PhD, BA University of Minnesota (ENPL)

BELK, AERIEL, Assistant Professor, 2022, PhD BS Colorado State University, MS Texas AM University (ANSC)

BELL, MACY, Lecturer, 2024 (CTCH)

BELSARE, ANIRUDDHA, Assistant Professor, 2023, PhD University of Missouri, BVSc AH Bombay Veterinary College (FOWS)

BELSARE, ANIRUDDHA, Assistant Professor, 2023, PhD University of Missouri, BVSc AH Bombay Veterinary College (VMPB)

BENEFIELD, JUSTIN, Professor, Walker Reynolds Bickerstaff Professor, 2012, PhD MA BS The University of Alabama (FINC)

BENNETT, W. ANDY, Assistant Clinical Professor, 2023, DVM University of Florida (VMCS)

BENSON, ELIZABETH, Assistant Professor, 2014, DMA City University of New York, MM New England Conservatory of Music, BA Occidental College (THEA)

BERGMAN, NOELLE, Assistant Clinical Professor, 2019, DVM Ross University, MS Auburn University, Diplomate American College of Veterinary Internal Medicine - Oncology (VMCS)

BERGQUIST, BRENDAN, Assistant Clinical Professor, 2019, DVM Ross University (VMCS)

BERK, CHRIS, Senior Lecturer (SOCY)

BERNAL, MOISES A., Assistant Professor (BIOL)

BERNARDI, RAFAEL, Associate Professor, 2020, PhD Federal University of Rio de Janeiro, MSc Brazilian Center for Research in Physics, BS State University of Londrina (PHYS)

BERTOLET, ANNA RIEHL, Associate Professor, 2007, PhD MA BA Illinois (ENGL)

BERTOLET, CRAIG E., Professor, 1997, PhD MA Pennsylvania State, BA Millersville (ENGL)

BETANZOS, LOURDES, Professor, 2001, PhD MA Tennessee, BA Rutgers (FLNG)

BEVLY, DAVID M., McNair Professor, 2001, PhD MS MIT Stanford, BS Texas AM (MECH)

BEZDEK, ANDRAS, Professor, 1997, PhD Eotvos, PhD Ohio State (MATH)

BHUIYAN, NADIA, Associate Clinical Professor, 2016, PhD MS Florida, BA Auburn University (PSYC)

BIAN, MORRIS L., Professor, 1998, PhD Washington, MA NE Normal, BA Mudanjiang (HIST)

BIANCARDI, VINICIA C., Associate Professor, 2016, MS PhD Federal University of Sao Paulo (VMAP)

BIAZ, SAAD, Professor, 2001, PhD Texas AM, PhD MS BS Université Henri Poincaré (COMP)

BIDLEMAN, DALTON, Lecturer, 2025 (MATH)

BILBAO, ERNESTO, Assistant Professor, 2021, PhD The University of Texas at Austin, MArch Rice University, BArch Universidad San Francisco de Quito (ARCH)

BILENKER, LAURA, Assistant Professor, 2018, PhD University of Michigan, MS University of California, Riverside, BS University of Maryland (GEOL)

BILLINGSLEA, WILLIE, Lecturer (AVTN)

BILLOR, NEDRET, Professor, 1992, PhD Sheffield, MS BS Turkey (MATH)

BIRD, RICHARD C., Professor, 1985, PhD Toronto (VMPB)

BIRD, GORHAM, Assistant Professor, 2019, MS University of Michigan, BArch BIntArch Auburn University (ARCH)

BIRDSONG, JAMES, Assistant Professor and Interim Director, School of Aviation, 2014 (AVTN)

BLACK, CHRISTOPHER, Instructor (ENGL)

BLACK, PAUL, Assistant Professor (ACCT)

BLAINE, SARA, Associate Professor, 2019, PhD Colorado at Boulder, MS New Mexico, BA Cornell (PSYC)

BLAIR, MELISSA, Professor and Department Chair, 2015, PhD MA University of Virginia, BA University of Kentucky (HIST)

BLANKENSHIP, JUSTIN, Associate Professor, Associate Director of Journalism, PhD University of North Carolina at Chapel Hill, MA The University of Alabama, BA University of South Alabama (CMJN)

BLERSCH, DAVID, Associate Professor, 2013, PhD MS Maryland, BS Notre Dame (BSEN)

BLUMBERG, ANGELA, Postdoctoral Teaching Fellow (ENGL)

BLUMBERG, MARK, Assistant Professor, MArch Harvard University, BArch University of Tennessee (ARCH)

BOCANEGRA, MARIO, Assistant Professor, MFA BFA Oklahoma State University (INDD)

BOCK, DORA, Department Chair and Kerry and Laura Bradley Professor, 2015, PhD Louisiana State University, BS University of Wisconsin-La Crosse (MKTG)

BODEWITS, DENNIS, Professor, 2018, PhD MSc MSc University of Groningen (PHYS)

BOONE, LINDSEY H., Joezy Griffin Endowed Associate Professor, 2016, PhD DVM The University of Georgia, Diplomate American College of Veterinary Surgeons - Large Animal (VMCS)

BORNIER, EVELYNE, Professor, 2012, PhD Louisiana State University, MA Universite de Franche-Comte (FLNG)

BOSTON, BRIAN, Assistant Professor (GEOL)

BOUNDS, BONNIE, Lecturer, 2021, PhD The Ohio State University, MA University of California, Santa Barbara, BA University of North Carolina, Chapel Hill (GEOL)

BOURASSA, DIANNA, Associate Professor and Extension Specialist, 2016, PhD MS BS University of Georgia (POUL)

BOURDEAU, BRIAN, Professor, 2005, PhD MS BSBA Florida State (MKTG)

BOVELAND, SHANNON D., Clinical Professor, 2017, DVM Tuskegee University, Diplomate American College of Veterinary Ophthalmology (VMCS)

BOWDEN, ANNA-CATHERINE, Assistant Professor, 2022, DVM The University of Georgia, Diplomate American College of Veterinary Ophthalmology (VMCS)

BOWEN, KIRA L., Professor, 1988, PhD Illinois, MS Minnesota, BS Penn State (ENPL)

BOWERS, BENJAMIN, McCartney-Chase Highway Engineering Distinguished Associate Professor (CIVL)

BOWLING, CYNTHIA J., Associate Dean and Professor, 1998, PhD MA North Carolina, BA Tennessee (POLI)

BOYD, DANIELLE PESTER, Assistant Professor, PhD MS BA Texas AM University, MA Union University (SERC)

BOZEK, DENISE, Visiting Assistant Professor, 2024, PhD Auburn University (SERC)

BRANDEBOURG, TERRY, Associate Professor, 2008, PhD Oregon State, BS Purdue (ANSC)

BRANDON, DUANE M., Charles M. Taylor Professor Acting Associate Dean of Research and Faculty Affairs, 2003, PhD MAcc Virginia Tech, BS Christopher Newport University (ACCT)

BRANTLEY, EVE F., Extension Specialist and Professor, 2009, PhD Auburn, MS Clemson, BS Berry College (CSES)

BRASHER, JORDAN, Part-time Instructor (GEOL)

BRAXTON-LLOYD, KIMBERLY, Gilliland Professor and Associate Dean, 1998, PharmD BSPharm Auburn (PYPP)

BREUER, NOAH, Assistant Professor (ARTS)

BREWER, KATHERINE, Lecturer (ENGL)

BREWER, SHANNON K., Research Professor, 2020, PhD MS University of Missouri, BS Missouri Western State University (FISH)

BRIGGS, TERI, Curator-Donald E. Davis Arboretum (BIOL)

BRIGGS, JOE, Assistant Professor, 2021, PhD Carnegie-Mellon University, MMath BA University of Cambridge, UK (MATH)

BRIGGS, LEEANNE, Affiliate Faculty (CHEM)

BRINGARDNER, CHARLES, Professor and Associate Provost for Academic Affairs, 2009, PhD University of Texas, BA Davidson (THEA)

BRINK-ROBY, DAVID, Lecturer, 2020, PhD University of Rochester, BA Carleton College (GEOL)

BRITNELL, RICHARD E., Bauhaus Professor, 1991, MID BSED BFA Auburn (INDD)

BROCK, SHERI J., Professor, 2002, PhD Alabama, MS BS Troy State (KINE)

BROFFITT-KUNZER, VIRGINIA, Professor, 2021 (MUSI)

BROOKS, JENNIFER E., Professor, 2006, PhD Tennessee, BA Massachusetts-Boston (HIST)

BROTHERS, DENNIS, Associate Extension Professor (AGEC)

BROWN, M. MITCHELL, Curis O. Liles III Professor, 2006, PhD MA Maryland, MA George Washington, BA Meredith (POLI)

BROWN, STEVEN P., LAWJ Program Director and Morris Savage Professor, 1998, PhD MA Virginia, BA Brigham Young (POLI)

BROWN, ONIKIA, Associate Professor, 2012, PhD Iowa State, RD Utah State, S North Carolina AT State, BS Fort Valley State (NDHM)

BROWN, CORDELIA, Senior Lecturer, PhD MS Vanderbilt University, BS Tuskegee University (ELEC)

BROWN, STEVEN, Assistant Professor/Extension Specialist (CSES)

BROWN, MICHAEL, Assistant Professor (MATH)

BROWN, TIFFANY, Associate Professor, 2021, PhD Florida State University (PSYC)

BRUCE, TIMOTHY J., Assistant Professor, 2021, PhD South Dakota State University, MS Purdue University-Fort Wayne, BMSc University of Western Ontario (FISH)

BRUMBAUGH, BARBARA, Lecturer (ENGL)

BRUMBELOE SCHWECK, KELLY, Assistant Clinical Professor, 2006, PhD MS BS Auburn University (SERC)

BRUNNER, BRIGITTA R., Alumni Professor; Associate Director, School of Communication Journalism, 2002, PhD Florida, MA Auburn, BA Juniata (CMJN)

BRUNSON, BRANDON L., Director, Student Services Senior Lecturer, 2012, DVM PhD Auburn University (VMAP)

BRUNSON, MICHAEL, Professor of Practice, PhD Kansas State University, MA Prescott College, BS Northern Arizona University (FOWS)

BRUSH, CHRISTOPHER J., Assistant Professor, 2025, PhD Rutgers University, BS Rutgers University (KINE)

BRYANT, JASON, Associate Clinical Professor and Director, Truman Pierce Institute, 2016, PhD Auburn, EdS MSEd BSEd Troy (EFLT)

BUBASH, CONNIE, Instructor (ENGL)

BUBB, ROBERT, Lecturer, 2011, MS BS Brigham Young (HDFS)

BUCHANAN, MEGHAN, Associate Professor (SOCY)

BUCHANNON, CHENETRA, Visiting Clinical Assistant Professor , 2024, PhD Auburn University, MAE, BS University of Alabama at Birmingham (SERC)

BUCKLEY, KATHERINE M., Associate Professor (BIOL)

BUGG, ALAN, Associate Professor, Service Learning Chair, MBC MBA BS Auburn University (BSCI)

BULLARD, STEPHEN A., Professor, 2008, PhD MS University of Southern Mississippi, BS University of South Carolina (FISH)

BULLOCH, MARILYN N., Associate Clinical Professor, 2009, PharmD Rutgers (PYPP)

BURCH, THOMAS E., Senior Lecturer, 1992, PhD Louisiana State, MS BS Auburn (MECH)

BURCH, HUNTER, Assistant Professor and Co-Graduate Program Officer, PhD MS University of Florida, BEE Auburn University (ELEC)

BURDY, HENRY B., Professor Emeritus, 2016 ()

BURKHOLDER, ERIC, Assistant Professor, 2021, PhD MS California Institute of Technology, BA Cornell University (PHYS)

BURNS, EMILY, Associate Professor, 2013, PhD Washington University (ARTS)

BURNSED, ANNETTE, Senior Lecturer, 2021 (CADS)

BURQUE, ANGELA D., Clinical Professor, 1992, MSW Florida State, BSSW Alabama (SOCY)

BURRIS, GREGORY, Lecturer (GEOL)

BURT, RICHARD, Professor and School Head, 2000, PhD MS Texas AM (BSCI)

BURTON, MEGAN E., Professor, 2012, PhD Alabama, MEd Kennesaw State, BS Auburn (CTCH)

BUSH, BENJAMIN, Associate Professor, 2017, MId BId Auburn University (INDD)

BUTLER, AMANDA, Instructor and Director of Child Life Programs, 2015 (HDFS)

BUTLER, ASHLEY, Lecturer (THEA)

BUTTS, IAN, Associate Professor, 2017, PhD MS BS University of New Brunswick, Canada (FISH)

BYAHUT, SWETA, Associate Professor (POLI)

C

CABIROU, LATIFAT, Assistant Professor, 2020, PhD Loyola University Chicago, MA Benedictine University, BS University of Illinois (SERC)

CAIN, LAURA ANNA, Professor of Practice, 2025, DVM BS Auburn University (VMCS)

CALDERON, ANGELA I., Associate Professor, 2008, PhD Laussane, MS Illinois-Chicago, BPharm Panama (DRDD)

CALDWELL, FRED J., Professor, 2005, DVM Auburn, MS BS Kentucky, Diplomate American College of Surgeons and American College of Sports Medicine and Rehabilitation (VMCS)

CALHOUN, CATE, Librarian II, 2012, MALS Missouri, MA North Carolina State, BA Wake Forest ()

CALLAHAN, MELISSA, Collections Manager, 2025 (BIOL)

CAMPBELL, ANNIE, Associate Professor, 2016, MFA Indiana University, BFA Virginia Commonwealth University (ARTS)

CAMPBELL, ELLEN, Instructor (ENGL)

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CAMPBELL, JESSE C., Associate Extension Professor, National Poultry Technology Center, 2001, PhD MS BS Auburn University (BSEN)

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CAO, YANZHAO, Professor, Logan Endowed Chair and GPO, 2008, PhD Virginia Tech, MS BS Julin (MATH)

CAPONETTO, ROSETTA, Associate Professor, 2009, PhD University of Connecticut-Storrs, MA Bari, BA Bologna (FLNG)

CARDULLO, VICTORIA, Professor, 2013, EdD MEd BS University of Central Florida (CTCH)

CARPENTER, LU ANN, Director, Student Program Assessment and Administration, 2003, PhD Auburn University, MS BSIE Georgia Tech (INSY)

CARPENTER, MARK, Professor, 2003, PhD MS Louisiana-Lafayette, MS BS South Alabama (MATH)

CARR, TESSA, Associate Professor Department Chair, 2013, PhD University of Texas at Austin, MA Louisiana State University, BA Lees-McRae College (THEA)

CARROLL, ALICIA J., Professor Department Chair, 1998, PhD CUNY, MA Columbia, BS Skidmore (ENGL)

CARROLL, DANA G., Clinical Professor, 2006, PharmD BSPharm Auburn (PYPP)

CARTER, DAVID C., Associate Professor, 2000, PhD Duke, BA North Carolina (HIST)

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CATALANO, MATTHEW, Associate Professor, 2012, PhD University of Florida, BS Miami University (FISH)

CAUDLE, DANA M., Librarian III, 1992, MLIS Texas, BA Rice ()

CEGIELSKI, CASIMER G, J.W. Woodruff, Sr. Professor, 2000, PhD Mississippi, MAc BA Alabama (AVSC)

CERIOTTI, SERENA, Clinical Lecturer, 2023, PhD DVM University of Milan (Italy), MS Auburn University, Diplomate of the American College of Veterinary Internal Medicine (VMCS)

CEYHAN, ELVAN, Associate Professor (MATH)

CEYNOWA, WAYNE, Chief Flight Instructor (AVTN)

CHAKRABORTY, IMON, Assistant Professor (AERO)

CHAKRABORTY, DEBOLINA, Assistant Research Professor (BSEN)

CHALMIN, RONAN, Associate Professor, 2021 (FLNG)

CHAMORRO ORTEGA, MANUEL FELIPE, Associate Professor, 2019, PhD Auburn University, DVM National University of Colombia, Diplomate American College of Veterinary Internal Medicine (VMCS)

CHAMORRO ORTEGA, ERIN, Assistant Clinical Professor, 2019, DVM Auburn University (VMCS)

CHANDLER, SARAH, Assistant Professor, 2016 (THEA)

CHANG, XIAO, Lecturer, 2021 (MATH)

CHAPMAN, RICHARD, Associate Professor, 1993, PhD MS Cornell, BA Oxford (COMP)

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CHATTARAMAN, VEENA, Human Sciences Professor, 2006, PhD Ohio State, Master of Design Cincinnati, BBA Madras (CADS)

CHEN, CHARLES, Professor, 2012, PhD The University of Illinois at Urbana-Champaign, MS The Graduate School of Chinese Academy of Agricultural Sciences, BS Beijing Agricultural University (CSES)

CHEN, YU, Lecturer (MATH)

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CHEN, PENGYU, Francis Family Associate Professor, 2023 (MECH)

CHEN, HOA, Assistant Professor, 2023 (FOWS)

CHEN, JASON, Assistant Professor, 2023, PhD Drexel University, MSc The Chinese University of Hong Kong, BCom BSc University of New South Wales (FINC)

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CHEN, SANCHUAN, Assistant Professor, 2024 (COMP)

CHENG, ZHONG YANG, McWane Professor, 2002, PhD MS BA Xi'an Jiaotong University (MECH)

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CHOE, SONG YUL, Reed Professor, 1991, PhD Technische Universität Berlin, BS Hanyang (MECH)

CHOI, WONIL, Lecturer, 2025 (BIOL)

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CHUNG, TOM, Professor of Practice, 2022 (ARCH)

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CLARK, C. RANDALL, Gilliland Professor, 1973, PhD Mississippi, BS Berry (DRDD)

CLARK, JAMES A., Associate Professor and Director, Institutional Research and Assessment, 1982, PhD Yale, MA BA North Carolina (ENGL)

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CLIFFORD, JANICE E., Associate Professor, 1999, PhD MA BA SUNY-Buffalo (SOCY)

CLINE, DAVID, Associate Extension Professor, 1994, PhD MAq Auburn University, BA Colgate University (FISH)

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COHEN, GWEN, Assistant Professor, 2022, MLA University of Virginia, BFA Rhode Island School of Design (ARCH)

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COLE, ROBERT C., Professor, 2012, DVM Auburn University, Diplomate American College of Veterinary Radiology and Equine Diagnostic Imaging (VMCS)

COLE, DUSTIN, Assistant Professor, 2021 (SCMN)

COLEMAN, JEFF, Associate Professor, 2014, PhD University of Arizona, BS Bloomsburg University (ENPL)

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COLLINS, WESLEY, Associate Professor, PhD Arizona State University, MTM MBA Bowling Green State University, BS East Carolina University (BSCI)

COLQUITT, LEE, Professor and Chair, 1995, PhD MBA Georgia, BSBA Auburn (FINC)

COMES, RYAN, Associate Professor, 2016, PhD University of Virginia, BS Carnegie Mellon University (PHYS)

CONEVA, ELINA D, Professor and Extension Specialist, 2006, PhD MS BS Agrarian University Plovdov Bulgaria (HORT)

CONNELL, CAROL, Instructor and Extension Specialist, 2023, PhD The University of Southern Mississippi, MS BS Auburn University (NDHM)

CONNELLY, BRIAN, Luck Eminent Scholar Professor, 2008, PhD Texas AM, MBA Indiana, BSEE Rutgers (MNGT)

COOK, MICHAEL, Professor, 2016, PhD Clemson University, MEd North Carolina State University, BS Appalachian State University (CTCH)

COOK, BRIAN, Postdoctoral Teaching Fellow (ENGL)

CORDIE, LESLIE A., Associate Professor, 2014, PhD Colorado State University, MBA The University of Texas at Austin, BSN University of Wisconsin-Milwaukee (EFLT)

CORNISH, MARILYN, Associate Professor, 2014, PhD (SERC)

CORREIA, CHRISTOPHER J., Professor and Department Chair, 2002, PhD MS Syracuse, BS Scranton (PSYC)

CORRIGAN, DANIELLE, Lecturer, 2025 (MKTG)

COUNTERMAN, AMY, Professor of Practice, 2023 (FOWS)

COUNTERMAN, BRIAN, Associate Professor, 2025 (BIOL)

COVAS, HOLLY, Affiliate Faculty (CHEM)

COVINGTON, ELIZABETH W., Associate Clinical Professor, 2023, PharmD Auburn, BS Furman (PYPP)

COX, DWAYNE D., Archivist III and Head Emeritus, 1986, PhD Kentucky, MA Louisville, BA Kentucky Wesleyan ()

CRAIG, KATE, Associate Professor, 2015, PhD MA University of California Los Angeles, BS California Institute of Technology (HIST)

CRAIG, KEVIN, Assistant Professor (AVSC)

CRAWFORD, ALLEAH, Associate Dean and Professor (HOSP)

CRAWFORD, ALLEAH, Associate Dean and Professor (HUSC)

CREMASCHI, LORENZO, Burt Professor (MECH)

CREMASCHI, SELEN, B. Redd and Susan W. Redd Eminent Scholar Chair Professor and Department Chair, 2016, PhD Purdue University, MS BS Bogazici University (CHEN)

CRISOSTOMO, DAVID A., Senior Lecturer (CHEM)

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CSERE, PAIGE, Assistant Professor, 2024, PHD Emory University, MAcc BSBA Auburn University (ACCT)

CUFFEY, JOEL, Associate Professor (AGEC)

CULLEN, THOMAS, Assistant Professor (GEOL)

CUMMINGS, REBECCA, Professor of Practice (PROF)

CURTIS, AMY, Associate Clinical Professor, 2011, MSN BSN Auburn University (NURS)

D

DA SILVA, ANDRE LUIZ BISCAIA RIBEIRO, Assistant Professor, 2022 (HORT)

DAGG, CHRISTIAN, Associate Professor, 2000, MArch Harvard University, BS Northeastern University (ARCH)

DAI, SIYUAN, Assistant Professor (MECH)

DANIEL, JESSICA, Professor of Practice, 2023 (FOWS)

DANIEL, MARISSA JO, Assistant Professor, PhD MBA Auburn University, MS BA BA University of Missouri (FOWS)

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DAVID, ALLAN E., John W. Brown Professor and Associate Dean for Research, Samuel Ginn College of Engineering, 2012, PhD BS Maryland (CHEN)

DAVID, ALLAN E., John W. Brown Professor and Associate Dean for Research, Samuel Ginn College of Engineering, 2012, PhD BS Maryland (ENGR)

DAVIDSON, JAMES S., Professor, 2007, PhD MS BCE Auburn (CIVL)

DAVIS, VIRGINIA A., Daniel F. and Josephine Breeden Professor, 2005, PhD Rice, MS BS Tulane (CHEN)

DAVIS, DONALD A., Professor, 1999, PhD MS Texas AM, BS Northern Arizona (FISH)

DAVIS, JEREMIAH D., Professor Director of National Poultry Technology Center, 2015, PhD Iowa State, MS Kentucky, BS Texas AM (BSEN)

DAVIS, EDWARD W, Associate Professor, 2007, PhD Akron, MS BS Tulane (MECH)

DAVIS, JON, Senior Lecturer, 2017, MS BS Auburn University (BSEN)

DAVIS, ASHLEE, Assistant Clinical Professor (SOCY)

DAVIS-SRAMEK, BETH, Gayle Parks Forehand Professor and Department Chair (SCMN)

DE LA FUENTE, LEONARDO, Professor, 2008, PhD Washington State, MS BS Univ of the Republic, Uruguay (ENPL)

DE MARCHI, LETICIA, Lecturer, 2022, PhD MS Auburn University, BS University of Campinas (GEOL)

DE VRIES, JOYCE, Professor, 2003, PhD MA Illinois, BA Calvin (ARTS)

DEAN JR., ROBERT N., McWane Endowed Professor, 2007, PhD MS BEE Auburn (ELEC)

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DEGOTI, MARK D., Associate Professor, 2010, DM MM Indiana, BM Michigan (MUSI)

DELANEY, BRIAN, Assistant Professor, PhD MA Drexel University, BA Ithaca College (CMJN)

DELEKTA, EMMY, Collections Manager, 2025 (BIOL)

DELGADO, MARIA, Assistant Professor, 2024 (CADS)

DELMAIN, DIANE M., Associate Clinical Professor, 2018, DVM University of Florida, Diplomate American Board of Veterinary Practitioners - Feline (VMCS)

DELMAIN, K. SCOTT, Professor of Practice, 2019, DVM BS University of Florida (VMAP)

DEMOINY, SARA B., Associate Professor, 2017, PhD University of Tennessee, MEd Pennsylvania State Univ, BA Carson-Newman University (CTCH)

DENNEY JR., THOMAS S., Mr. and Mrs. Bruce Donnellan Family Endowed Professor and Director, AU Neuroimaging Center, 1994, PhD Johns Hopkins, MS BS Auburn (ELEC)

DERUITER, JACK, Alumni and Hill Crest Professor, 1983, PhD Virginia, MS Michigan, BA Hope (DRDD)

DERZIS, NICHOLAS, Associate Clinical Professor, 2012, PhD Auburn University (SERC)

DESCHENE, WENDY, Professor, 2006, MFA Temple, BFA Concordia (ARTS)

DESHPANDE, GOPIKRISHNA, Professor, 2010, PhD Georgia Institute of Technology, MS Indian Institute of Science Bangalore, BTech National Institute of Technology Warangal (ELEC)

DEVALL, TOM, Director Automotive Manufacturing Initiatives, Eastern Michigan University (INSY)

DEVRIES, DENNIS R., Professor and Assistant Director, 1990, PhD MS Ohio State, BS Purdue (FISH)

DHANASEKARAN, MURALIKRISHNAN, Professor, 2005, PhD MPharm Jadavpur, BPharm Annamali (DRDD)

DHAR, SARIT, Professor, 2012, PhD Vanderbilt, MS BA Indian Institute of Technology (PHYS)

DICKEY, JERI, Senior Lecturer, 2010, BFA Wright State University (THEA)

DILLARD, LEANNE, Associate Professor and Extension Specialist, PhD MS Auburn University, BS University of Alabama at Birmingham (ANSC)

DING, CHEN, Assistant Professor, 2023 (FOWS)

DINIZ, WELLISON, Assistant Professor, 2021, PhD MSc Federal University of São Carlos, SP, Brazil, BS Federal Rural University of Pernambuco, Garanhuns, Brazil (ANSC)

DISCLAFANI, ANTON, Assistant Professor and Alumni Writer in Residence (ENGL)

DISHOP, CHRISTOPHER, Assistant Professor (PSYC)

DITCHKOFF, STEPHEN S., Ireland Professor, 2001, PhD Oklahoma State, MS Maine, BS Michigan State (FOWS)

DODGE, TIMOTHY D., Librarian III, 1992, PhD MA New Hampshire, MSLS Columbia ()

DOERFLER, JAMES, Visiting Assistant Professor (ARCH)

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DOMBY, ADAM H., Associate Professor, PhD MA University of North Carolina at Chapel Hill, BA Yale University (HIST)

DONALDSON, LE'TRICE, Assistant Professor, PhD University of Memphis, MA BA University of Tennessee - Knoxville (HIST)

DONG, JIANJUN, Professor, 2000, PhD MS Ohio University, BS Beijing University (PHYS)

DOS SANTOS E CASTRO, DOUGLAS, Assistant Clinical Professor, 2021, DVM School of Veterinary Medicine in Brazil, MSc, Clinical Sciences, Federal Rural University of Rio de Janeiro, UFRRJ, Brazil, DSc, Doctor of Cardiovascular Science, Fluminense Federal University, UFF, Niteroi, Brazil (VMCS)

DOUGHERTY, MARK, Associate Professor, 2004, PhD MS Virginia Tech, BS Texas Tech (BSEN)

DOUGLAS, ALECIA, Associate Professor, 2008, PhD Purdue, MS Delaware, BS Kingston Jamaica (HOSP)

DOWNEY, LAURA, Associate Dean and Professor (HUSC)

DOWNEY, LAURA, Associate Dean and Professor (NDHM)

DOZIER, GERRY, Charles D. McCrary Eminent Chair Professor (COMP)

DOZIER III., WILLIAM A., Professor and Extension Specialist, 2008, PhD BS Auburn, MS Kentucky (POUL)

DREW, CHRISTINE, Assistant Professor (SERC)

DREYER, MARGUERITE, Lecturer, 2024 (INDD)

DUAH, JOHN, Assistant Professor, 2024 (POLI)

DUBOSAR, ELIANA, Assistant Professor (CMJN)

DUIN, EDUARDUS C., Professor, 2002, PhD Universiteit Van Amsterdam (CHEM)

DUKE, STEVE R., Mary and John H. Sanders Associate Professor, 1996, PhD MS Illinois, BCHE Georgia Tech (CHEN)

DUKE, JOSHUA, Professor (AGEC)

DUKE MARKS, ADRIENNE, Associate Professor and Extension Specialist, 2015, PhD MS University of Wisconsin - Madison, MA University of Louisville, BA University of Alabama-Birmingham (HDFS)

DUNHAM, REX A., Professor, 1981, PhD MS Auburn, BS Illinois (FISH)

DUNN-POWELL, ROSEPHANYE, Professor, 2001, DM Florida State, MM Westminster, BME Alabama State (MUSI)

DURHAM, SPENCER HOLAWAY, Associate Clinical Professor, 2013, PharmD Auburn (PYPP)

DURHAM, RICHARD SEAN, Associate Professor, 2012, PhD Louisiana State, MA Oral Roberts, BA Jacksonville State (CTCH)

DYCE, PAUL, Associate Professor, 2015, PhD MSc University of Guelph, Canada (ANSC)

DYKE, FORD, Associate Clinical Professor, 2017, PhD MEd Auburn University, BA North Florida (KINE)

E

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EASLEY, CHRISTOPHER, C. William Dent Professor, 2008, PhD Virginia, BS Mississippi State (CHEM)

ECKHARDT, LORI, Professor, 2005, PhD Louisiana State, BS Maryland (FOWS)

EDEN, MARIO R., Joe T. and Billie Carole McMillan Professor and Dean, Samuel Ginn College of Engineering, 2004, PhD MS Technical Denmark (CHEN)

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EDGEMON, TIMOTHY, Assistant Professor, 2021 (SOCY)

EHRHORN, ANNA, Assistant Professor, 2024 (SLHS)

EIDSON, HELEN DIANA, Assistant Professor, 2014, PhD Georgia State, MA West Georgia, BS Kennesaw State (ENGL)

EILAND, LEA C., Hill Crest Clinical Professor, 2002, PharmD Texas (PYPP)

EL-SHEIKH, MONA M., Leonard Peterson Professor, 1990, PhD MA West Virginia, BA American-Cairo (HDFS)

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ELWELL-CHALMERS, STACY, Professor of Practice, 2021 (MNGT)

ENGELHARDT, ETHAN, Assistant Professor, 2023 (SOCY)

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ERWIN, CATHLEEN O., Chair and Professor, 2010, PhD Alabama Birmingham, MBA Auburn Montgomery, BA Auburn (POLI)

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EVANS, JOHN L., Charles D. Miller Professor, 2001, PhD MSE University of Alabama-Huntsville, BSEE Auburn University (INSY)

EVANS, TRAVIS, Assistant Professor, 2024 (PSYC)

F

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FAN, JINYAN, Professor, 2010, PhD Ohio State, MEd BA East China Normal (PSYC)

FAN, ZHAOFEI, Professor (FOWS)

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FERDOUS, SHOBNOM, Senior Lecturer (BIOL)

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FILLIPPELI, SUSAN, Senior Lecturer, PhD University of Iowa (CMJN)

FINCK, W. MACY, Senior Lecturer, 2001, PhD MS Auburn University, BA Bellarmine University (ECON)

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FITZGERALD, CAROLYN, Associate Professor, 2008, PhD University of Michigan, Ann Arbor (FLNG)

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FOGLE, MICHAEL R., Professor, 2008, PhD Stockholm, BS East Carolina Sweden (PHYS)

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FORD, JILLIAN, Clinical Assistant Professor, 2024 (CTCH)

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FOX, MARGOT, Assistant Clinical Professor, 2014, MSN, BSN (NURS)

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FREEAR, ANDREW, Wiatt Professor and Director, Rural Studio, 1999, AA Diploma Arch. Assoc London, BArch Westminster (ARCH)

FREEMAN, BROOKE, Assistant Clinical Professor (NURS)

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FROHLICH, XAQ, Associate Professor, 2017, PhD Massachusetts Institute of Technology, BA University of Texas at Austin (HIST)

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FRONIMOS, JOHN, Lecturer, 2020 (GEOL)

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G

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GAO, ZIHE, Assistant Professor, 2023 (ELEC)

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GORDON, CARLY, Lecturer, 2025 (CHEM)

GORODEISKY, KEREN, Professor, 2008, PhD Boston, BA Tel Aviv (PHIL)

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HASTIE, PETER, Wayne T. Smith Distinguished Professor, 1993, PhD B.H.MS (ED) (HONS) Queensland Australia (KINE)

HAUCK, MARKUS RUEDIGER, Associate Professor, 2017, PhD DVM Freie Universität Berlin (POUL)

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HAWTHORNE, ASHLEY, Assistant Clinical Professor, 2023, PharmD Auburn (PYPP)

HAWTHORNE, TIMOTHY L., Professor and Department Chair, 2024, PhD The Ohio State University, MA West Virginia University, BA Ohio Wesleyan University (GEOL)

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HE, PAN, Assistant Professor, 2024 (COMP)

HE, HUAN, Assistant Professor, 2025 (MATH)

HEARD, GLADYS, Curricular Coordinator (CORD)

HEATON, COURTNEY, Lecturer, 2021 (ANSC)

HEATON, HAYNES, Assistant Professor, 2021 (COMP)

HEBERT, KEITH, Draughon Professor, 2014, PhD Auburn University, MA Virginia Polytechnic Institute and State University (Virginia Tech), BA University of West Georgia (HIST)

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HILL, DORIS, Associate Research Professor (SERC)

HILL, ETHAN, Assistant Professor, 2020, PhD University of California - Irvine, BS ACS Colorado State University (CHEM)

HILLIARD, JIMMY, Professor, Harbert Eminent Scholar, 2088, PhD MS BS Tennessee (FINC)

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HINNANT, BEN, Associate Professor, 2015, PhD MS UNC Greensboro, BS Clemson (HDFS)

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HOCH, MATTHEW R., Professor, 2012, DMA New England Conservatory, MM Hartt School, BM Ithaca (MUSI)

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HOHMANN, LINDSEY A., Assistant Professor, 2019, PhD Auburn, PharmD California-San Diego, BS California-Santa Barbara (PYPP)

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HOLT, TRAVIS, Associate Professor, 2013, PhD The University of Alabama (ACCT)

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HOPKINS, KAREN, Sr. Lecturer (MKTG)

HOPKINS, JOHN (JACK), Lecturer, 2019, MBA Rhode Island, MA BA Notre Dame (MNGT)

HOPKINS III, JOHN, Instructor, 2023 (AVTN)

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HUANG, SHUAI, Assistant Professor, 2025 (ELEC)

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HUNT, STACEY L., Associate Professor, 2009, PhD Rutgers, BA Gustavus Adolphus (POLI)

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HUTCHISON, AMBER M., Associate Clinical Professor, 2011, PharmD Auburn (PYPP)

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INGRAM, MITCH, Instructor, 2023 (MECH)

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JACOBSEN, SHAWN P., Lab Coordinator (BIOL)

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JAMES, TIERRA, Assistant Professor (SOCY)

JAMES, SAMANTHA, Assistant Professor (CMJN)

JARAMILLO, BROOKE, Professor of Practice (PROF)

JARDINE, MURRAY D., Professor, 1997, PhD Duke, MA BBA Texas Tech, BSc Regina (POLI)

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JENDA, CLAUDINE A., Librarian III, 1989, MS City London, BS Malawi ()

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JENKINS, GREGORY J., Ingwersen Professor, PhD Virginia Tech, MS BSBA Appalachian State University (ACCT)

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JIN, WENCAN, Assistant Professor, 2008, PhD Columbia University, BS Renmin University of China (PHYS)

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JONES, ALISHA, Associate Professor (SLHS)

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K

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KEETON, ADAM B., Assistant Research Professor, 2021, PhD BS Alabama-Birmingham (DRDD)

KEIRSTEAD, CHRISTOPHER M., Professor, 1999, PhD MA Delaware, BA William and Mary (ENGL)

KELLEY, KRISTI W., Clinical Professor, 2001, PharmD BSPharm Auburn (PYPP)

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KELLY, ANITA, Extension Professor, 2019, PhD MS Southern Illinois University at Carbondale, BS University of Iowa (FISH)

KELLY, SAVANNAH, Instructor and Undergraduate Child Life Program Director (HDFS)

KELMENDI, PELLUMB, Associate Professor (POLI)

KELSEY, RUSHING, Lecturer and Dietetic Internship Director (NDHM)

KELSICK, EVAN, Lecturer, 2024 (MUSI)

KENNINGTON, KELLY M., Draughon Associate Professor, 2010, PhD MA Duke, BA Tulane (HIST)

KENNIS, ROBERT A., Professor, 2005, DVM Michigan State University, MS Texas AM University, Diplomate of the American College of Veterinary Dermatology (VMCS)

KENSLER, LISA A., Emily R. Gerald S. Leischuck Endowed Professor for Educational Leadership, 2008, EdD Lehigh, MS Old Dominion, BS George Mason (EFLT)

KERN, J. CHRIS, Assistant Professor, 2021 (FLNG)

KERPELMAN, JENNIFER L., Associate Vice President for Research and Professor, 1999, PhD Auburn, MS BS Old Dominion (HDFS)

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KIM, HEYONGWOO, Professor, 2006, PhD Ohio State, MA BA Seoul National (ECON)

KIM, DONG-JOO, Professor, 2003, PhD North Carolina State, MS BS Yonsei (MECH)

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KIM, JEFF, Associate Professor, 2016, MS Georgia Institute of Technology, BS Auburn University (BSCI)

KIM, JISU, Assistant Professor, PhD University of Washington, MS Korea Advanced Institute of Science and Technology, BS Carnegie Mellon University (MKTG)

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KINGSLEY JR, OLIVER D., Associate Dean, 2008, BS Auburn University (ENGR)

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KISSELEV, ALEXEI, Professor, 2017, MS PhD Moscow State (DRDD)

KITCHENS, BECKY, Instructor (CMJN)

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KLYUKIN, KONSTANTIN, Assistant Professor, 2022, PhD MS BS Saint Petersburg State University (MECH)

KNAPPENBERGER, THORSTEN, Assistant Professor, 2014 (CSES)

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KNOX, EMILY, Assistant Professor and Chair, Landscape Architecture (Graduate), MLA BS The Ohio State University (ARCH)

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KOEHLER, JENNIFER W., Professor, 2007, PhD Auburn University, DVM Louisiana State University, Diplomate American College of Veterinary Pathology (VMPB)

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KOHRMAN, ZACH, Lecturer (INDD)

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KOOPMANN, JACLYN, Associate Professor (MNGT)

KOOY, SARAH, Assistant Clinical Professor, 2023, DVM The Ohio State University, MS Auburn University, BS Furman University (VMCS)

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KORANKYI, KRISTEN A., Assistant Clinical Professor, 2023, PharmD High Point University, MSEd Concordia University Wisconsin (PYPP)

KOSMIN, JENNIFER, Associate Professor (HIST)

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LEE, KHARI ALLEN, Walt Ginger Woltosz Endowed Professor of Practice, 2024 (MUSI)

LEE, ANGIE, Assistant Professor, PhD Iowa State University (CADS)

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LEE, KUHN, Visiting Assistant Professor, 202510 (ARCH)

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LEE-FOWLER, TEKLA M., Associate Professor, 2011, DVM Mississippi State University, MS University of Missouri, Diplomate American College of Veterinary Internal Medicine (VMCS)

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LEONARD, EVAN, Lecturer, 2025 (MATH)

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LESH, CHARLES, Assistant Professor (ENGL)

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LI, YIHAN, Visiting Associate Professor, PhD MS New York University, MS BS Tsinghua University (ELEC)

LI, XUECHAO, Lecturer (COMP)

LI, NAN, Assistant Professor, 2022, PhD MS MS University of Michigan, Ann Arbor, BS Tongji University (AERO)

LI, WENYING, Associate Professor, 2020, PhD University of Georgia, MS London School of Economics and Political Science (LSE), BS Renmin University of China (AGEC)

LI, APRIL, Lecturer, 2022 (FINC)

LI, YAN, Assistant Professor (MATH)

LI, HAORAN, Assistant Professor (MATH)

LIAN, BOSEN, Assistant Professor, 2023 (ELEC)

LILES, MARK R., Associate Dean for Research and Graduate Studies, 2005, PhD Northwestern, BS Tulane (BIOL)

LIM, DERICK, Affiliate Faculty (CHEM)

LIN, HUI-CHU., Professor, 1990, DVM National Ping-Tung University, MS University of Illinois, Diplomate American College of Veterinary Anesthesiology (VMCS)

LIN, YU, Professor, 1994, PhD University of Alaska, MS Institute of Geophysics, Chinese Academy of Sciences, BS Peking University, Beijing (PHYS)

LIN, JUNSHAN, C. Harry Knowles Endowed Professor, 2013, PhD Michigan State University, MS Fudan University, BS Jilin University (MATH)

LIN, CHEN-YEN, Assistant Professor, 2024 (NURS)

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LINDNER, JAMES, Alumni Professor, 2016, PhD The Ohio State University, MBA BS Auburn University (CTCH)

LINDSEY, WESLEY T., Associate Clinical Professor, 2006, PharmD Campbell (PYPP)

LINHOSS, ANNA, Associate Professor (BSEN)

LINHOSS, JOHN, Assistant Professor (BSEN)

LIPKE, ELIZABETH A., George E. Dorothy Stafford Uthlaut Endowed Professor, 2005, PhD Rice, BS Johns Hopkins (CHEN)

LITTLETON, FRANKLIN, Lecturer, Director of CSCI, 2021 (SCMN)

LIU, JUNSHAN, Professor, 2003, MBC Auburn, BS Shanhai Jiatong (BSCI)

LIU, NANNAN, Professor, 1997, PhD Cornell, BS China Agriculture (ENPL)

LIU, KAIJUN, Associate Professor, 2012, PhD Cornell, MS BS Peking University China (PHYS)

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LOCH, STUART D., Professor, 2001, PhD Strathclyde-Glasgow, BS Strathclyde (PHYS)

LOCKHART, JENNIFER, Associate Professor (PHIL)

LOCKHART, TOM, Associate Professor (PHIL)

LOCKLEAR, AARON, Lecturer, 2024 (MUSI)

LOGAN, KRISIT, Lecturer (PSYC)

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LUCSKO, DAVID N., Professor, 2010, PhD MA Massachusetts Institute of Technology, BA Georgia Tech (HIST)

LUDEWIG, ASHLEY, Lecturer (ENGL)

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M

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MAGGARD, ADAM, Harry E. Murphy Associate Professor Extension Specialist, PhD MS Oklahoma State University, MSM BS University of Florida (FOWS)

MAGGARD, ALICIA, Assistant Professor, 2020, PhD MA Brown University, BA Willamette University (HIST)

MAHJOURI-SAMANI, MASOUD, Godbold Associate Professor, PhD BS University of Nebraska (ELEC)

MAILEN, RUSSELL, Assistant Professor (AERO)

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MAJUMDAR, AYANAVA, Assistant Director for Grant and Program Development and Extension Professor, 2008, PhD North Dakota State University, MS Dr. P.D. Agricultural University, Maharashtra, India, BS G.B. Pant University of Agriculture and Technology, Uttaranchal, India. (ENPL)

MALCZYCKI, W. MATT, Associate Professor, 2008, PhD MA Utah, BA Arkansas (HIST)

MANSOORABADI, STEVEN, J. Milton Harris Associate Professor, 2012, PhD University of Wisconsin-Madison (CHEM)

MANSOUR, MAHMOUD M., Alumni Professor, 2006, PhD Liverpool (UK), DVM Khartoum (VMAP)

MAO, SHIWEN, Professor and Earle C. Williams Eminent Scholar Chair, WEREC Director, 2006, PhD MS Polytechnic-New York, MS BS Tsinghua (ELEC)

MARCHANT, JAMIE, Lecturer (ENGL)

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MARLOWE, KAREN F., Davis Professor and Associate Dean, 2000, PharmD BSPharm Auburn (PYPP)

MARSHALL, DAVID, Associate Professor, 2017, PhD Virginia Commonwealth, MA La Salle, MA BA Virginia Tech (EFLT)

MARSHALL, BENJAMIN, Assistant Professor, 202510, PhD University of Texas Austin, MS University of Texas Austin, BAR Mississippi State University, BS Mississippi State University (BSCI)

MARTIN, W. GARY, Emily R. and Gerald S. Leischuck Endowed Professor for Critical Needs in Education, 2000, EdD Georgia, BS Mennonite (CTCH)

MARTIN, JOEL S., Director, Solon Dixon Forestry Education Center, 2006, MS Clemson, BS Wofford (FOWS)

MARTIN, DAVID, Associate Professor, 2010, PhD MS BS Auburn (HOSP)

MARTIN, KELLY, Senior Lecturer, MS Auburn University (CADS)

MARTIN, SCOTT, Assistant Professor, 2021 (MECH)

MARTIN, KATHLEEN, Assistant Professor (ENPL)

MARTIN, CHRISTOPHER, Associate Clinical Professor, 2020 (NURS)

MARTIN, DOUGLAS R., Professor and Director, Scott-Ritchey Research Center, 1991, PhD BS Auburn University (VMAP)

MARUSICH, JOHN, Lecturer and Design/Build Manager, Rural Studio (ARCH)

MARZEN, LUKE J., Professor, 2001, PhD Kansas State, MS Oklahoma State, BS Northwest Missouri (GEOL)

MATHEW, PRIYA, Lecturer, 2025 (CHEM)

MATHIS, MOLLIE E., Associate Professor, 2016, PhD MS BSBA Oklahoma State University (ACCT)

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MAURER, DAVID, Professor, 2011, PhD MPhil MS Columbia University, BS University of Wisconsin (PHYS)

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MCADORY, KATHY, Assistant Clinical Professor, 2024 (NURS)

MCCABE, BRIAN, Associate Professor (SERC)

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MCCORMICK, PAUL, Senior Lecturer (CMJN)

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MCCRAE, BRIGID, Associate Professor (POUL)

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MCCULLOM, TYLER, Lecturer, 2024 (CTCH)

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MCKELVEY, CHELSEA, Postdoctoral Teaching Fellow (ENGL)

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MILLER, MICHAEL E., Research Fellow, 1997, PhD Florida, MA BA Texas (BIOL)

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MILLER, DAVID, Associate Professor, 2022 (PHIL)

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MITRA, CHANDANA, Professor Earth Systems Sciences PhD Program Coordinator, 2011, PhD Georgia, MA BA BEd Calcutta (GEOL)

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MIZUMOTO, NOBU, Assistant Professor, 2024, PhD MS BS Kyoto University (ENPL)

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MOLLY, SIMONIS, Assistant Professor, 2025 (FORY)

MOLLY, SIMONIS, Assistant Professor, 2025 (FORY)

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MORGAN, TYLER, Assistant Professor (SCMN)

MORRIS, JOHN C., Professor (POLI)

MORRIS, JOANIE, Lecturer (MATH)

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MOSELEY, LINDSEY, Curricular Coordinator (CORD)

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MUELLER-PHILLIPS, JENNIFER M., Dean KPMG Professor, 2000, PhD MAcc Virginia Tech, BS Jacksonville State University (ACCT)

MUELLER-PHILLIPS, JENNIFER M., Dean KPMG Professor, 2000, PhD MAcc Virginia Tech, BS Jacksonville State University (BUSI)

MUIR, ROBERT, Senior Lecturer, PhD BS Drexel University, MS Virginia Tech (BSCI)

MULDER, SAMUEL, Associate Research Professor, 2021 (COMP)

MULJADI, EDUARD, J.J. Danaher Professor and Co-Graduate Program Officer, PhD University of Wisconsin (ELEC)

MULLENIX, KIM, Professor and Head (ANSC)

MULVANEY, DONALD R., Associate Professor, 1983, PhD MS Michigan State, BS Illinois (ANSC)

MUNIS, KAL, Assistant Professor, 2024 (POLI)

MURRAH, WILLIAM, Department Head and Associate Professor, 2016, PhD University of Virginia, MEd University of Montevallo, BS University of Montevallo (EFLT)

MURTADHA, A.K., Assistant Professor, 2021 (THEA)

MUSCAT, ROBERT, Lecturer, 2020 (MKTG)

MUÑOZ, KERRI, Assistant Professor (FLNG)

MUÑOZ OGAYAR, JORGE, Associate Professor Department Chair, 2005, PhD MA UNC-Chapel Hill, BA Seville (FLNG)

MYKONIATIS, KONSTANTINOS, Associate Professor, 2019, PhD MS University of Central Florida, BS Technical University of Crete (INSY)

McCALLISTER, TIMOTHY, Assistant Professor, 2016, PhD MA BA University of Virginia (FLNG)

N

NADOLNYAK, DENIS, Professor, 2003, Ohio State (AGEC)

NANE, ERKAN, Professor, 2012, PhD Purdue, MS BS Bogazici (MATH)

NARAYANAN, N. HARI, John H. and Gail Watson Professor and Chair, 1996, PhD Ohio State, MS Rochester, ME Indian Inst. of Science (COMP)

NARINE, LANA, Assistant Professor (FOWS)

NASKOU, MARIA, Assistant Professor, 2018, PhD University of Georgia, DVM University of Thessaly (Greece), Diplomate American College of Veterinary Pathologists (VMPB)

NATHAN, VINI, Provost and Vice President for Academic Affairs, 2011, PhD University of Michigan, MS Virginia Tech, BArch Anna University (ARCH)

NEELEY, KRISTINA A., Associate Professor, 2018, PhD Western Ontario, MS Indiana, BS Minnesota (KINE)

NEGANGARD, ERIC, Assistant Professor, 2024, PhD MACIS Virginia Tech, BS Indiana University (ACCT)

NELMS, ROBERT M., Goldbold Professor and Chair, 1984, PhD Virginia Tech, MS BEE Auburn (ELEC)

NELSON, KATHRYN, Instructor, 2021 (AVTN)

NELSON, JAKE, Assistant Professor, 2021, PhD Arizona State University, MS BS Oregon State University (GEOL)

NEMEREVER, ZOE, Assistant Professor, 2024 (POLI)

NETO, RACHEL, Assistant Clinical Professor, 2019, DVM University of Brasilia (UnB), MS University of Illinois at Urbana-Champaign, Diplomate American College of Veterinary Pathologists (VMPB)

NEWELL, ANNAKAY, Assistant Professor Extension Specialist, 2025 (FOWS)

NEWLAND, M. CHRISTOPHER, Professor, 1988, PhD MS Georgia Tech, BEE Auburn (PSYC)

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NEWSCHWANDER, GREGG, Professor, 2010, PhD Marquette, MSN Colorado, BSN Rutgers (NURS)

NGORSURACHES, SURACHAT, Professor, 2018, PhD MS Wisconsin, BScPharm Prince of Songkia (HORP)

NGUYEN, ANH, Associate Professor (COMP)

NGUYEN, TIN, Associate Professor, 2024 (COMP)

NIU, GUOFU, Ed and Peggy Reynolds Family Professor, 1997, PhD MS BS Fudan (ELEC)

NOEL, ZACHERY, Assistant Professor, 2020, PhD Michigan State University, BS University of Vermont (ENPL)

NOLES, JAMES, Professor of Practice, 2025 (FOWS)

NOLL, KELLEY, Associate Clinical Professor, 2013, PhD MSN Auburn, BSN Samford (NURS)

NORQUIST, TOM, Professor of Practice (INDD)

NOVAK, JOSH, Associate Professor, PhD Brigham Young University, MS Texas Tech University, BS Anderson University (HDFS)

NOWAK, ANDRZEJ S., Brasfield Gorrie Professor, 2013 (CIVL)

NUNN, ERICH, Associate Professor, 2009, PhD University of Virginia (ENGL)

Novack, Josh, Assistant Professor ()

O

O'BRIEN, TRACI, Professor, 2008, PhD City University of New York, BA Binghamton University (FLNG)

O'DONNELL, FRANCES, Associate Professor, 2016, PhD Princeton, BA Harvard (CIVL)

O'KEEFE, DOUGLAS, Lecturer (ENGL)

O'KEEFE, PATRICK, Adjunct Instructor, 2025 (AVTN)

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ODOM, DAVID, Professor, 2007, DM Florida State, MM Colorado, BM Stetson (MUSI)

OEDING, LUKE, Associate Professor, 2013, PhD Texas AM, BA Franklin Marshall College (MATH)

OH, TAE-SIK, Associate Professor (CHEN)

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OLIVER, GRETCHEN D., Professor, 2012, PhD Texas Woman's, MS BS Arkansas (KINE)

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OLSEN, DARREN, Associate Professor, 2003, JD Mississippi, BS Florida (BSCI)

OLSON CORRIVEAU, KAYLA M., Associate Professor, 2017, DVM Western University of Health Science, Diplomate American College of Veterinary Surgeons (VMCS)

OLWENY, MARK, Visiting Assistant Professor, 202510 (ARCH)

ORTIZ, BRENDA, Extension Specialist and Professor, 2008, PhD Georgia, BS Universidad Nacional de Colombia-Universidad del Valle (CSES)

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OSTER, SETH C., Assistant Clinical Professor, 2015, DVM BS Auburn University (VMCS)

O'NEAL, REBECCA, Associate Professor, 1999, MArch Harvard, BID Auburn (ARCH)

O'NEILL, MARTIN, Horst Schulze Professor and Department Head, 2003, PhD MS BA Ulster Northern Ireland (HOSP)

P

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PANIZZI, PETER R., Professor, 2010, PhD MS Vanderbilt, BS Montevallo (DRDD)

PANIZZI, JENNIFER, Associate Professor, 2010, PhD Vanderbilt University (VMAP)

PANTAZES, ROBERT J., Associate Professor (CHEN)

PARADICE, DAVID, Harbert Eminent Scholar and Acting Associate Dean for Academic Affairs, 2015, PhD Texas Tech University, MS BS Georgia Institute of Technology (AVSC)

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PARK, SANG-WOOK, Associate Professor, 2014, PhD Colorado State, MS BS Chung-Ang (ENPL)

PARK, JINHEE, Assistant Professor, 2017, PhD Michigan State, MS Illinois Institute of Technology, BS Daegu University (SERC)

PARK, YUHYUN, Assistant Professor, 2024, PhD University of Arizona, MA University of Cincinnati, BS Indiana University at Bloomington (SERC)

PARKER, TRACEY, Lecturer (ENGL)

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PARSON, CHRIS, Part-time Instructor (GEOL)

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PATKOWSKI, KONRAD, Professor, 2011, PhD Warsaw, MS Warsaw (CHEM)

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PATTERSON, PAUL M., Professor, 2009, PhD MS Purdue, BS Auburn (AGEC)

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PHILLIPPE, HALEY M., Associate Clinical Professor, 2007, PharmD Auburn (PYPP)

PHILLIPS, MATTHEW S., Associate Professor, 2000, PhD MA Ohio State, BA Ohio Wesleyan (THEA)

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PONDUGULA, SATYANARAYANA R., Professor, 2011, PhD Kansas State University, DVM Tiruapati, India (VMAP)

POPE, LAURAMARIE, Assistant Professor, 2024 (SLHS)

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PORTER, CASSANDRA J., Assistant Professor, PhD Yale University, BS University of Kentucky (CHEN)

POTNIS, NEHA, Associate Professor, 2016, PhD University of Florida (ENPL)

POUDEL, SABIN, Assistant Research Professor, 2024, Ph.D. (2023) Poultry Science, Mississippi State University, MS (POUL)

POWELL, WILLIAM C., Professor Director of Choral Activities, 2001, PhD Florida State, MM Westminster, BME Alabama State (MUSI)

POWELL, ANDREW, Lecturer, 2024 (MUSI)

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PROROK, BART, Professor and Program Chair, 2002, PhD MS Illinois-Chicago, MS Pittsburgh, BS Penn State (MECH)

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PURDY, GREG, Associate Professor, 2018, PhD Virginia Tech (INSY)

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QI, KANGKANG, Assistant Professor (AVSC)

QIAN, JINGJING, Associate Professor, 2012, PhD MS Maryland, MS Cincinnati, BS China Pharmaceutical (HORP)

QIN, XIAO, Alumni Professor, 2004, PhD Nebraska, MS BS Huazhong Univ. Science and Technology (COMP)

QIN, DANNY, Assistant Professor (FINC)

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QUALLS, CHRISTOPHER, Associate Professor, 2006, MFA Alabama Shakespeare Festival, BA North Carolina (THEA)

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R

RABINOWITZ, ADAM, Associate Professor, 2020, PhD University of Connecticut, MA BA University of Nevada-Las Vegas (AGEC)

RAGAN, JOSEPH, Senior Lecturer, 2015 (MECH)

RAGHAV, VRISHANK, Associate Professor, PhD MS Georgia Institute of Technology, BS National Institute of Technology (AERO)

RAHMAN, IMRAN, Associate Professor, 2015 (HOSP)

RAHMAN, AKOND, Assistant Professor, 2024 (COMP)

RAHN, KEITH, Associate Professor (BSCI)

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RAMAPURAM, JAYACHANDRA, Professor, 2005, PhD MPharm Banaras Hindu, BPharm Madras (DRDD)

RAMNATH, VISHALINI, Lecturer, 2024 (COMP)

RANEY, LINDSEY, Affiliated Faculty, 2025 (CHEM)

RANFT, ANNETTE, Dean and Wells Fargo Professor (BUSI)

RANGE, RYAN C., Associate Professor (BIOL)

RAO, SHASHANK S., Jim W. Thompson Professor, 2011, PhD Kentucky, MBA T.A. Pai Management Institute, BE Visveshwaraya Technological University (SCMN)

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RAPP, JOHN, Professor, 2013, PhD University of Florida, MS North Dakota State, BA Saint Mary's University of Minnesota (PSYC)

RASHOTTE, AARON M., Professor and Graduate Program Officer, 2007, PhD Arizona, BS Florida State (BIOL)

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REDDING, LORI, Senior Lecturer (POLI)

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REESE, JEFF, Professor, Department Head (SERC)

REHMAN, TANZEEL, Assistant Professor, 2022, PhD Purdue University, MS Dalhousie University, Canada, BS University of Agriculture, Faisalabad, Pakistan (BSEN)

REID, MEREDITH A., Assistant Professor, PhD University of Alabama at Birmingham (ELEC)

REIF, KATHRYN E., Associate Professor, 2023, PhD Louisiana State University, MSPH Tulane University, BA Ohio Wesleyan University (VMPB)

RENFROE, KAROL, Assistant Clinical Professor and Skills Lab Coordinator (NURS)

RETZLAFF, REBECCA, Professor, 2006, PhD Illinois, MS Chicago Art Inst., BS Michigan State (POLI)

REYNER, CLAUDIA L., Assistant Clinical Professor, 2017, DVM University of Georgia, Diplomate American College of Veterinary Surgeons - LA (VMCS)

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RICHARD, TRACY, Director of Integrated Financial Leadership Program, 2014, MBA University of Nevada-Las Vegas, BS West Virginia University (FINC)

RICHEY, GLENN, Eminent Scholar, Professor, 2015 (SCMN)

RICHLIING, SARAH, Associate Clinical Professor and Director of ABA Program, 2017, PhD Nevada-Reno, MS St. Cloud State, BA Wisconsin-Eau Claire (PSYC)

RIESE, DAVID J. II, Franklin Professor, 2010, PhD MPhil Yale, AB Wabash (DRDD)

RIGGS, REBECA, Senior Lecturer (BIOL)

RILETT, LAURENCE R., Samuel Ginn College of Engineering Distinguished Professor and Director of Auburn University Transportation Research Institute, PhD Queen's University, MS BS University of Waterloo (CIVL)

RITENBAUGH, ALEX, Program Champion (SCMN)

ROATH, ANTHONY, Assistant Professor (SCMN)

ROBERTS, CHRISTOPHER B., Uthlaut Professor and University President, 1994, PhD MS Notre Dame, BS Missouri (ENGR)

ROBERTS, CHRISTOPHER B., University President, 1994, PhD MS Notre Dame, BS Missouri (CHEN)

ROBERTS, JORDAN C., Senior Lecturer, 2015 (MECH)

ROBERTS, MICHAEL, Professor, 2015, PhD Oklahoma, MSEd BS Baylor (KINE)

ROBERTS, MEGAN Z., Associate Clinical Professor, 2023, PharmD BS Auburn (PYPP)

ROBERTS, MEGAN S., Professor of Practice (PROF)

ROBINSON, CAROLYN W., Associate Professor, 2006, PhD Texas AM, MS Florida, BS Auburn (HORT)

ROBINSON, JENNIFER, Professor, 2012, PhD MA Case Western Reserve (PSYC)

ROBINSON, STACEY , Jean Howard Lowe Associate Professor, 2025 (MKTG)

ROCCAPRIORE, ASHLEY, Assistant Professor, 2023, PhD University of Tennessee, MBA MS University of Texas at Dallas, BS Auburn University (MNGT)

ROCHELL, SAMUEL, Associate Professor, 2022, PhD University of Illinois at Urbana Champaign, MS BS Auburn University (POUL)

RODEKOHR, DONN, Instructor (GEOL)

RODNING, SOREN P., Professor and Extension Specialist, 2006, DVM MS BS Auburn University (ANSC)

RODRIGUES, CAMILA, Assistant Professor, 2022 (HORT)

RODRIQUES, JANELLE, Assistant Professor (ENGL)

ROGERS, STEPHANIE, Assistant Professor (GEOL)

ROHRBAUGH, GUY, Professor, 2003, PhD MA UCLA, BA Pomona (PHIL)

ROLLINS, FROST, Visiting Assistant Professor, 2024 (ARCH)

RONG, JIAN, Senior Lecturer (AGEC)

ROPER, JAIMIE, Associate Professor, 2017, PhD Florida, MS BS Utah State (KINE)

ROSE, CHAD G., Assistant Professor (MECH)

ROSENER, DOUGLAS B., Professor Department Chair, 2005, DMA Colorado, MM North Texas, BS Penn State (MUSI)

ROSS, DEREK, Associate Professor, 2008, PhD Texas Tech University (ENGL)

ROSS, ALYSSA, Instructor (ENGL)

ROSS, LEIGH ANN, Professor and Dean, 2022, PharmD, BBA Mississippi (PYPP)

ROUECHE, DAVID, Gottlieb Associate Professor (CIVL)

ROWE, JOE E., Senior Lecturer, 2012, DVM Auburn University (VMAP)

ROY, LUKE A., Extension Professor, 2017, PhD Auburn University, MS University of California, Riverside, BS Samford University (FISH)

RU, SUSHAN, Assistant Professor, 2022 (HORT)

RUDAR, MARKO, Assistant Professor, 2021 (ANSC)

RUDDICK, SAMUEL, Lecturer, 2014, PhD MA Southern Mississippi (ENGL)

RUDISILL, MARY E., Wayne T. Smith Distinguished Professor and Director, 1996, PhD Florida State, MA BA Appalachian State (KINE)

RUDOLPH, RACHEL ETTA, Assistant Professor (PHIL)

RUEDA-BENAVIDES, JORGE, David Dixon Associate Professor, 2016, PhD MS Iowa State, BS Universidad de Santander (CIVL)

RUIZ-JUNCO, NATALIA, Associate Professor, 2014, PhD MA Kentucky, BA Universidad Complutense (Spain) (SOCY)

RUMBLE, JULIET T., Librarian III, 2004, PhD MA Vanderbilt, MSLS North Carolina, BA Georgia ()

RUMPH, PAUL F., Professor Emeritus and Visiting Professor, 1997, DVM MS Auburn University (VMAP)

RUNGE, MAX W., Extension Professor, 1995, MBA BS Auburn, MS Troy State (AGEC)

RUSH, JESSICA B., Assistant Clinical Professor, 2018, DVM Auburn University, Diplomate American College of Theriogenology (VMCS)

RUSH, KATHERINE, Assistant Professor, 2023, PhD University of Michigan, BS University of Tennessee (CHEM)

RUSHING, KELSEY, Lecturer and Dietetic Internship Director, 2025 (NDHM)

RUSSELL, MELODY L., Alumni Professor, 2002, PhD Georgia, MS Nebraska, BS North Carolina Agricultural and Technical State (CTCH)

RUSSELL, JARED, Associate Dean for Academic and Faculty Affairs, 2002, PhD MA Georgia (KINE)

RUSSELL, DAVID, Assistant Extension Professor (CSES)

RUSSELL, BARRY, Lecturer, 2021 (SCMN)

RUSSELL, KELLI, Assistant Extension Professor (AGEC)

RYAN, JAMES EMMETT, Liles Professor, 2000, PhD MA North Carolina, BA Pennsylvania (ENGL)

S

SAALE, BLAIR, Associate Clinical Professor, 2025, DPT Belmont University, BA Furman University (KINE)

SADACHAR, AMRUT, Associate Professor (CADS)

SADI, MEHDI, Assistant Professor, PhD University of Florida, MS University of California-Riverside, BS Bangladesh University of Engineering and Technology (ELEC)

SAGONG, HAE, Assistant Professor (NURS)

SALAZAR-GUTIERREZ, MELBA, Assistant Professor, 2022 (HORT)

SALERNO, ALLEN, Lecturer (ENGL)

SALISBURY-GLENNON, JILL D., Professor, 1997, PhD MS Penn State, BS Suny-Oswego (EFLT)

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SAMOLESKY, JEREMY, Ike Rhonda Scott Endowed Professor, 2007, DMA Eastman School, MM Washington, BM Manitoba (MUSI)

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SANDAGE, MARY, Associate Professor (SLHS)

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SATTINENI, ANOOP, Associate Professor and Chair, Executive Programs, 1996, MS Auburn, BSE Osmania (BSCI)

SAWADGO, WENDIAM, Assistant Professor, 2020, PhD Iowa State University, BS Washington State University (AGEC)

SAWHNEY, GARGI, Associate Professor, 2019, PhD Old Dominion, MS Illinois Institute of Technology, BA Northeastern Illinois (PSYC)

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SCARBOROUGH, DAVID, Associate Professor (AERO)

SCHAFFER, WILLIAM R., Associate Professor, 1998, DMA North Carolina-Greensboro, MM Illinois State, BME Indiana (MUSI)

SCHALL, MARK, Professor, 2015, PhD MS BS University of Iowa (INSY)

SCHALL, KARA, Clinical Instructor (SLHS)

SCHENCK, HAL, Kopel Brown Chair, Professor (MATH)

SCHINDLER, ANTON K., Mountain Spirit Professor and Director, Highway Research Center, 2002, PhD MSE Texas, BSE Pretoria (CIVL)

SCHMIDT, GREGORY J., Librarian III, 2008, MLIS Alabama, MS BS Auburn ()

SCHMIDT, JOHN, Assistant Clinical Professor, 2023, PhD MA University of Houston, MA Fielding Graduate University (PSYC)

SCHMIDT, JOHN, Adjunct Instructor, 2024 (AVTN)

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SCHMITZ, CECILIA M., Librarian III, 1988, MLS BA Arizona ()

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SCHULZE, KYLE, Assistant Professor (MECH)

SCHWARTZ, DEAN D., Associate Professor, 1993, PhD Houston, BS Stonehill (VMAP)

SCHWARTZ, TONIA S., Associate Professor (BIOL)

SCHWARTZ, ELIZABETH, Professor and Assistant Dean for Biomedical Sciences, 2012, PHD Emory University, BS Auburn University (BIOL)

SCHWARTZ, ANDREW, Assistant Professor, 2021 (THEA)

SEALS, CHERYL, Charles W. Barkley Professor, 2003, PhD MS Virginia Tech, BS Grambling State (COMP)

SEALS, RICHARD A., Associate Professor, 2010, PhD MA BS Middle Tennessee State (ECON)

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SERVISS, EMORY, Sr. Lecturer (MKTG)

SESEK, RICHARD, Tim Cook Professor, 2009, PhD MPH University of Utah, MS BSGE University of Illinois (INSY)

SETH, MCKELVEY, Instructor (ENGL)

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SHAFER, JOSEPH, Postdoctoral Teaching Fellow (ENGL)

SHAFFER, CHARLES, Senior Lecturer (COMP)

SHAH, SAYED FAWAD ALI, Assistant Professor (CMJN)

SHAH, NIYATI, Assistant Clinical Professor and Director of Clinical Education, Physical Therapy (KINE)

SHAKIBA, NILA, Assistant Professor (HDFS)

SHAMSAEI, NIMA, Philpott-WestPoint Stevens Professor and Director NCAME (MECH)

SHAN, SONGLING, Assistant Professor (MATH)

SHANKS, DAVID, Assistant Professor, MArch Harvard University, BA New York University (ARCH)

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SHAO, SHUAI, McWane Associate Professor (MECH)

SHAO, PENG, Assistant Professor, PhD University of Pennsylvania (ECON)

SHAPIRO, STEVEN K., Associate Professor, 1990, PhD Miami, BA Rhode Island (PSYC)

SHARAN, NEK, Assistant Professor (AERO)

SHARMA, AJAY, Assistant Professor, 2023 (FOWS)

SHARMA, NEHA, Assistant Professor (CIVL)

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SHEARMAN, TIMOTHY, Assistant Professor, PhD Clemson University, MS SUNY Plattsburgh, BA Stony Brook University (FOWS)

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SHELLEY, JAMES R., Professor, 2000, PhD MA Chicago, BA Brigham Young (PHIL)

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SHOCKLEY, KRISTEN, Associate Professor, 2023, PhD MS University of South Florida, BS University of Georgia (MNGT)

SHOEMAKER, CARLA, Lab Manager (BIOL)

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SHU, TAO, Associate Professor, PhD University of Arizona, MS BS South China University of Technology (COMP)

SHULER, KRISTRINA A., Associate Professor, 2007, PhD Southern Illinois, MA Southern Mississippi, BA South Carolina (SOCY)

SHULZ, HARRY, Lecturer (CIVL)

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SIKORA, EDWARD, Extension Specialist Professor, 1992, PhD MS University of Illinois, BS Eastern Illinois University (ENPL)

SILVA, DANIEL, Associate Professor, 2016, PhD Georgia Institute of Technology (INSY)

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SILVIS, JESSICA, Instructor, MA Auburn University, BA Columbus State University (CMJN)

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SIMONIS, MOLLY, Assistant Professor, 2025 (VMPB)

SIMONIS, MOLLY, Assistant Professor, 2025 (FOWS)

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SINGLETARY, MELISSA, Assistant Professor and Assistant Director, Canine Performance Sciences, 2018, DVM Auburn University, BS Eastern Kentucky University, Diplomate American College of Veterinary Preventive Medicine (VMAP)

SJOLSETH, ERIK, Instructor, 2021 (SCMN)

SKINNER, LEANE B., Professor, 2002, EdD Auburn, EdS MS BS Troy State (CTCH)

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SLOAN, BRITTNI, Director, Clinical Laboratory Sciences (CHEM)

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SMITH, KEVIN, Associate Professor, Graduate Internship Director, 2008, MFA Louisiana Tech, BFA Auburn (CMJN)

SMITH, RICHARD W., Senior Lecturer, Undergraduate Internship Director, 1992, MEd MComm Auburn University, BA South Carolina (CMJN)

SMITH, ALICE E., Joe W. Forehand/Accenture Distinguished Professor, 1999, PhD Missouri-Rolla, MBA St. Louis, BSCE Rice (INSY)

SMITH, MICHEL, Professor, 1986, PhD Emory, BA Texas (MATH)

SMITH, BRUCE F., Professor, 1993, PhD VMD Pennsylvania, BA Haverford (VMPB)

SMITH, FORREST T., Professor, 1987, PhD Virginia Commonwealth, BS Virginia Tech (DRDD)

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SMITH, ANDREA, Assistant Clinical Professor, 2020 (NURS)

SMITH, MICHAEL L., Assistant Professor (BIOL)

SMITH, APRIL, Professor, 2021, PhD MS Florida State University, BA The University of Texas at Austin (PSYC)

SMITH, W. BRANDON, Assistant Professor, 2021, PhD Texas AM University, MS University of Arkansas, BS BS Auburn University (ANSC)

SMITH, ASHLEY, Assistant Clinical Professor, 2015, DVM Tufts University, Diplomate American College of Veterinary Internal Medicine - Oncology (VMCS)

SMITH, DAVID, Associate Professor, 2017, MFA Goddard College, BFA Ringling College of Art and Design (INDD)

SMITH, MARK, Mosley Environmental Professor and Extension Coordinator, 2023, PhD MS BS Mississippi State University (FOWS)

SMITH, MISSIE, Assistant Professor, 2024, PhD Virginia Tech, MS, BS, Mississippi State (INSY)

SMITHGALL, SEAN E., Associate Clinical Professor, 2016, PharmD East Tennessee State (PYPP)

SMOKE, JACQUELINE, Lecturer, 2024 (POLI)

SNIDER, CLINT, Assistant Professor, 2023 (ELEC)

SOCARRÁS, GILDA M., Associate Professor, 2006, PhD MAT Georgetown, BA Puerto Rico (FLNG)

SOLOMON, DEBORAH, Assistant Professor (ENGL)

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SOMERS, JENNIFER, Assistant Professor, 2024 (PSYC)

SONGER, MICHAEL, Affiliate Faculty (CHEM)

SONIK, KAREN, Associate Professor, 2014, PhD University of Pennsylvania, MA BA University of British Columbia (ARTS)

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SPRAY, GREGORY, Assistant Professor, 2024 (SLHS)

SPRINGALL, DREW, Assistant Professor (COMP)

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SPURLIN, ADAM C., Professor Associate Director of Bands, 2007, DMA Louisiana State, MA BS Alabama (MUSI)

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STAGG, MACKENZIE M., Assistant Research Professor (ARCH)

STALTER-PACE, SUNNY, Hargis Associate Professor of American Literature, 2007, PhD Rutgers, BA Loyola (ENGL)

STAMM, PAMELA L., Associate Professor, 1997, PharmD South Carolina, BSPharm St. Louis Coll Pharm (PYPP)

STANLEY, JONATHAN D., KPMG Professor and Director, 2009, PhD MAcc BS The University of Alabama (ACCT)

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STERLING, AMANDA, Visiting Assistant Professor, 2023 (MECH)

STERN, LILIANA, Associate Professor, 2006, PhD MA Indiana, MA EERC BS Ternopil State (ECON)

STERN, MICHAEL L., Associate Professor, 2004, PhD MA Indiana, BS Purdue (ECON)

STEURY, TODD, Professor Associate Dean for Academic Affairs, 2008, PhD Indiana State, MS Univ Idaho, BS Univ Colorado (FOWS)

STEURY, KELLEY, Lecturer and Co-Director PAOH, 2021, DVM Texas AM, MPH University of Alabama at Birmingham, BS University of Colorado, Diplomate American College of Veterinary Preventive Medicine (VMPB)

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STOCKLER, RICARDO, Associate Clinical Professor, 2014, PhD Auburn University, DVM Sao Joao da Boa Vista, State of Sao Paulo, Brazil, MS University of Illinois, Diplomate American College of Veterinary Practitioners - Dairy Specialty (VMCS)

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STOVER, JOSEPH, Lecturer (FINC)

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STRUTCHENS, MARILYN E., Emily R. and Gerald S. Leischuck Endowed Professor and Mildred Chesire Fraley Distinguished Professor, 2000, PhD MEd BS Georgia (CTCH)

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Schmidt, Paul ()

T

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TATUM, MARK, Associate Professor, 1981, MS BS Auburn (BSCI)

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TAYLOR, JONATHAN, Associate Professor (EFLT)

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THOMAS, JAKITA, Philpott-West Point Stevens Associate Professor (COMP)

THOMAS, JOYCE, Assistant Professor, 2018, Executive Masters Northwestern University, MFA University of Illinois at Urbana-Champaign, BFA Rochester Institute of Technology (INDD)

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THOMAS, JR, EDWARD E, Admin Professor Dean, 1999, PhD Auburn, MS MIT, BS Florida Inst. Tech (PHYS)

THOMES, PAUL, Associate Professor, PhD MSc University of Madras (VMAP)

THOMPSON, EARLE, Senior Lecturer and UAS Program Manager (AVTN)

THOMPSON, CLAIRE, Associate Clinical Professor (NURS)

THOMPSON, PATRICK, Curator-Donald E. Davis Arboretum (BIOL)

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THOMPSON, MAGGIE, Assistant Professor, Extension Specialist, 2024, MAM University of Georgia, DVM BS Auburn University, Diplomate American College of Poultry Veterinarians (VMPB)

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THORNTON, LINDA L., Librarian Emeritus, 2014, MSLS Clarion, BS SUNY-Oneonta ()

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THORNTON, KATE, Director of Global Education (HUSC)

THORNTON, ERIN, Assistant Clinical Professor (NURS)

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THUROW, BRIAN S., W. Allen and Martha Reed Professor and Department Chair, 2005, PhD MS BS Ohio State (AERO)

TIAN, DI, Assistant Professor (CSES)

TIAN, TINA, Senior Lecturer, 2024 (COMP)

TIDWELL, DAVID, Lecturer and Undergraduate Program Officer, MS Air University, BS Auburn University (AVTN)

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TILLMAN, SHEA, Professor, 2005, MA Ohio State, BInd Auburn (INDD)

TILLSON, D. MICHAEL, Arthur Louise Oriole Professor, 1995, DVM BS North Carolina State, MS Kansas State, Diplomate American College of Veterinary Surgeons (VMCS)

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TIPPUR, HAREESH V., McWane Professor, 1990, PhD SUNY, ME Indian Inst, BE Bangalore (MECH)

TIRADO, JESÚS, Associate Professor (CTCH)

TODT, MOLLIE, Assistant Clinical Professor (PSYC)

TOLLERSON, RODNEY, Assistant Professor, 2025 (BIOL)

TOMASELLO, CRYSTAL, Instructor (CMJN)

TOMASSO, JOSEPH, Professor Director, 2015, PhD University of Memphis, MS Middle Tennessee State University, BS University of Tennessee at Martin (FISH)

TORABI, ALI REZA, Research Assistant Professor, 2023 (MECH)

TORDELLA-WILLIAMS, KRISTEN, Associate Professor, 2021, MFA Alfred University New York State College of Ceramics, 2010 University of Massachusetts-Dartmouth (ARTS)

TORRES, AIMEE, Lecturer (CTCH)

TOWNS, JORDAN, Assistant Clinical Professor, 2025, PhD, DVM, BS Auburn University, Diplomate American College of Veterinary Pathologists (VMPB)

TRAYNOR, MARK, Associate Professor and Director of Culinary Science Program, 2019, PhD BA Cert. Dublin Institute of Technology (HOSP)

TREHUB, AARON, Assistant Dean and Head, 2009, MA Johns Hopkins SAIS, MSLIS Illinois, BA, McGill ()

TRIGGS, ELDON, Senior Lecturer, 2014, PhD Tuskegee University, MS BS Auburn University (AERO)

TRIPP, L. OCTAVIA, Professor, 2002, EdD MS Oklahoma State, BS Wesleyan (CTCH)

TRISSEL, LUKE, Instructor, 2025 (AVTN)

TROOP GORDON, WENDY, Professor, 2017, PhD MA Illinois, BA Michigan (HDFS)

TSAI, PAO-FENG, Professor and Associate Dean for Research (NURS)

TSOLAS, NICHOLAS, Associate Professor (MECH)

TU, YAZHOU, Assistant Professor, 2024 (COMP)

TUCKER, JONATHAN, Field Lab Manager/Senior Lecturer, BArch Louisiana State University (BSCI)

TUGGLE, FELICIA, Assistant Professor (SOCY)

TUGNAIT, JITENDRA K., James B. Davis Professor, 1989, PhD Illinois, MSEE Syracuse BSc Punjab (ELEC)

TURNER, CASEY G., Assistant Professor, 2025, PhD Georgia State University, MS Georgia State University, BS Georgia College and State University (KINE)

TUROCHY, ROD E., James Madison Hunnicutt Professor in Traffic Engineering and Associate Director for Outreach, Auburn University Transportation Research Institute, 2001, PhD Virginia, MS BS Virginia Tech (CIVL)

TUTTLE, MALTI, Associate Professor (SERC)

TZENG, SHU-WEN, Associate Professor, 2008, MID Auburn, BInd Nat'l Cheng Kung (INDD)

U

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V

VACHULA, RICHARD, Assistant Professor, 2022, PhD ScM Brown University, BA BS University of Illinois at Urbana-Champaign (GEOL)

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VALENZUELA, JORGE, Philpott-West Point Stevens Endowed Distinguished Professor, 2000, PhD Pittsburgh, MS Northern Illinois, MS CIENES BSEE Northern Catholic (INSY)

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VANEGAS PEREZ, MARIA ELENA, Visiting Assistant Professor, 202510 (ARCH)

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VARDISHVILI, IA, Assistant Professor (ECON)

VASCONCELOS, JOSE G., Professor, 2010, PhD Michigan, MS BS University of Brasilia (CIVL)

VEITCH, MARGARET, Lecturer (GEOL)

VENDRELL, XAVIER, Professor (ARCH)

VERGARA, DANIEL, Associate Professor, 2021 (FLNG)

VIA, BRIAN, Regions Professor, 2008, PhD Louisiana State, MS BS Virginia Tech (FOWS)

VICKERS, CHRIS, Associate Professor, 2013, PhD MA Northwestern University, BA University of Virginia (ECON)

VILCHES, SILVIA, Associate Professor and Extension Specialist, 2017, PhD MA British Columbia, BA Victoria, British Columbia (HDFS)

VINEL, ALEKSANDR, Associate Professor, 2015, PhD University of Iowa, MS BS Moscow Institute of Physics and Technology (INSY)

VINSON, EDGAR L., Extension Specialist Assistant Res Professor (HORT)

VIRK, SIMER, Associate Professor and Extension Specialist, 2024, PhD University of Georgia, MS Auburn University, BTech Ag Engineering Punjab Agricultural University (BSEN)

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VOLLENWEIDER, MARGARET, Instructor, 2015 (HDFS)

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W

WADA, HARUKA, Professor (BIOL)

WADE, KIM, Professor of Practice (AVTN)

WADSWORTH, DANIELLE, Professor, 2005, PhD Mississippi, MS Baylor, BS Lenoir-Rhyne (KINE)

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WALKER, ALAN, Associate Professor, 2008, PhD Bowling Green State, MA Western Kentucky, BA Auburn (MNGT)

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WALSH, ZACHARY, Assistant Professor, 2025 (MATH)

WALTERS, FRANKLIN D., Associate Professor, 1991, PhD Northern Illinois, MA BS Duquesne (ENGL)

WALZ, PAUL H., Professor, 2004, PhD DVM MS Michigan State University, Diplomate American College of Veterinary Internal Medicine - Large Animal (VMPB)

WALZ, HEATHER, Clinical Professor, 2018, DVM Kansas State University, BS University of Kansas, Diplomate American College of Veterinary Pathologists (VMPB)

WANG, YIFEN, Professor, 2004, PhD Washington State, MS Washington, BS Shanghai Fisheries (BSEN)

WANG, JIN, Walt and Virginia Woltosz Professor, 2006, PhD MS University of Texas at Austin, BS Tsinghua (CHEN)

WANG, WEI, School Head, 1999, MFA Louisiana Tech, BFA Utah State, BA Shenzhen (INDD)

WANG, CHENGMING, Professor, 2016, DVM Anhui Science Technology University, PhD MS Auburn University (VMPB)

WANG, XU, Associate Professor, 2017, PhD Cornell University, BS Fudan University (VMPB)

WANG, XUEYI, Research Professor, 1998, PhD Chinese Academy of Sciences, MS University of Science and Technology of China, BS Anhui Education Institute (PHYS)

WANG, CHIH-HSUAN, Professor, 2013, PhD MPS Auburn University, MS Oklahoma State University, MS National Cheng-Chi University, BS National Cheng-Chi University (EFLT)

WANG, YEN-YAO, Assistant Professor (AVSC)

WANG, ALBERT, Associate Professor, J. Stanley Mackin Distinguished Professor (FINC)

WANG, LIZ, Assistant Professor (FINC)

WANG, TINGTING, Assistant Professor, 2021 (FLNG)

WANG, RONGXUAN, Assistant Professor, 2023, PhD Virginia Tech (INSY)

WANG, JINQUAN, Assistant Research Professor, 2024, Ph.D. Poultry Science, University of Georgia, GA (POUL)

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WATERS, MATT, Assistant Professor (CSES)

WATERS, PHILLIP, Associate Extension Professor, 2002, PhD MS BS Auburn University (FISH)

WATERS, KATELYN M., Assistant Clinical Professor, 2022, DVM BS Auburn University, Diplomate American College of Theriogenologists (VMCS)

WATKINS, G. MICHAEL, Professor and Chair, 1994, PhD Ohio State, MA BA Tennessee (PHIL)

WATSON, GWENDOLYN PAIGE, Assistant Professor, 2023 (PSYC)

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WATTS, SARAH, Associate Professor, 2015, PhD Mercer, MSN BSN Samford (NURS)

WATTS, KELLI, Associate Clinical Professor (SLHS)

WATTS, DONOVAN, Assistant Professor, 2024 (POLI)

WEAVER, GREG S., Associate Professor and Chair, 1997, PhD Nebraska, MA Central Florida, BS Auburn (SOCY)

WEAVER, AURORA, Assistant Professor (SLHS)

WEAVER, JOSH, Lecturer, 2022 (HORT)

WEBB, JILLA, Professor of Practice, 2021 (MUSI)

WEBER, PETER, Associate Professor, PhD Indiana University, MFA Florida State University, Laurea Quadriennale University of Bologna (CADS)

WEBER, MARIAH, Director of the Harris Early Learning Center, 2021, PhD University of Alabama at Birmingham (HDFS)

WEHRS, DONALD R., Hargis Professor of English Literature, 1988, PhD MA Virginia, BA Williams (ENGL)

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WEIGEL, ROBERT G., Professor and Auburn Global Academic Director, 1993, PhD MA New York-Albany (FLNG)

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WELLS, JULIE, Associate Clinical Professor, MSW Florida State University, BSW Troy State University (SOCY)

WELLS, KEVIN, Instructor, 2021 (SCMN)

WERNEKE, DAVID, Collections Manager, 2005, MS BS Auburn (BIOL)

WERNER, DANILEA, Associate Professor, 2009, PhD MSW MPH St. Louis, BA Huntingdon (SOCY)

WESSON, LIESL, Lecturer, 2020, MS Texas AM, BBA Baylor (MNGT)

WESSON, MICHAEL, Professor, Chair, and Associate Dean for Graduate and Executive Programs, 2019, PhD Michigan State, MS Texas AM, BBA Baylor (MNGT)

WEST, RACHEL, Assistant Professor, 2021, PhD Colorado State University, MS BS University of Georgia, (VMAP)

WESTRICK, SALISA C., Sterling Professor and Head, 2005, PhD Wisconsin-Madison, MS Illinois State, BS Chulalongkorn (HORP)

WETZEL, ERIC, Associate Professor, 2016, PhD Virginia Tech, MBC Auburn University, BS Western Kentucky University (BSCI)

WEYHENMEYER, JAMES, Professor, 2019, PhD Indiana University, BA Knox College (VMAP)

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WHELAN, NATHAN, Assistant Research Professor, 2018, PhD University of Alabama, BS Truman State University (FISH)

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WILLIAMS, RICHARD R., Senior Lecturer, 2015 (MECH)

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WILLIAMS, GEOFFREY, R., Associate Professor (ENPL)

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WITTE, MARIA M., Professor and Associate Dean, Graduate School, 1999, EdD South Florida, MPA Oklahoma, BA Maryland (EFLT)

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WOHLEB, ELISHA C., Clinical Professor, 2007, PhD EdS MEd BS Auburn (CTCH)

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WOROSZ, MICHELLE, Professor, 2006, PhD MS BS Michigan State (AGEC)

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Accelerated Bachelor's/Master's (ABM) Programs

College	Department	Undergraduate Major(s)	Graduate Program(s)	Dual-Counted Hours	Minimum GPA for Admission	Estimated Length for Completion	Bulletin Link
Agriculture	Agricultural Economics and Rural Sociology	Agricultural Business and Economics, Agribusiness (minor)	MS Agricultural Economics	9	3.4	5 years	Curriculum (p. 1472)

Agriculture	Biosystems Engineering	Biological and Agricultural Technology Management	MS Biological and Agricultural Technology Managment	9	3.4	5 years	Curriculum (p. 1474)
Agriculture	Crop, Soil and Environmental Sciences	Crop and Soil Science, Environmental Sciences	MS Crop, Soil and Environmental Sciences	9	3.4	5 years	Curriculum (p. 1485)
Agriculture	Entomology and Plant Pathology	Crop and Soil Science, Environmental Sciences, Horticulture, Biological Sciences, Forestry	MS Plant Pathology, MS Entomology	9	3.4	5 years	Curriculum (p. 1488)
Agriculture	Horticulture	Horticulture	MS Horticulture, Master of Agriculture in Horticulture	9	3.4	5 years	Curriculum (p. 1494)
Agriculture	Poultry Science	Poultry Science (minor)	MS Poultry Science, Master of Agriculture in Poultry Science	9	3.4	5 years	Curriculum (p. 1504)
Agriculture	School of Fisheries, Aquaculture, and Aquatic Sciences	Fisheries, Aquaculture, and Aquatic Sciences	MS Fisheries, Aquaculture, and Aquatic Sciences, Master of Aquaculture in Fisheries, Aquaculture, and Aquatic Sciences	9	3.4	5 years	Curriculum (p. 1490)
Architecture, Design, and Construction	School of Industrial and Graphic Design	Industrial Design	Master of Industrial Design	9	3.4	5 years	Curriculum (p. 1499)
Business	School of Accountancy	Accountancy	Master of Accountancy	9	3.5	5 years	Curriculum (p. 1471)
Engineering	Aerospace Engineering	Aerospace Engineering	MS Aerospace Engineering	9	3.4	5 years	Curriculum (p. 1472)
Engineering	Biosystems Engineering	Biosystems Engineering	MS Biosystems Engineering	9	3.4	5 years	Curriculum (p. 1477)
Engineering	Chemical Engineering	Chemical Engineering	MS Chemical Engineering	9	3.4	5 years	Curriculum (p. 1479)
Engineering	Civil and Environmental Engineering	Civil Engineering	Master of Civil Engineering	6	3.4	5 years	Curriculum (p. 1480)

Engineering	Computer Science and Software Engineering	Computer Science, Software Engineering	MS Computer Science and Software Engineering, MS Cybersecruity Engineering, MS Data Science and Engineering	9	3.4	5 years	Curriculum (p. 1481)
Engineering	Electrical and Computer Engineering	Electrical Engineering, Computer Engineering	MS Electrical and Computer Engineering	9	3.4	5 years	Curriculum (p. 1487)
Engineering	Industrial and Systems Engineering	Industrial and Systems Engineering, Business Engineering Technology (minor)	MS Industrial and Systems Engineering, Master of Engineering Management	9	3.4	5 years	Curriculum (p. 1498)
Engineering	Materials Engineering	Materials Engineering	MS Materials Engineering	9	3.4	5 years	Curriculum (p. 1500)
Engineering	Mechanical Engineering	Mechanical Engineering	MS Mechanical Engineering	9	3.4	5 years	Curriculum (p. 1501)
Human Sciences	Consumer and Design Sciences	Apparel Merchandising, Design and Production Management	MS Consumer and Design Sciences	9	3.4	5 years	Curriculum (p. 1482)
Human Sciences	Human Sciences	Global Studies in Human Sciences	Master of Development Practice	9	3.4	5 years	Curriculum (p. 1493)
Human Sciences	Nutritional Sciences	Nutrition	MS Nutrition	5-8	3.4	5 years	Curriculum (p. 1502)
Liberal Arts	Psychological Sciences	Psychology	MS Industrial and Organizational Psychology	9	3.4	5 years	Curriculum (p. 1496)
Liberal Arts	Political Science	Public Administration, Political Science (concentration or minor in Public Administration)	Master of Public Administration	12	3.4	6 years	Curriculum (p. 1505)
Science and Mathematics	Biology	Organismal Biology, Micro Biology, Genetics	MS Biological Sciences	9	3.4	5 years	Curriculum
Science and Mathematics	Geosciences	Geography	MS Geography	9	3.4	5 years	Curriculum (p. 1491)

Science and Mathematics	Geosciences	Geology	MS Geology	9	3.4	5 years	Curriculum (p. 1492)
Science and Mathematics	Physics	Physics	MS Physics	9	3.4	5 years	Curriculum (p. 1503)
Science and Mathematics	Mathematics and Statistics	Applied Mathematics	MS Data Science and Engineering – Data Science	9	3.4	5 years	Curriculum (p. 1486)

Accountancy — ABM

Accelerated Bachelor's/Master's Curriculum for the School of Accountancy

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students in the School of Accountancy an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional accounting students to count up to 9 hours toward both the bachelor's and master's degrees. Please see the School Accountancy website for additional information.

Below is a chart of all the approved electives that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
ACCT 6130	Advanced Accounting Topics (Replaces ACCT 5130 Advanced Accounting Topics)	3
ACCT 6420	Income Tax II (Replaces ACCT 5420 Income Tax II)	3
ACCT 6610	Governmental and Not-for-Profit Accounting (Replaces ACCT 5610 Governmental and Not-for-Profit Accounting)	3
ACCT 6700	Advanced Business Law (Replaces ACCT 5700 Advanced Business Law)	3
ACCT 6810	Corporate Governance & Accounting Ethics (Replaces ACCT Elective)	3

Senior Year for Students in ABM Program - Bachelor of Science in Business Administration, Accounting Major

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior			
Fall	**Hours**	**Spring**	**Hours**
ACCT 5520 Accounting Analytics	**3**	**ACCT 5210 Cost Accounting**	**3**
*Accounting Elective	6	*Accounting Elective or Business Elective	3
MNGT 4800 Strategic Management	3	Business Elective	3
BUSI 4010 Professional and Career Development in Business IV	1	Elective	6
Elective	6	UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Accountancy

First Year					
Summer	**Hours**	**Fall**	**Hours**	**Spring**	**Hours**
ACCT 7110 Research in Accounting	3	ACCT 7410 Federal Tax Research	3	ACCT 6310 Advanced Auditing & Assurance Services	3
Elective Courses	6	ACCT 7510 Integrated Accounting Applications	3	ACCT 7710 Professional Development	0

	Elective Courses 3	
9	**9**	**3**

Total Hours: 21

Aerospace Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for Aerospace Engineering

The Aerospace Engineering ABM program provides an opportunity for highly motivated undergraduate students to gain a depth of understanding and experience of aerospace engineering beyond that of typical bachelor's level graduates. There is currently a strong demand in industry for aerospace engineers with advanced degrees and this program will enable our students to attain this degree in 3 semesters instead of 4. The Bachelor of Aerospace Engineering undergraduate major can lead to a Master of Science in Aerospace Engineering (thesis or non-thesis) in the ABM track. Please see the Department of Aerospace Engineering's website for additional information.

- AERO 6xx0/7xx0 courses are approved courses that can be taken in the ABM program that replace Aero/Astro Electives at the undergraduate level.
- MATH 6630 can be taken in the ABM program to replace MATH 5630.

Junior/Senior Year for Students in ABM Program - Aerospace Engineering

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
AERO 4140 Aerodynamics III	3	AERO 4630 Aerospace Structural Dynamics	4
AERO 4510 Aerospace Propulsion	4	AERO 4720 Aerospace Design II: Aircraft Design	3
AERO 4620 Aerospace Structures II	4	*Aero/Astro 6xxx/7xxx	6
AERO 4710 Aerospace Design I: Aircraft Design	3	AERO 4AA0 Program Assessment	0
		Core Social Science	3
		UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Aerospace Engineering Curriculum Model (non-thesis)

Fifth Year

Fall	Hours	Spring	Hours
Aero 6xxx/7xxx	6	Aero 6xxx/7xxx	9
6xxx-7xxx technical courses in engineering, science, or mathematics	6	6xxx-7xxx technical courses in engineering, science, or mathematics	3
	12		**12**

Total Hours: 24

Agricultural Economics and Rural Sociology — ABM

Accelerated Bachelor's/Master's Curriculum for the Department of Agricultural Economics and Rural Sociology

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students in the Department of Agricultural Economics and Rural Sociology (AGEC) an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional AGEC students to count up to 9 hours toward both the bachelor's and master's degrees.

The Bachelor of Science in Agricultural Business and Economics or the Agribusiness Minor can lead to a Master of Science in Agricultural Business and Economics (thesis or non-thesis) in the ABM track. Below is an example curriculum for a student in the Bachelor of Science in Agricultural Business and Economics pursuing the Master of Science in Agricultural Business and Economics (thesis). Please see the Department of Agricultural Economics and Rural Sociology website for additional information, ABM tracks and curriculum models.

Below is a chart of all the approved courses that can be taken in the ABM program and the course that it replaces at the undergraduate level.

Code	Title	Hours
AGEC 6010	Farm Management (Replaces AGEC 5010 Farm Management)	3
AGEC 6030	Agricultural Prices (Replaces AGEC 5030 Agricultural Prices)	3
AGEC 6090	Environmental and Natural Resource Economics I (Replaces AGEC 5090 Environmental and Natural Resources Economics I)	3
AGEC 6100	Agricultural Business Management (Replaces AGEC 5100 Agricultural Business Management)	3
ECON 6020	Advanced Microeconomics (Replaces Professional Elective)	3
AGEC 6250	Big Data for Agribusiness Management	3

Senior Year for Students in ABM Program - Agricultural Business and Economics

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
AGEC 4070 Agricultural Law	3	*AGEC 5010 Farm Management	3
*AGEC 5090 Environmental and Natural Resource Economics I	3	*AGEC 5030 Agricultural Prices	3
*AGEC 5100 Agricultural Business Management	3	UNIV 4AA0 Achieve the Creed	0
*Professional Elective	3	*Professional Elective	3
		Free Elective	2-4

Accelerated Master of Science in Agricultural Economics (thesis)

Fifth Year

Fall	Hours	Spring	Hours	Summer	Hours
ECON 6020 Advanced Microeconomics	3	AGEC 7990 Research and Thesis	3	AGEC 7990 Research and Thesis	3
AGEC 7590 Introduction to Agricultural Econometrics	3	AGEC 7100 Operations Research Methods in Agricultural Economics	3		
AGEC 7700 Research Methods in Agricultural Economics	3	Elective: 6000-8999	3		
	9		**9**		**3**

Total Hours: 21

Biological and Agricultural Technology Management — ABM

The Accelerated Bachelor's/Master's degree program is designed to provide an opportunity for highly motivated students to gain an in-depth understanding of biological and agricultural technology management beyond that of typical bachelor's level graduates and make them more competitive for industrial positions or for graduate studies. Specifically, the program allows students to take three 6000 level courses (minimum of 9 credit hours) that will count for both the bachelor's and master's degrees. The ABM program can be applied towards the non-thesis or thesis option of the BATM M.S. degree. In addition, the ABM program provides an opportunity for students involved in undergraduate research to build on and develop the research as part of the M.S. thesis requirement. The availability of an ABM will be useful in recruiting and attracting highly motivated high school students. Finally, the ABM program allows students to obtain a non-thesis M.S. degree in 12 months or obtain a thesis-based M.S. degree in about 18 months after earning a Bachelor of Science degree in Biological and Agricultural Technology Management. Note that the duration of the thesis-based M.S. degree is highly dependent on the type of research conducted for the M.S. degree. Students who are interested in the ABM program are highly encouraged to discuss with the department head or the BSEN Graduate Program Officer.

Code	Title	Hours
BATM 6150	Drone Technologies in Agricultural and Biological Systems	3
BATM 6120	Agri-Industrial Electronics and Controls	3
BATM 6140	Commercial Poultry and Livestock Housing	3
BATM 6130	Precision Ag Technology	3
AGRI 6010	Analysis of Plant, Soil & Animal Data	3

Above table are the approved courses that can be taken in the ABM program and the courses that they replace at the undergraduate level.

The table below shows the senior year for students in the BATM-ABM program. Those marked with asterisks are those that can be substituted with graduate level courses by the ABM students to simulteanously meet the requirements for nine (9) undergraduate hours during their senior year and nine (9) graduate hours to be used for the graduate degree.

Senior				
Fall	**Hours**		**Spring**	**Hours**
BATM 4100 Professional Practice in Technology Management		2	BATM 4110 Technology Capstone	3
BATM 5120 Agri-Industrial Electronics and Controls (*)		3	BATM 5150 Drone Technologies in Agricultural and Biological Systems (*)	3
BATM 5140 Commercial Poultry & Livestock Housing (*)		3	Core Social Science	3
Core Literature		3	Technical Elective 4*	3
Technical Elective 3*		3	Technical Elective 5*	3

Biological Sciences - ABM

Accelerated Bachelor’s/Master’s Curriculum for Biological Sciences - Organismal Biology

The Accelerated Bachelor’s/Master’s degree program is designed to provide an opportunity for highly motivated students to gain an in-depth understanding of Biological Sciences - Organismal Biology beyond that of typical bachelor’s level graduates and make them more competitive for industrial positions or for graduate studies. Specifically, the program allows students to take three 6000 level courses (9 credit hours) that will count for both the bachelor’s and master’s degrees. The ABM program can be applied towards the thesis option of the BIOL M.S. degree. In addition, the ABM program provides an opportunity for students involved in undergraduate research to build on that research and develop it into an M.S. thesis. The availability of an ABM will be useful in recruiting and attracting highly motivated high school students. Finally, the ABM program allows students to obtain a M.S. degree in 12 - 15 months. Students who are interested in the ABM program are highly encouraged to discuss with the department head or the BIOL Graduate Program Officer

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
IBIO Pathway:		
BIOL 7540	Professional Aspects of Biology (Replaces 5000 level BIOL elective)	3
BIOL 6XXX/7XXX Eco/Evo/Devo elec. (replaces 5000 level Eco/Evo/Devo elective)		3
BIOL 6XXX/7XXX Physiology elec. (replaces 5000 level Physiology elective)		3
MCMB Pathway:		
BIOL 7540	Professional Aspects of Biology (Replaces 5000 level BIOL elective)	3
BIOL 6210	Microbial Physiology (Replaces BIOL 5210)	3
BIOL 6260	Prokaryotic Molecular Genetics (Replaces BIOL 5260)	3
GENE Pathway:		
BIOL 7540	Professional Aspects of Biology (Replaces 5000 level BIOL elective)	3
BIOL 6330	Developmental Genetics (Replaces BIOL 5330 Developmental Genetics)	3
BIOL 6xxx GENE Supp Elective (replaces BIOL 5xxx GENE Supp Elective)		3

Courses can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior Year for Students in ABM Program - Organismal/Integrative Biology (IBIO)

Senior					
Fall	**Hours**	**Spring**	**Hours**	**Summer**	**Hours**
Core Fine Arts	3	BIOL 4950 Senior Seminar	1	BIOL 7990 Research and Thesis	4
BIOL 6/7xx Eco/Evo/Div Elective	3	Cell/Mol/Microbiology Elective	3		
Cell/Mol/Microbiology Elective	4	BIOL 6/7xxx Physiology Elective	3		
Biology Elective	4	Biology Elective	3		
BIOL 7540 Professional Aspects of Biology	3	BIOL 4980 Undergraduate Research	4		
	17		**14**		**4**

Total Hours: 35

Accelerated Master of Science in Biological Sciences

Fifth Year			
Fall	**Hours**	**Spring**	**Hours**
BIOL 6/7xxx Elective	4	BIOL 6/7xxx Elective	3
BIOL 6/7xxx Elective	3	BIOL 7960 Special Problems	2
BIOL 7960 Special Problems	2	BIOL 7950 Masters Thesis Seminar	1
BIOL 7990 Research and Thesis	2		
	11		**6**

Total Hours: 17

Senior Year for Students in ABM Program - Microbial, Cellular, and Molecular Biology (MCMB)

Senior

Fall	Hours	Spring	Hours	Summer	Hours
BIOL 6260 Prokaryotic Molecular Genetics	3	BIOL 6210 Microbial Physiology	3	BIOL 7990 Research and Thesis	1
BIOL 6521 Gene Expression and Recombinant DNA Laboratory	2	MMCB Elective	3		
BIOL 7540 Professional Aspects of Biology	3	BIOL 4980 Undergraduate Research	2		
CORE SOC SCI or HUM	3	BIOL Elective	3		
CORE HUMANITES	3	CORE SOCIAL SCIENCES	3		
BIOL 4980 Undergraduate Research	2	BIOL 4950 Senior Seminar	1		
	16		**15**		**1**

Total Hours: 32

Accelerated Master of Science in Biological Sciences

Fifth Year

Fall	Hours	Spring	Hours	Summer	Hours
MMCB elective	3	MMCB elective	3	BIOL 7990 Research and Thesis	1
BIOL 6xxx MMCB graduate journal club	2	BIOL 6xxx MMCB graduate journal club	2	BIOL 7950 Masters Thesis Seminar	1
BIOL 7960 Special Problems	2	BIOL 7960 Special Problems	2		
BIOL 7990 Research and Thesis	2	BIOL 7990 Research and Thesis	2		
	9		**9**		**2**

Total Hours: 20

Senior Year for Students in ABM Program - Genetics (GENE)

Senior

Fall	Hours	Spring	Hours	Summer	Hours
GENE CORE Elective	5	BIOL 6330 Developmental Genetics	3	BIOL 7990 Research and Thesis	1
GENE SUPP Elective	5	GENE CORE Elective	3		
CORE HUMANITES	3	GENE SUPP Elective	5		
BIOL 7540 Professional Aspects of Biology	3	BIOL 4950 Senior Seminar	1		
BIOL 4AA0 Professional Development II	0	Free Elective	4		
		UNIV 4AA0 Achieve the Creed	0		
	16		**16**		**1**

Total Hours: 33

Accelerated Master of Science in Biological Sciences

Fifth Year

Fall	Hours	Spring	Hours	Summer	Hours
GENE CCORE elective	3	GENE SUPP Elective	3	BIOL 7990 Research and Thesis	1
BIOL 6xxx graduate journal club	2	BIOL 6xxx graduate journal club	2	BIOL 7950 Masters Thesis Seminar	1
BIOL 7960 Special Problems	2	BIOL 7960 Special Problems	2		
BIOL 7990 Research and Thesis	2	BIOL 7990 Research and Thesis	2		
	9		**9**		**2**

Total Hours: 20

Biosystems Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for Biosystems Engineering

The Accelerated Bachelor's/Master's degree program is designed to provide an opportunity for highly motivated students to gain an in-depth understanding of Biosystems Engineering beyond that of typical bachelor's level graduates and make them more competitive for industrial positions or for graduate studies. Specifically, the program allows students to take three 6000 level courses (minimum of 9 credit hours) that will count for both the bachelor's and master's degrees. The ABM program can be applied towards the non-thesis or the thesis option of the BSEN M.S. degree. In addition, the ABM program provides an opportunity for students involved in undergraduate research to build on that research and develop it into an M.S. thesis. The availability of an ABM will be useful in recruiting and attracting highly motivated high school students. Finally, the ABM program allows students to obtain a non-thesis M.S. degree in 12 months or obtain a thesis-based M.S. degree in about 18 months after earning a Bachelor of Biosystems Engineering degree. Note that the duration of the thesis-based M.S. degree is highly dependent on the type of research conducted for the M.S. degree. Students who are interested in the ABM program are highly encouraged to discuss with the department head or the BSEN Graduate Program Officer

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
BSEN 6220	Geospatial Technologies in Biosystems (Replaces BSEN 5220 Geospatial Technologies in Biosystems)	3
BSEN 6230	Waste Management and Utilization for Biosystems (Replaces BSEN 5230 Waste Management and Utilization for Biosystems)	3
BSEN 6280	Life-Cycle Assessment for Biological Systems (Replaces BSEN 5280 Life-Cycle Assessment for Biological Systems)	3
BSEN 6510	Ecological Engineering (Replaces BSEN 5510 Ecological Engineering)	3
BSEN 6520	Watershed Modeling (Replaces BSEN 5520 Watershed Modeling)	3
BSEN 6540	Biomass and Biofuels Engineering (Replaces BSEN 5540 Biomass and Biofuels Engineering)	3
BSEN 6560	Site Design for Biosystems (Replaces BSEN 5560 Site Design for Biosystems)	3
FOEN 6230	Engineered Wood Structure Design (Replaces FOEN 5230 Engineered Wood Structure Design)	3

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior Year for Students in ABM Program - Biosystems Engineering

Senior

Fall	Hours	Spring	Hours
BSEN 3210 Mechanical Power for Biosystems	3	Literature Core	3
BSEN 4210 Irrigation System Design	3	Fine Arts Core	3
BSEN 4300 Professional Practice in Biosystems Engineering	2	BSEN 4310 Engineering Design for Biosystems	3
PHIL 1040 Business Ethics ***or*** 1020 Introduction to Ethics	3	*Biosystems Engineering Elective	3
*BSEN 5220 Geospatial Technologies in Biosystems	3	*BSEN 5230 Waste Management and Utilization for Biosystems	3
*Biosystems Engineering Elective	3	UNIV 4AA0 Achieve the Creed	0

Senior Year for Students in ABM Program - Biosystems Engineering (Bioprocess Engineering Option)

Senior

Fall	Hours	Spring	Hours
*BSEN 5280 Life-Cycle Assessment for Biological Systems	3	BSEN 4310 Engineering Design for Biosystems	3
*BSEN 5540 Biomass and Biofuels Engineering	3	Literature Core	3
BSEN 4300 Professional Practice in Biosystems Engineering	2	*BSEN 5230 Waste Management and Utilization for Biosystems	3
PHIL 1020 Introduction to Ethics ***or*** 1040 Business Ethics	3	Fine Arts Core	3
*Bioprocessing Engineering Elective	3	*Bioprocessing Engineering Elective	3
*BSEN 5220 Geospatial Technologies in Biosystems	3	UNIV 4AA0 Achieve the Creed	0

Senior Year for Students in ABM Program - Biosystems Engineering (Ecological Engineering Option)

Senior

Fall	Hours	Spring	Hours
BSEN 4300 Professional Practice in Biosystems Engineering	2	Literature Core	3
*BSEN 5220 Geospatial Technologies in Biosystems	3	PHIL 1020 Introduction to Ethics ***or*** 1040 Business Ethics	3
*BSEN 5510 Ecological Engineering	3	BSEN 4310 Engineering Design for Biosystems	3
*Ecological Engineering Elective	3	*BSEN 5230 Waste Management and Utilization for Biosystems	3
*BSEN 5560 Site Design for Biosystems	3	*BSEN 5520 Watershed Modeling	3
Ecology Elective	3	UNIV 4AA0 Achieve the Creed	0

Senior Year for Students in ABM Program - Biosystems Engineering (Forest Engineering Option)

Senior

Fall	Hours	Spring	Hours
*BSEN 5220 Geospatial Technologies in Biosystems	3	BSEN 4310 Engineering Design for Biosystems	3
*BSEN 5560 Site Design for Biosystems	3	*Forest Engineering Elective	3
FOEN 5710 Systems Analysis for Forestry and Biological Operations	3	PHIL 1040 Business Ethics ***or*** 1020 Introduction to Ethics	3
FORY 5230 Silviculture	4	Literature Core	3
BSEN 4300 Professional Practice in Biosystems Engineering	2	UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Biosystems Engineering (non-thesis)

First Year

Fall	Hours	Spring	Hours
BSEN 6250 Deterministic Modeling for Biosystems	3	BSEN 7950 Seminar	1
BSEN/Engineering/STAT Electives	8	BSEN/Engineering/STAT Electives	9
	11		**10**

Total Hours: 21

Chemical Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for Chemical Engineering

The Chemical Engineering Accelerated Bachelor's/Master's Program (ABM) provides an opportunity for highly motivated undergraduate students to gain a depth of understanding and experience of chemical engineering beyond that of typical bachelor's level graduates. The ABM program allows these exceptional students to count up to 9 hours toward both the bachelor's and master's degrees.

The Bachelor of Chemical Engineering undergraduate major can lead to a Master of Science in Chemical Engineering (thesis or non-thesis) in the ABM track. Please see the Department of Chemical Engineering website for additional information.

Senior Year for Students in ABM Program - Chemical Engineering

CHEN 6xxx/7xxx elective courses are approved courses that can be taken in the ABM program that replace CHEN electives at the undergraduate level.

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
CHEN 4170 Digital Process Control	3	CHEN 4470 Process Design Practice	3
CHEN 4450 Process Economics and Safety	3	*CHEN 6xxx/7xxx Elective	3
CHEN 4460 Process Simulation Synthesis and Optimization	2	*CHEN 6xxx/7xxx Elective	3
CHEN 4860 Chemical Engineering Laboratory II	2	Core Fine Arts	3
*CHEN 6xxx/7xxx Elective	3	Core Social Science	3
Core Literature	3	UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Chemical Engineering (non-thesis)

Fifth Year			
Fall	**Hours**	**Spring**	**Hours**
CHEN 7100 Transport Phenomena	3	CHEN 7250 Chemical Reaction Engineering	3
CHEN 7200 Chemical Engineering Thermodynamics	3	CHEN/Other 6xxx/7xxx Elective	3
CHEN 6xxx/7xxx Elective	3	CHEN/Other 6xxx/7xxx Elective	3
CHEN/Other 6xxx/7xxx Elective	3		
	12		**9**

Total Hours: 21

Accelerated Master of Science in Chemical Engineering (thesis)

Fifth Year					
Summer	**Hours**	**Fall**	**Hours**	**Spring**	**Hours**
CHEN 7990 Research and Thesis	1	CHEN 7100 Transport Phenomena	3	CHEN 7250 Chemical Reaction Engineering	3
		CHEN 7200 Chemical Engineering Thermodynamics	3	CHEN/Other 6xxx/7xxx Elective[1]	3
		CHEN 7950 Graduate Seminar	1	CHEN 7950 Graduate Seminar	1
		CHEN 7990 Research and Thesis	1	CHEN 7990 Research and Thesis	1
	1		**8**		**8**

Sixth Year			
Summer	**Hours**	**Fall**	**Hours**
CHEN 7990 Research and Thesis	1	CHEN 7950 Graduate Seminar	1
		CHEN 7990 Research and Thesis	2
	1		**3**

Total Hours: 21

1 See advisor for approved course listing.

Civil Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for Civil Engineering

The Civil Engineering Accelerated Bachelor's/Master's Program (ABM) provides an opportunity for highly motivated undergraduate students to gain a depth of understanding and experience of civil engineering beyond that of typical bachelor's level graduates. There is currently a strong demand in the industry for civil engineers with advanced degrees. Application and matriculation requirements apply to interested students. The Bachelor of Civil Engineering undergraduate major can lead to a Master of Civil Engineering in the ABM track. Please see the Department of Civil and Environmental Engineering website for additional information.

CIVL 6xx0/7xx0 electives are approved courses that can be taken in the ABM program that replace Technical Elective I & II at the undergraduate level.

Senior Year for Students in ABM Program - Civil Engineering

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet six undergraduate hours during their senior year and six graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
PHIL 1040 Business Ethics ***or*** 1110 Ethical and Conceptual Foundations of Science	3	Core Fine Arts	3
Science Elective	4	Core History/Social Science	3
Breadth Elective I	3	Breadth Elective III	3
Breadth Elective II	3	*CIVL 6xxx/7xxx Elective	3
*CIVL 6xxx/7xxx Elective	3	Senior Design Project Elective	3
		UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Civil Engineering Curriculum Model

First Year

Fall	Hours	Spring	Hours
CIVL 6xxx/7xxx Elective	12	CIVL 6xxx/7xxx Elective	12
	12		**12**

Total Hours: 24

Computer Science and Software Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for the Department of Computer Science and Software Engineering

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students in the Department of Computer Science and Software Engineering (CSSE) an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional CSSE students to count up to 9 hours toward both the bachelor's and master's degrees.

Two CSSE undergraduate majors (CSCI or SWEN) can lead to a Master of Science in Computer Science and Software Engineering (thesis and non-thesis), Cybersecurity Engineering (non-thesis), or Data Science and Engineering (non-thesis) in the ABM track. Below is an example curriculum for a student in CSCI or SWEN pursing the MS in Computer Science and Software Engineering (non-thesis). Please see the Department of Computer Science and Software Engineering website for additional information and ABM tracks.

Senior Year for Students in ABM Program - Computer Science

COMP 6xxx ABM Electives are approved courses that can be taken in the ABM program to replace the Technical Electives at the undergraduate level for students pursuing the Bachelor of Science in Computer Science.

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
Humanities/Social Science Elective	3	Concentration	3
Concentration	3	COMP 4730 Computer Ethics	2
COMP 4200 Formal Languages	3	*COMP 6xxx ABM Elective	6

COMP 4320 Introduction to Computer Networks	3	UNIV 4AA0 Achieve the Creed	0
*COMP 6xxx ABM Elective	3		

Senior Year for Students in ABM Program - Software Engineering

COMP 6xxx ABM Electives are approved courses that can be taken in the ABM program to replace either required 5xxx courses or the Technical Electives at the undergraduate level for students pursuing the Bachelor of Software Engineering.

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
COMP 4300 Computer Architecture	3	Free Elective or ROTC	3
COMP 4320 Introduction to Computer Networks	3	COMP 4710 Senior Design Project	3
COMP 5700 Secure Software Process	3	COMP 4730 Computer Ethics	2
*COMP 6xxx ABM Elective	6	COMP 5710 Software Quality Assurance	3
		*COMP 6xxx ABM Elective	3
		UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Computer Science Software Engineering Curriculum Model (non-thesis)

First Year

Fall	Hours	Spring	Hours	Summer	Hours
COMP 6xxx-8xxx Elective	3	COMP 6xxx-8xxx Elective	6	COMP 6xx0/7xx0 Elective	6
COMP 7270 Advanced Topics in Algorithms	3	COMP 7500 Advanced Topics in Operating Systems	3		
COMP 7300 Advanced Computer Architecture	3				
	9		**9**		**6**

Total Hours: 24

Consumer and Design Sciences — ABM

Accelerated Bachelor’s/Master’s Curriculum for the Department of Consumer and Design Sciences

The Accelerated Bachelor’s/Master’s Program (ABM) offers outstanding students in the Department of Consumer and Design Sciences an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual.

Two Consumer and Design Sciences undergraduate majors (Apparel Merchandising, Design and Production Management or Interior Design) can lead to a Master of Science in Consumer and Design Sciences in the ABM track. Below are example curricula for a student in Apparel Merchandising, Design and Production Management or Interior Design pursing the MS in Consumer and Design Sciences.

Apparel Merchandising, Design and Production Management

The ABM in Apparel Merchandising, Design and Production Management (AMDP) degree program will provide an opportunity for highly motivated and academically strong students to gain a depth of understanding of apparel merchandising, design, and product development beyond that of typical bachelor's level graduates. It should make them more competitive in the job market or for additional graduate studies. The ABM program allows these exceptional students to count up to nine hours toward both the bachelor's and master's degrees.

Students with at least 45 credit hours but no more than 96 and a 3.4 GPA will be eligible to apply for the program. Applications for the ABM Program will consist of plans of study for both the Bachelor of Science in AMDP and the Master of Science in Consumer and Design Sciences. Applications will be due October 1 in the Fall of the Junior Year. Upon approval by the Undergraduate Program Coordinator, the Graduate Program Officer and the Department Head, students will be admitted to the accelerated program and may register in the 6000-level courses at the appropriate time in their plan of study. This would begin in the spring of the junior year of their undergraduate program and continue until the last semester in the normal bachelor's degree program at which time the B.S. degree will be awarded.

The Master of Science in Consumer and Design Sciences would be completed in May of the second year in the advanced degree program. Nearing or on completion of the BS degree, students must apply to the Graduate School and be accepted into the MS program in the Department of Consumer and Design Sciences.

All undergraduate students enrolled in the program will be required to meet with the undergraduate program coordinator each semester before registering. Graduate students will have a major professor directing their thesis research. The Graduate Program Officer is available as needed. Please see the Department of Consumer and Design Sciences website for additional information.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
CADS 6450	History Of Costume (Replaces CADS 5450 History Of Costume)	3
CADS 6460	Fashion Industry Since 1910 (Replaces CADS 5460 Fashion Industry Since 1910)	3
CADS 6500	Apparel Merchandising Portfolio (Replaces CADS 5500 Apparel Merchandising Portfolio)	2
CADS 6510	Digital Retailing for Apparel (Replaces CADS 5510 Digital Retailing for Apparel)	3
CADS 6600	Global Sourcing in Textiles and Apparel (Replaces CADS 5600 Global Sourcing in Textiles and Apparel)	3
CADS 6610	Global Retailing Strategies for Textile and Apparel Products (Replaces CADC 5610 Global Retailing Strategies for Textile and Apparel Products)	3
CADS 6700	Entrepreneurship in Apparel and Interiors (Replaces CADS 5700 Entrepreneurship in Apparel and Interiors)	3
CADS 6750	Apparel Line Development (Replaces CADS 5750 Apparel Line Development)	4
CADS 6760	Fashion Analysis and Forecasting (Replaces CADS 5760 Fashion Analysis and Forecasting)	3
CADS 6850	Apparel Merchandising and Retail Management (Replaces CADS 5850 Apparel Merchandising and Retail Management)	4
CADS 6860	Advanced Retail Buying (Replaces CADS 5860 Advanced Retail Buying)	3

Junior/Senior Year for Students in ABM - Apparel Merchandising, Design and Production Management

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet up to nine undergraduate hours during their junior and senior year and up to nine graduate hours to be used toward their graduate degree.

Junior

Spring	Hours
CADS 3850 Merchandise Planning and Control	3
*CADS 5600 Global Sourcing in Textiles and Apparel	3
NTRI 2000 Nutrition And Health	3
Core Literature	3
Core Science Sequence	4

Senior

Fall	Hours	Spring	Hours	Summer	Hours
CADS 4800 Apparel Engineering	4	*CADS 5450 History Of Costume		UNIV 4AA0 Achieve the Creed	0
*CADS 5460 Fashion Industry Since 1910	3	*CADS 5750 Apparel Line Development	4	CADS 4930 Apparel Merchandising, Design and Production Management Internship	9
*CADS 5760 Fashion Analysis And Forecasting	3	*Professional Electives	7		
Core Social Science	3				

Accelerated Master of Science in Consumer and Design Sciences

First Year

Fall	Hours	Spring	Hours
CADS 7040 Protocol for Graduate Study	1	CADS electives to support career goals	10
CADS 7060 Survey of Consumer and Design Sciences Research	3		
CADS electives to support career goals	6		
	10		**10**

Total Hours: 20

Interior Design

The accelerated BS/MS in Interior Design (INDS) degree program will provide an opportunity for highly motivated and academically strong students to gain a depth of understanding of Interior Design beyond that of typical bachelor's level graduates. It should make them more competitive in the job market or for additional graduate studies. The ABM program allows these exceptional students to count up to nine hours toward both the bachelor's and master's degrees.

Students with at least 45 credit hours but no more than 96 and a 3.4 GPA will be eligible to apply for the program. Applications for the accelerated BS/MS in INDS will consist of plans of study for both the Bachelor of Science in INDS and the Master of Science in Consumer and Design Sciences. Applications will be due October 1 in the Fall of the Junior Year. Upon approval by the Undergraduate Program Coordinator, the Graduate Program Officer and the Department Head, students will be admitted to the accelerated program and may register in the 6000-level courses at the appropriate time in their plan of study. This would begin in the fall of the senior year of their undergraduate program and continue until the last semester in the normal bachelor's degree program at which time the B.S. degree will be awarded.

The Master of Science in Consumer and Design Sciences would be completed in May of the second year in the advanced degree program. Nearing or on completion of the BS degree, students must apply to the Graduate School and be accepted into the MS program in the Department of Consumer and Design Sciences.

All undergraduate students enrolled in the program will be required to meet with the undergraduate program coordinator each semester before registering. Graduate students will have a major professor directing their thesis research. The Graduate Program Officer is available as needed.

Please see the Department of Consumer and Design Sciences website for additional information.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
CADS 6100	Interior Design Studio: Commercial (Replaces CADS 5100 Interior Design Studio: Commercial)	4
CADS 6150	Global Issues in Interior Design (Replaces CADS 5150 Global Issues in Interior Design)	3

CADS 6200	Interior Design Portfolio (Replaces CADS 5200 Interior Design Portfolio)	3
CADS 6300	Interior Design Studio: Hospitality (Replaces CADS 5300 Interior Design Studio: Hospitality)	4
CADS 6310	Sustainable Design and LEED Accreditation (Replaces CADS 5310 Sustainable Design and LEED Accreditation)	3
CADS 6350	Interior Design Studio: Advanced Design Project (Replaces CADS 5350 Interior Design Studio: Advanced Design Project)	4
CADS 6400	Interior Design Studio: Design for Health and Wellness (Replaces CADS 400 Interior Design Studio: Design for Health and Wellness)	4

Senior Year for Students in ABM - Interior Design

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet up to nine undergraduate hours during their senior year and up to nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
*CADS 5300 Interior Design Studio: Hospitality	4	CADS 5350 Interior Design Studio: Advanced Design Project	4
CADS 4200 Interior Design Senior Seminar	1	Core Social Sciences	3
*Professional Electives	6	*Professional Elective	3
Core Social Sciences	3	Core Humanities - PHIL	3
		UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Consumer and Design Sciences

First Year

Fall	Hours	Spring	Hours
CADS 7040 Protocol for Graduate Study	1	CADS electives to support career goals	10
CADS 7060 Survey of Consumer and Design Sciences Research	3		
CADS electives to support career goals	8		
	12		**10**

Total Hours: 22

Crop, Soil, and Environmental — ABM

Accelerated Bachelor's/Master's Curriculum for the Department of Crop, Soil and Environmental Sciences

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students in the Department of Crop, Soil and Environmental Sciences an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional students to count up to 9 hours toward both the bachelor's and master's degrees.

The Bachelor of Science in Crop and Soil Science in either the Production Option, Science Option, Soil, Water, and Land Use Option, or the Turfgrass Option, or the Bachelor of Science in Environmental Sciences can lead to a Master of Science in Crop, Soil and Environmental Sciences the ABM track. Below is an example curriculum for a student in the Science Option of Crop and Soil Science pursing the Master of Science in Crop, Soil and Environmental Sciences. Please see the Department of Crop, Soil and Environmental Sciences website for additional information, ABM tracks and curriculum models.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
CSES 6020	Soil Fertility and Nutrient Management (Replaces CSES 5020 Nutrient Management)	3
CSES 6030	Advanced Crop Science (Replaces CSES 5030 Advanced Crop Science)	3
CSES 6060	Soil Microbiology (Replaces CSES 5060 Soil Microbiology)	3
CSES 6080	Soil Resources and Conservation (Replaces CSES 5080 Soil Resources and Conservation)	4
CSES 6150	Soil Morphology (Replaces CSES 5150 Soil Morphology)	4
CSES 6300	Soil Chemistry (Replaces CSES 5300 Soil Chemistry)	4
CSES 6400	Bioenergy and the Environment (Replaces CSES 5400 Bioenergy and the Environment)	3
CSES 6500	Forage Production and Utilization (Replaces CSES 5500 Forage Production and Utilization)	3

Junior and Senior Year for Students in ABM Program - Crop and Soil Sciences - Science Option

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their junior and senior year and nine graduate hours to be used toward their graduate degree.

Junior

Spring	Hours
PLPA 3000 General Plant Pathology	4
BIOL 3000 Genetics	3
*CSES 5150 Soil Morphology	4
PHYS 1500 General Physics I	4

Senior

Fall	Hours	Spring	Hours
BIOL 3200 General Microbiology	3	*CSES 5020 Nutrient Management	3
Core Humanities (Fine Arts)	3	*CSES 5500 Forage Production and Utilization or *CSES 5030 Advanced Crop Science	
ENTM 4020 Economic Entomology	4	UNIV 4AA0 Achieve the Creed	0
CSES 5000 Environmental Quality	3	Core Humanities	3
Free Electives	1	*CSES Elective	4
		CSES 4950 Senior Seminar	2

Accelerated Master of Science in Crop, Science and Environmental Sciences

First Year

Fall	Hours	Spring	Hours
CSES 7950 Seminar	1	CSES 7950 Seminar	1
CSES 6xxx-8xxx Elective	10	CSES 7990 Research and Thesis	4
		CSES 6xxx-8xxx Elective	5
	11		**10**

Total Hours: 21

Data Science and Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for Data Science and Engineering

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students in the Department of Mathematics and Statistics an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional students to count up to nine credit hours toward both the bachelor's and master's degrees. The Bachelor of Science in Applied Mathematics - Applied Discrete Mathematics Option undergraduate major can lead to a Master of Science in Data Science and Engineering - Data Science track in the ABM track. Please see the Department of Mathematics and Statistics for additional information.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
STAT 6000	Intermediate Statistical Methods for Data Science (Replaces STAT 5000 Intermediate Statistical Methods for Data Science)	3
STAT 6650	Statistical Learning (Replaces STAT 5660 Statistical Learning)	3
MATH 6050	Matrix Theory and Applications (Replaces MATH 5060 Matrix Theory and Applications)	3

Senior Year for Students in ABM Program - Applied Mathematics - Applied Discrete Mathematics Option

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
MATH 6370 Linear Algebra	3	MATH 6710 Linear Optimization	3
Discrete Math Electives	3	*STAT 6650 Statistical Learning	3
*STAT 6000 Intermediate Statistical Methods for Data Science	3	*MATH 6050 Matrix Theory and Applications	3
Interdisciplinary Elective	3	Elective	3

Accelerated Master of Science in Data Science and Engineering - Data Science track (non-thesis)

First Year

Fall	Hours	Spring	Hours	Summer	Hours
STAT 6600 Probability and Statistics for Data Science	3	COMP 6630 Machine Learning	3	STAT 7940 Capstone Project	3
COMP 6120 Database Systems I	3	COMP 6130 Data Mining	3		
MATH/STAT Elective	3	MATH/STAT Elective	3		
	9		**9**		**3**

Total Hours: 21

Electrical and Computer Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for the Department of Electrical and Computer Engineering

The Accelerated Bachelor's/Master's Program (ABM) provides an opportunity for highly motivated undergraduate students in the Department of Electrical and Computer Engineering an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional students to count up to 9 hours toward both the bachelor's and master's degrees. Two undergraduate majors (Electrical Engineering and Computer Engineering) can lead to a Master of Science in Electrical and Computer Engineering (thesis and non-thesis) in the ABM Program.

ELEC 6xxx/7xxx elective courses are approved courses that can be taken in the ABM program that replace ELEC electives at the undergraduate level for students pursing the Electrical Engineering Degree. CMPE 6xxx/7xxx elective courses are approved courses

that can be taken in the ABM program that replace CMPE electives at the undergraduate level for students pursing the Computer Engineering Degree.

Below is an example curriculum for a student in Electrical Engineering pursing the MS in Electrical and Computer Engineering (non-thesis). Please see the Department of Electrical and Computer Engineering website for additional information and ABM tracks.

Senior Year for Students in ABM Program - Electrical Engineering

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
ELEC 3400 Communication Systems	3	ELEC 4020 Capstone Design II	3
ELEC 4010 Capstone Design I	1	*ELEC 6xxx/7xxx Elective	6
*ELEC 6xxx/7xxx Elective	3	PHIL 1xxx Ethics	3
ENGR 2200 Introduction To Thermodynamics, Fluids And Heat Transfer	3	UNIV 4AA0 Achieve the Creed	0
INSY 3600 Engineering Economy	3	Core Literature	3
Free Elective	3		

Accelerated Master of Science in Electrical and Computer Engineering (non-thesis)

Fifth Year

Fall	Hours	Spring	Hours
ELEC 6xxx/7xxx Elective	12	ELEC 6xxx/7xxx Elective	9
	12		**9**

Total Hours: 21

Entomology and Plant Pathology — ABM

Accelerated Bachelor’s/Master’s Curriculum for the Department of Entomology and Plant Pathology

The Accelerated Bachelor’s/Master’s Program (ABM) in the Department of Entomology and Plant Pathology offers outstanding students an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional students to count up to 9 hours of graduate level classes toward both the bachelor's and master's degrees.

The Bachelor of Science in Crop and Soil Science in either the Production Option, Science Option, Soil, Water, and Land Use Option, or the Turfgrass Option, or the Bachelor of Science in Environmental Sciences can lead to a Master of Science in Entomology or Plant Pathology in the ABM track. Students pursing a Bachelor of Science in Horticulture, Biological Sciences, or Forestry are also eligible for the ABM track that leads to a Master of Science in Entomology or Plant Pathology. Below is an example curriculum for a student in Environmental Sciences pursing the Master of Science in Plant Pathology. Please see the Department of Entomology and Plant Pathology website for additional information, ABM tracks and curriculum models.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level for students pursing the Master of Science in Entomology.

Code	Title	Hours
ENTM 6220	Insect Ecology (Replaces ENTM 5220 Insect Ecology)	4
ENTM 6300	Insect Diversity (Replaces ENTM 5300 Insect Diversity)	4
ENTM 6330	Integrated Pest Management (Replaces ENTM 5330 Integrated Pest Management)	3
ENTM 6360	Landscape Entomology (Replaces ENTM 5360 Landscape Entomology)	4

ENTM 6700	Vector Entomology (Replaces ENTM 5700 Vector Transmission of Plant Pathogens)	3
ENTM 7990	Research and Thesis (Replaces ENTM 4980 Undergraduate Research)	2-4

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level for students pursing the Master of Science in Plant Pathology.

Code	Title	Hours
PLPA 6050	Plant Disease Diagnosis (Replaces PLPA 5060 Plant Disease Diagnosis)	3
PLPA 6200	Mycology (Replaces PLPA 5200 Mycology)	2
PLPA 6300	Plant-Bacterial Interactions (Replaces PLPA 5300 Plant-Bacterial Interactions)	2
PLPA 6330	Integrated Pest Management (Replaces PLPA 5330 Integrated Pest Management)	3
PLPA 6400	Plant Virology (Replaces PLPA 5400 Plant Virology)	2
PLPA 6500	Plant Nematology (Replaces PLPA 5500 Plant Nematology)	2
PLPA 6700	Vector Entomology (Replaces PLPA 5700 Vector Transmission of Plant Pathogens)	3
PLPA 7990	Research and Thesis (Replaces PLPA 4980 Undergraduate Research)	2-4

Junior and Senior Year for Students in ABM Program - Environmental Sciences

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their junior and senior year and nine graduate hours to be used toward their graduate degree.

Junior

Fall	Hours	Spring	Hours
BIOL 3200 General Microbiology	3	CHEM 3050 Analytical Chemistry & CHEM 3051 Analytical Chemistry Laboratory	4
FORY 5470 GIS Applications in Natural Resources	2	CIVL 4210 Water and Wastewater Treatment and Design & CIVL 4211 Water and Wastewater Laboratory	4
CSES 2040 Basic Soil Science	4	*Professional Track	4
*Professional Track	6	BIOL 3060 Ecology	4

Senior

Fall	Hours	Spring	Hours
ENVI 4950 Environmental Science Senior Seminar	2	*Professional Track	7
*Professional Track	4	Core Social Science	3
ECON 2020 Principles of Microeconomics	3	FORY 5043 Environmental Law	3
PHIL 1020 Introduction to Ethics	3	Core Literature	3
Core Fine Arts	3	UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Plant Pathology

Fifth Year

Fall	Hours	Spring	Hours	Summer	Hours
PLPA 7990 Research and Thesis	2	PLPA 7990 Research and Thesis	2	PLPA 7990 Research and Thesis	2
AGRI 6010 Analysis of Plant, Soil & Animal Data	3	PLPA 7990 Research and Thesis	2	PLPA Course	3

PLPA Course	3	PLPA Course	4	
	8		**8**	**5**

Total Hours: 21

Fisheries, Aquaculture, and Aquatic Sciences — ABM

Accelerated Bachelor's/Master's Curriculum for the School of Fisheries, Aquaculture, and Aquatic Sciences

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students in the School of Fisheries, Aquaculture, and Aquatic Sciences an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional students to count up to 9 hours toward both the bachelor's and master's degrees.

The Bachelor of Science in Fisheries, Aquaculture, and Aquatic Sciences in either the Pre-Vet Option, Fisheries and Aquaculture Option, or Marine Resource Management Option can lead to a Master of Science in Fisheries, Aquaculture, and Aquatic Sciences or a Master of Aquaculture in Fisheries, Aquaculture, and Aquatic Sciences. Below is an example curriculum for a student in the Fisheries and Aquaculture Option pursing the Master of Science in Fisheries, Aquaculture, and Aquatic Sciences. Please see the School of Fisheries, Aquaculture, and Aquatic Sciences website for additional information, ABM tracks and curriculum models.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
FISH 6210	Principles of Aquaculture (Replaces FISH 5210 Principles of Aquaculture)	3
FISH 6220	Water Science (Replaces FISH 5220 Water Science)	3
FISH 6380	General Ichthyology (Replaces FISH 5380 General Ichthyology)	4
FISH 6410	Introduction to Fish Health (FISH 5410 Introduction to Fish Health)	3
FISH 6510	Fisheries Biology and Management (Replaces FISH 5510 Fisheries Biology and Management)	4
FISH 6240	Hatchery Management (Replaces FISH Hatchery Management)	4
FISH 6320	Limnology (Replaces FISH 5320 Limnology)	3

Junior and Senior Year for Students in ABM Program - Fisheries, Aquaculture, and Aquatic Sciences (Fisheries and Aquaculture Option)

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their junior and senior year and nine graduate hours to be used toward their graduate degree.

Junior

Fall	Hours	Spring	Hours
*FISH 5220 Water Science		*FISH 5360 Limnology	3
AGRI 3000 Agricultural Genetics	4	*FISH 5321 Limnology Laboratory	1
STAT 2510 Statistics for Biological and Health Sciences	3	CHEM 2030 Survey of Organic Chemistry	3
Emphasis	3	Directed Science Elective	4
Free Elective	3	Emphasis	3

Senior

Fall	Hours	Spring	Hours
*FISH 5380 General Ichthyology	4	Emphasis	7
Emphasis	4	Free Elective	5

*FISH 5510 Fisheries Biology and Management	4	Core Social Science	3
Free Elective	4		

Accelerated Master of Science in Fisheries, Aquaculture, and Aquatic Sciences

Fifth Year

Fall	Hours	Spring	Hours
FISH 7990 Research and Thesis	3	FISH 7990 Research and Thesis	3
7 Credits in 6000-8999	7	7 Credits in 6000-8999	7
		FISH 7950 Graduate Research Seminar	1
		UNIV 4AA0 Achieve the Creed	0
	10		**11**

Total Hours: 21

Geography — ABM

Accelerated Bachelor's/Master's Curriculum for Geography

The Accelerated Bachelors/Masters (ABM) of Geography degree program provides an opportunity for highly-motivated students to gain an in-depth understanding of materials related to geography beyond that of typical bachelor's level graduates and make them more competitive for the employment of graduate studies. The ABM program also allows an opportunity for students involved in undergraduate research to build upon those efforts and develop them into a master's thesis. In addition, the ABM program in Geography allows students to complete both a bachelor's and master's degree in five calendar years by allowing undergraduates to enroll in graduate level classes during their senior year. Application and matriculation requirements apply to interested students. Please see the Department of Geosciences website for additional information.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
GEOG 6700	Quant Meth & Spatial Analysis (Replaces GEOG 5700 Quantitative Methods and Spatial Analysis)	3
GEOL 7100	Geocommunication (Replaces GEOG 4740 Senior Seminar)	3
GEOG 6xxx Elective (Replaces GEOG 5xxx Elective)		3

Senior Year for student in ABM - Geography

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
GEOG 5820 Aerial Photography and Remote Sensing	4	*GEOG 6xxx Elective	3
*GEOG 7100 Geocommunications	3	*GEOG 6700 Quant Meth & Spatial Analysis	3
GEOG Elective	3	Elective	8
Elective	6		

Accelerated Master of Science in Geography

First Year

Fall	Hours	Spring	Hours
GEOG Elective	6	GEOG Elective	3
GEOG Elective or approval external elective	3	GEOG Elective or approved external elective	3
GEOG 7990 M.S. Research and Thesis	3	GEOG 7990 M.S. Research and Thesis	3
	12		**9**

Total Hours: 21

Geology — ABM

Accelerated Bachelor's/Master's Curriculum for Geology

The Geology Accelerated Bachelor's/Master's Program (ABM) provides an opportunity for highly motivated undergraduate students to gain a depth of understanding and experience of geology beyond that of typical bachelor's level graduates. The ABM program allows these exceptional students to count up to 9 hours toward both the bachelor's and master's degrees.

The Bachelor of Science in Geology undergraduate major can lead to a Master of Science in Geology (thesis or non-thesis) in the ABM track. Please see the Department of Geosciences website for additional information.

Senior Year for Students in ABM Program - Geology

GEOL 7100 (Geocommunications) substitutes GEOL 4740 (Senior Seminar) and GEOL 6xxx elective courses are approved courses that can be taken in the ABM program that replace GEOL electives at the undergraduate level.

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
GEOG 5830 Geographic Information Systems	4	Core Social Science II	3
GEOL 4010	3	GEOL 4110	3
*GEOL Elective	3	Free Elective	3
Core Humanities	3	*GEOL Elective	3
*GEOL 7100 Geocommunications	3	Core Literature II	3
		UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Geology (thesis option)

First Year

Fall	Hours	Spring	Hours
GEOL 6xxx/7xxx	3	GEOL 6xxx/7xxx	3
GEOL Elective: GEOL 6xxx	3	GEOL Elective: GEOL 6xxx	3
GEOL 7990 Research and Thesis	5	GEOL 7990 Research and Thesis	4
	11		**10**

Total Hours: 21

Global Studies — ABM

Accelerated Bachelor’s/Master’s Curriculum for Global Studies

The Accelerated Bachelor’s/Master’s Program (ABM) offers outstanding undergraduate students in Global Studies an opportunity to earn both the bachelor's degree and continue on to the Master of Development Practice degree in less time and at less cost than usual. The ABM in Global Studies degree program provides an opportunity for highly motivated and academically strong students to gain a depth of understanding of global development issues beyond that of typical bachelor's level graduates and allows these exceptional students to count up to nine hours toward both the bachelor's and master's degrees.

Students with at least 45 credit hours but no more than 96 and a 3.4 GPA are eligible to apply for the program. Applications for the ABM Program consist of the Accelerated Bachelor's/Master's Degree Program Application form and an essay detailing how the program fits into the student's academic and professional goals. Applications are due October 1 in the Fall of the Junior Year. Upon approval by the Undergraduate Program Coordinator and the Graduate Program Officer, students are admitted to the accelerated program and may register in the 6000+ level courses at the appropriate time in their plan of study. This begins in the spring of the junior year of their undergraduate program and continues until the last semester in the normal bachelor's degree program at which time the B.S. degree will be awarded.

The Master of Development Practice can be completed in one calendar year after completion of the BS degree. Nearing or on completion of the BS degree, students must apply to the Graduate School and be accepted into the MDP program. All undergraduate students enrolled in the program will be required to meet with the undergraduate program coordinator each semester before registering.

Below is a chart of all the approved courses that can be taken in the ABM program. GSHS 6050 can replace GSHS 5050 in the bachelor's degree. Other graduate-level classes on this list can replace elective credit in the bachelor's program.

Select nine hours of the following courses to meet the BS/MDP requirements (minimum grade of B):

Code	Title	Hours
GSHS 6050	Design Thinking in Global Studies in Human Sciences	3
GSHS 7040	Protocol for MDP Graduate Study	1
GSHS 7850	Research Seminar for MDP Program	1
CADS 7100	Environmental Design Theories and Applications	3
NTRI 7850	Research Seminar for Master's Program	1
HDFS 6930	Society and Health	3
HDFS 6200	Applied Research and Evaluation Methods	3
HUSC 6940	Study and Travel in Human Sciences	1

Junior & Senior Year for Students in ABM-Global Studies Program

Junior

Fall	Hours	Spring	Hours
CADS 2700 Introduction to Nonprofit Organizations	3	Foreign Language II	4
HOSP 4570 Global Hospitality	3	COMM 1000 Public Speaking	3
HDFS 4680 Family in Cross-Cultural Perspective, 3080 Development of Interpersonal Relationships, ***or*** 4700 Gender Roles and Close Relationships	3	Minor Course(s)	3
Minor Course(s)	3	ECON 4300 International Economics, POLI 3090 Introduction to International Relations, ***or*** 3120 Introduction to Comparative Politics	3
Foreign Language I[2]	4	GSHS 6050 Design Thinking in Global Studies in Human Sciences (*replaces by GSHS 5050 in ABM program)	3
	16		**16**

Senior

Fall	Hours	Spring	Hours
GSHS 4920 Global Studies Internship	12	GSHS 5000 Global Studies in Human Sciences Capstone	3
		Minor Course(s)	6
		UNIV 4AA0 Achieve the Creed	0
		Approved MDP Course(s)	5
		GSHS 7040 Protocol for MDP Graduate Study	1
	12		**15**

Total Hours: 59

MDP Plan of Study

First Year

Fall	Hours	Spring	Hours	Summer	Hours
CADS 7100 Environmental Design Theories and Applications	3	HDFS 6200 Applied Research and Evaluation Methods	3	GSHS 6920 Graduate Internship in Development Practice	1-3
NTRI 7850 Research Seminar for Master's Program	1	HUSC 6940 Study and Travel in Human Sciences	1		
HDFS 6930 Society and Health	3	GSHS 7950 Applied Research in Development	1		
GSHS 7850 Research Seminar for MDP Program	1	GSHS 7980 Integrated Development Project	3		
HDFS 7050 Research Methods for Human Development and Family Science, 8090 Qualitative Methods in the Social Sciences, ***or*** 7070 Research Literacy in Human Development and Family Science	3	Elective	3		
		Elective	1-3		
	11		**12-14**		**1-3**

Total Hours: 24-28

Horticulture — ABM

Accelerated Bachelor's/Master's Curriculum for the Department of Horticulture

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students in the Department of Horticulture an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional horticulture students to count up to 9 hours toward both the bachelor's and master's degrees.

The Bachelor of Science in Horticulture can lead to a Master of Science in Horticulture or a Master of Agriculture in Horticulture in the ABM track. Please see the Department of Horticulture website for additional information, ABM tracks and curriculum models.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
HORT 6100	Horticultural Plant Breeding (Replaces HORT 5100 Horticultural Plant Breeding)	3
HORT 6110	Tree Fruit Culture (Replaces HORT 5110 Tree Fruit Culture)	3

HORT 6120	Small Fruit and Pecan Culture (Replaces HORT 5120 Small Fruit and Pecan Culture)	4
HORT 6130	Sustainable Vegetable Crop Production (Replaces HORT 5130 Sustainable Vegetable Crop Production)	3
HORT 6140	Post-Harvest Biology and Technology (Replaces HORT 5140 Post-Harvest Biology and Technology)	3
HORT 6150	Retail Garden Center Management (Replaces HORT 5150 Retail Garden Center Management)	3
HORT 6210	Landscape Bidding, Installation and Maintenance (Replaces HORT 5210 Landscape Bidding, Installation and Maintance)	4
HORT 6220	Greenhouse Management Science (Replaces HORT 5220 Greenhouse Management Science)	4
HORT 6230	Nursery Management (Replaces HORT 5230 Nursery Management)	4
HORT 6240	Public Garden Management (Replaces HORT 5240 Public Garden Management)	3
HORT 6330	Integrated Pest Management (Replaces HORT 5330 Integrated Pest Management)	3
HORT 6910	Horticulture Practicum (Replaces HORT 5910 Horticulture Practicum)	4
HORT 7040	Advanced Growth and Development of Horticultural Plants (Replaces Group 1 or 2 or General Elective)	3
HORT 7050	Nutritional Requirements of Horticultural Plants (Replaces Group 1 or 2 or General Elective)	3
HORT 7920	Graduate Internship (Replaces HORT 3920 Horticulture Internship)	1-4
HORT 7960	Special Problems (Replaces Group 1 or 2 Elective)	1-3

Example Senior Year for Students in ABM Program - Horticulture

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their junior and senior year and nine graduate hours to be used toward their graduate degree.

Junior

Fall	Hours	Spring	Hours	Summer	Hours
HORT 3000 Growth and Development of Horticultural Plants	3	*HORT 5120 Small Fruit and Pecan Culture	4	*HORT 5110 Tree Fruit Culture	3
*Group 1 or 2[3]		*Group 1 or 2	3		
HORT 2060 Hydroponics: Principles and Techniques of Soilless Plant Production	3	HORT 3950 Careers in Horticulture	2		
ENTM 4020 Economic Entomology ***or*** 3040 General Entomology	4	PLPA 3000 General Plant Pathology	4		
		Core Literature II or Core Humanities	3		

Senior

Fall	Hours	Spring	Hours
*Group 1 or 2	3	*HORT 5130 Sustainable Vegetable Crop Production	3
*Group 1 or 2	3	*HORT 5140 Post-Harvest Biology and Technology	3
HORT 4000 Pesticide Management in Horticulture	3	*HORT 5910 Horticulture Practicum	
*General Elective	3	*General Elective	3
		UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Horticulture

Fifth Year				
Fall	**Hours**		**Spring**	**Hours**
HORT 7950 Seminar		1	HORT 7950 Seminar	1
HORT 7990 Research and Thesis		3	HORT 7990 Research and Thesis	3
Select 7 Credits in 6000-8999		7	Select 6 credits in 6000-8999	6
		11		**10**

Total Hours: 21

Industrial and Organizational Psychology — ABM

Accelerated Bachelor's/Master's Curriculum for Industrial and Organizational Psychology

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students in the Department of Psychological Sciences an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional psychology or neuroscience students to count up to nine hours toward both the bachelor's and master's degrees. The Bachelor of Arts in Psychology undergraduate major or the Bachelor of Science in Neuroscience can lead to a Master of Science in Industrial and Organizational Psychology in the ABM track. Please see the Department of Psychological Sciences website for additional information.

Below are two charts of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Chart 1: Undergraduate Psychology Majors

Code	Title	Hours
PSYC 7700	Foundations in Industrial and Organizational Psychology (Replaces PSYC Elective)	3
PSYC 6690	Advanced Analytics for Social and Behavioral Sciences	3
PSYC 7720	Personnel Selection (Replaces General Elective)	3

Junior and Senior Year for Students in ABM Program - Psychology

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their junior and senior year and nine graduate hours to be used toward their graduate degree.

Junior				
Fall	**Hours**		**Spring**	**Hours**
Core Humanities		3	Core Fine Arts	3
*Group A and B Psychology Electives		6	*Group A and B Psychology Electives	6
*Electives		8	*Electives	8
Senior				
Fall	**Hours**		**Spring**	**Hours**
COMM 1000 Public Speaking		3	*Group C Psychology Electives	6
*Group C Psychology Electives		9	*Electives	10
*Electives		3	UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Industrial and Organizational Psychology

First Year

Summer	Hours	Fall	Hours	Spring	Hours
PSYC 7910 Practicum in Applied Psychology	3	PSYC 7710 Training and Development in Organizations	3	PSYC 7730 Research Methods in Industrial/Organizational Psychology	3
		Graduate PSYC Electives	6	PSYC 7750 Ethics and Professional Issues in Industrial/ Organizational Psychology	3
				Graduate PSYC Electives	3
	3		**9**		**9**

Total Hours: 21

Chart 2: Undergraduate Neuroscience Majors

Code	Title	Hours
PSYC 6690	Advanced Analytics for Social and Behavioral Sciences	3
PSYC 7730	Research Methods in Industrial/Organizational Psychology	3
PSYC 7700	Foundations in Industrial and Organizational Psychology	3

Junior and Senior Year for Students in ABM Program—Neuroscience

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in teh ABM program to meet nine undergraduate hours during their junior and senior year and nin graduate hours to be used toward their graduate degree.

Junior

Fall	Hours	Spring	Hours
PSYC 3520 Psychology of Learning	3	COMM 1000 Public Speaking	3
BIOL 3000 Genetics	3	PSYC 3540 Cognitive Psychology	3
BIOL 3001 General Genetics Laboratory	1	PSYC 3620 Cognitive Neuroscience	3
Core Literature	3	PHIL 1030 Ethics and the Health Sciences	3
Core Social Science	3	Core Social Science	3
*Electives	3		

Senior

Fall	Hours	Spring	Hours
PSYC 5620 Neuropharmacology and Behavior	3	Core Foreign Language	4
BIOL 4100 Cell Biology	3	Core Fine Arts	3
BIOL 4101 Cell Biology Laboratory	2	*Electives	6
Core Foreign Language	4		
*Electives	3		

Accelerated Master of Science in Industrial and Organizational Psychology

First Year

Summer	Hours	Fall	Hours	Spring	Hours
PSYC 7910 Practicum in Applied Psychology	3	PSYC 7720 Personnel Selection	3	PSYC 7710 Training and Development in Organizations	3

	Graduate PSYC Electives	6	PSYC 7750 Ethics and Professional Issues in Industrial/ Organizational Psychology	3
			Graduate PSYC Electives	3
	3	**9**		**9**

Total Hours: 21

Industrial and Systems Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for the Department of Industrial and Systems Engineering

The Department of Industrial and Systems Engineering Accelerated Bachelor's/Master's (ABM) program provides an opportunity for highly motivated undergraduate students to gain a depth of understanding and experience of industrial and systems engineering beyond that of typical bachelor's level graduates.

The Bachelor of Industrial and Systems Engineering or the Business Engineering Technology Minor can lead to a Master of Science in Industrial and Systems Engineering or a Master of Engineering Management in the ABM program. Below is an example curriculum for a student in the Bachelor of Industrial and Systems Engineering pursuing the Master of Science in Industrial and Systems Engineering.

Junior and Senior Year for Students in ABM Program - Industrial and Systems Engineering

Approved graduate level INSY electives can be taken in the ABM program to replace INSY electives or TECH electives at the undergraduate level for students pursuing the Bachelor of Industrial and Systems Engineering. Courses marked with an asterisk are those that can be substituted with graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their junior and senior year and nine graduate hours to be used toward their graduate degree.

Junior

Fall	**Hours**	**Spring**	**Hours**
Core Social Science		Core Literature	3
INSY 3010 Programming and Database Applications for ISE	**3**	*TECH Elective	3
INSY 3400 Stochastic Operations Research	**3**	**INSY 3420 Simulation**	**3**
INSY 3410 Deterministic Operations Research	**3**	**INSY 3700 Operations Planning and Control**	**3**
INSY 3600 Engineering Economy	**3**	**INSY 3800 Manufacturing Systems I**	**3**

Senior

Fall	**Hours**	**Spring**	**Hours**
Select one of the following:	3	Core Social Science	3
PHIL 1020 Introduction to Ethics		**INSY 4800 Senior Design**	**3**
PHIL 1030 Ethics and the Health Sciences		***INSY Elective**	**3**
PHIL 1040 Business Ethics		*TECH Elective	3
ELEC 3810 Fundamentals of Electrical Engineering	3	UNIV 4AA0 Achieve the Creed	0
INSY 4330 Statistical Quality Design and Control	**3**		
INSY 4500 Professional Practice	**1**		
INSY 4700 Manufacturing Systems II	**3**		
***INSY Elective**	**3**		

Accelerated Master of Industrial and Systems Engineering

Fifth Year

Fall	Hours	Spring	Hours
INSY 7300 Advanced Engineering Statistics I	3	INSY 6600 Engineering Economic Systems	3
INSY 6000-8999	6-12	INSY 7420 Linear Programming and Network Flows	3
		INSY 7950 Seminar	1
		INSY 6000-8999	6-12
	9		**13**

Total Hours: 22

Industrial Design — ABM

Accelerated Bachelor's/Master's Curriculum for Industrial Design

The Industrial Design Accelerated Bachelor's/Master's Program (ABM) provides an opportunity for highly motivated undergraduate students to gain a depth of understanding and experience of industrial design beyond that of typical bachelor's level graduates. The ABM program allows these exceptional students to count up to 9 hours toward both the bachelor's and master's degrees.

The Bachelor of Industrial Design undergraduate major can lead to a Master of Industrial in the ABM track. Please see the School of Industrial and Graphic Design website for additional information.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level. INDD 6960 Special Problem is a one hour course taken in the spring of senior year to develop graduate research interest.

Code	Title	Hours
INDD 6210 Portfolio (Replaces INDD 5120 Professional Portfolio)		3
INDD 7910	Industry Practicum (Replaces INDD 4210 Industrial Design Thesis)	5

Senior Year for student in ABM - Industrial Design

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
Core Literature	3	Core Humanities	3
INDD 4110 Advanced Product Design	6	*INDD 7910 Industry Practicum	5
*INDD 6120 Portfolio	3	INDD 4220 Professional Practice	3
		*INDD 6960 Special Problems	1
		UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Industrial Design

First Year

Fall	Hours	Spring	Hours
INDD 7010 Design Orientation	3	INDD 7020 Computer/Industrial Design	3
INDD 6010 History of Industrial Design II	3	Elective	6

Elective	6	INDD 7990 Design Thesis	5
	12		**14**

Total Hours: 26

Materials Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for Materials Engineering

The Materials Engineering Accelerated Bachelor's/Master's Program (ABM) provides an opportunity for highly motivated undergraduate students to gain a depth of understanding and experience of materials engineering beyond that of typical bachelor's level graduates. The Bachelor of Materials Engineering undergraduate major can lead to a Master of Science in Materials Engineering (thesis or non-thesis) in the ABM track. Please see the Materials Engineering website for additional information.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
MATL 6200	Materials Characterization (Replaces MATL 5200 Materials Characterization)	2
MATL 6201	Materials Characterization Laboratory (Replaces MATL 5201 Materials Characterization Laboratory)	1
MATL 6400	Physics of Solids (Replaces MATL 5400 Physics of Solids)	3
MATL 6500	Numerical Simulation of Materials Processing (MATL 5500 Numerical Simulation of Materials Processing)	3

Junior/Senior Year for Students in ABM Program - Materials Engineering

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet nine undergraduate hours during their junior and senior year and nine graduate hours to be used toward their graduate degree.

Junior

Fall	Hours	Spring	Hours
MATH 2660 Topics in Linear Algebra	3	ENGR 2200 Introduction To Thermodynamics, Fluids And Heat Transfer	3
PHIL 1020 Introduction to Ethics	3	MECH 2220 Computer-Aided Engineering	3
MATL 3100 Engineering Materials - Metals	3	MATL 3200 Engineering Materials Polymers	3
MATL 3101 Metallography Laboratory	1	MATL 3201 Polymer and Composites Laboratory	1
*MATL 6200 Materials Characterization	2	MATL 3300 Engineering Materials - Ceramics	3
*MATL 6201 Materials Characterization Laboratory	1	Technical Elective II	3
Technical Elective I	3		

Senior

Fall	Hours	Spring	Hours
Core Literature	3	Core Fine Arts	3
MATL 4100 Thermodynamics and Kinetics of Materials	3	Core Social Science	3
MATL 4500 Materials Properties and Selection	4	MATL 4980 Senior Design Project	3

*MATL 6400 Physics of Solids	3	*MATL 6500 Numerical Simulation of Materials Processing	3
Technical Elective III	3	UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Materials Engineering Curriculum Model (non-thesis)

Fifth Year

Fall	Hours	Spring	Hours
MATL 6100 Thermodynamics of Materials Systems	3	MATL 6300 Phase Transformations in Material Processing	3
MATL 6xxx-7xxx	3	MATL 7050 Deformation and Failure of Engineering Materials	3
6xxx-7xxx Electives	6	6xxx-7xxx Electives	3
		MATL 7980 Master Materials Engineering Project	1-3
	12		**12**

Total Hours: 24

Mechanical Engineering — ABM

Accelerated Bachelor's/Master's Curriculum for Mechanical Engineering

The following are the steps for a Mechanical Engineering undergraduate student following the current model curriculum to enter and complete the proposed ABM program:

- Seek admission (Deadline for application is March 1) to ABM Program in Spring semester of Junior year; **minimum 3.4 GPA**
- Start ABM Program in Fall semester of undergraduate Senior year
- Graduate with BME degree in Spring of undergraduate Senior year and **gain 9 credits of MECH 6xxx** credits towards ABM program during Senior year
- Complete 3 hours of 6000 or 7000 level Science/Engineering course during first Summer of MS program
- Complete 3 hours of 6000 or 7000 level Science/Engineering course + 6 hours of MECH 6xxx or MECH 7xxx in first Fall semester of MS (OR, 9 hours of MECH 6xxx or MECH 7xxx in first Fall semester of MS)
- Complete 3 hours of 6000 or 7000 level Science/Engineering course + 6 hours of MECH 6xxx or MECH 7xxx in first Spring semester of MS (OR, 9 hours of MECH 6xxx or MECH 7xxx in first Spring semester of MS)
- Complete degree in Spring semester of MS

Senior Year for Students in ABM Program - Mechanical Engineering

Courses shown in bold below are those used by students enrolled in the ABM program to meet nine undergraduate hours and nine hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
MECH 4240 Comprehensive Design I	2	MECH 4250 Comprehensive Design II	2
MECH 6xx0/7xx0 Technical Elective*	**3**	**MECH 6xx0/7xx0 Technical Elective***	**3**
MECH 6xx0/7xx0 Technical Elective*	**3**	Free Elective or ROTC	3
Core Literature[2]	3	Core Social Science[1]	3
PHIL 1020 Introduction to Ethics (or PHIL 1040 Business Ethics, or PHIL 1110 Ethical and Conceptual Foundations of Science (Core Ethics))	3	Core Fine Arts	3

	UNIV 4AA0 Achieve the Creed	0
	14	**14**

Total Hours: 28

Nutrition — ABM

Accelerated Bachelor's/Master's Curriculum for Nutrition

The Nutrition Accelerated Bachelor's/Master's Program (ABM) offers outstanding students an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional students to count 5-8 hours toward both the bachelor's and master's degrees.

The Bachelor of Science in Nutrition in either the Nutrition Science Option, Dietetics Option, or the Wellness Option can lead to a Master of Science in Nutrition (thesis or non-thesis). Below is an example curriculum for a student in the Dietetics Option pursing the Master of Science in Nutrition (non-thesis). Please see the Nutritional Sciences website for additional information, ABM tracks and curriculum models.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
NTRI 6020	Medical Nutrition I (Replaces NTRI 5020 Medical Nutrition I)	4
NTRI 6030	Medical Nutrition II (Replaces NTRI 5030 Medical Nutrition II)	4
NTRI 6820	Nutrition In The Life Cycle (Replaces NTRI 5820 Nutrition In The Life Cycle)	3
NTRI 6100	Nutrition in Disease Prevention	3

Senior Year for Students in ABM - Nutrition Dietetics Option

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
NTRI 4090 Professional Issues in Dietetics and Nutrition	1	*NTRI 5030 Medical Nutrition II	4
NTRI 4560 Food Systems Operations	2	NTRI 5560 Nutrition and Food Service Management	3
NTRI 4561 Food Systems Operations Lab	2	NTRI 5760 Nutrition Counseling	2
NTRI 4620 Public Health Nutrition	3	NTRI 5830 Nutritional Genomics	3
*NTRI 5020 Medical Nutrition I	4	NTRI 5910 Clinical Practicum in Dietetics	1
NTRI 5820 Nutrition In The Life Cycle	3	UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Nutrition (non-thesis option)

First Year

Fall	Hours	Spring	Hours
NTRI 7500 Minerals	3	ERMA 7300 Design and Analysis in Education I ***or*** STAT 7000 Experimental Statistics I	3
NTRI 7510 Vitamins	3	NTRI 7050 Methods Of Research	3
NTRI 7520 Macronutrients: Integration and Metabolism	4	NTRI 7850 Research Seminar for Master's Program	1

NTRI 7530 Human Nutrient Metabolism	4	NTRI 7980 Nonthesis Research	1-6
	14		**8-13**

Total Hours: 22-27

Physics — ABM

Accelerated Bachelor's/Master's Curriculum for Physics

The Physics Accelerated Bachelor's/Master's Program (ABM) offers outstanding students the opportunity to earn both the bachelor's and master's degree in less time and at less cost than usual. Outstanding students will have the opportunity to explore the prospects for graduate study, engage with graduate faculty, and deepen their understanding of physics. The program will foster the interaction between undergraduate and graduate physics programs at Auburn. The ABM program allows these exceptional students to count up to 9 hours toward both the bachelor's and master's degrees.

The Bachelor of Science in Physics undergraduate major can lead to a Master of Science in Physics (thesis or non-thesis option) in the ABM track. Please see the College of Science and Mathematics website for additional information.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
PHYS 6100	Applications of Quantum Mechanics (Replaces PHYS 6100 Applications of Quantum Mechanics)	3
PHYS 6200	Teaching and Learning of STEM (Replaces PHYS 5200 Teaching and Learning of STEM)	3
PHYS 6300	Optics (Replaces PHYS 5300 Optics)	3
PHYS 6500	Fundamentals of Physics (Replaces PHYS 5500 Fundamentals of Physics)	3
PHYS 6600	Frontiers of Physics (Replaces PHYS 5600 Frontiers of Physics)	3
PHYS 6610	Introduction to Solid State Physics (Replaces PHYS 5610 Introduction to Solid State Physics)	3
PHYS 6620	Survey of Plasma Physics (Replaces PHYS 5620 Survey of Plasma Physics)	3

Senior Year for student in ABM - Physics

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior

Fall	Hours	Spring	Hours
PHYS 4200 Fundamental Experiments in Physics	3	PHYS 7200 Electricity and Magnetism I	3
PHYS 7100 Classical Mechanics	3	PHYS 7300 Quantum Mechanics I	3
PHYS 7400 Statistical Physics	3	*Physics Elective	3
*Electives	6	*Electives	4
		PHYS 7950 Physics Colloquium	1
		UNIV 4AA0 Achieve the Creed	0

Accelerated Master of Science in Physics (non-thesis)

Fifth Year

Fall	Hours	Spring	Hours
PHYS 7250 Electricity and Magnetism II	3	Professional Electives*	6
PHYS 7350 Quantum Mechanics II	3	Electives*	3

Professional Elective*	6	PHYS 7950 Physics Colloquium	1
PHYS 7950 Physics Colloquium	1		
	13		**10**

Total Hours: 23

Poultry Science — ABM

Accelerated Bachelor's/Master's Curriculum for the Department of Poultry Science

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students in the Department of Poultry Science an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional students to count up to 9 hours toward both the bachelor's and master's degrees.

The Bachelor of Science in Poultry Science (either the Production Option or the Pre-Vet Option) undergraduate majors as well as a Poultry Science minor can lead to a Master of Science in Poultry Science or a Master of Agriculture in Poultry Science in the ABM track. Below is an example curriculum for a student in the Pre-Vet Option of Poultry Science pursing the Master of Science in Poultry Science. Please see the Department of Poultry Science for additional information and ABM tracks.

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
POUL 6020	Principles of Animal Feed Manufacturing (Replaces POUL 5020 Principles of Animal Feed Manufacturing or POUL 5070 Animal Welfare)	3
or POUL 6070	Animal Welfare	
POUL 6030	Advanced Commercial Poultry Production (Replaces POUL 5030 Advanced Commercial Poultry Production)	3
POUL 6050	Advanced Poultry Feeding (Replaces POUL 5050 Poultry Feeding)	3
POUL 6080	Advanced Poultry Health (Replaces POUL 5080 Poultry Health)	3
POUL 6110	Poultry Processing (Replaces POUL 5110 Poultry Processing)	3
POUL 6140	Poultry Further Processing and Products (Replaces POUL 5140 Poultry Further Processing and Products)	3
POUL 6160	Advanced Principles of Food Safety (Replaces POUL 5160 Principles of Food Safety)	3
FDSC 7430	Flavor Chemistry (Replaces Science Elective or Free Elective)	3
FDSC 7730	Sensory Evaluation (Replaces Science Elective or Free Elective)	3

Senior Year for Students in ABM Program - Poultry Science (Pre-Vet Option)

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

Senior			
Fall	**Hours**	**Spring**	**Hours**
*POUL 5050 Poultry Feeding	3	POUL 3030 Commercial Poultry Production	4
*POUL 5110 Poultry Processing	3	*POUL 5160 Principles of Food Safety	3
*POUL 5080 Poultry Health	3	UNIV 4AA0 Achieve the Creed	0
STAT 2510 Statistics for Biological and Health Sciences	3	*POUL 5030 Advanced Commercial Poultry Production	3
Science Elective	3	Free Elective or ROTC	3

Accelerated Master of Science in Poultry Science

Fifth Year

Fall	Hours	Spring	Hours
POUL 7950 Graduate Seminar	1	POUL 7950 Graduate Seminar	1
STAT 7000 Experimental Statistics I	4	POUL 7990 Research and Thesis	3
POUL 7990 Research and Thesis	3	Poultry Courses Determined by Committee	6
Poultry Courses Determined by Committee	3		
	11		**10**

Total Hours: 21

Public Administration — ABM

Accelerated Bachelor's/Master's Curriculum for Public Administration

The Accelerated Bachelor's/Master's Program (ABM) offers outstanding students an opportunity to earn both the bachelor's and the master's degrees in less time and at less cost than usual. The ABM program allows these exceptional students to count up to 12 hours toward both the bachelor's and master's degrees.

The Bachelor of Arts in Public Administration undergraduate major can lead to a Master of Public Administration in the ABM track. In addition, undergraduates majoring in Political Science with a concentration or minor in Public Administration are eligible to pursue the Master of Public Administration in the ABM track. Below is an example curriculum for a student in Public Administration pursing the Master of Public Administration. Please see the Department of Political Science website for additional information and ABM tracks.

Below is a chart of all the approved courses that can be taken in the ABM program for undergraduate students majoring in Public Administration and undergraduate students majoring in Political Science with a minor or concentration in Public Administration and what course that replaces at the undergraduate level.

Code	Title	Hours
POLI 7000	Research Methods for Public and Nonprofit Organizations (Replaces POLI 3000 Research Methods)	3
POLI 7140	Financial Management for Public and Nonprofit Organizations (Replaces POLI 4140 Public Finance)	3
POLI 7150	Public Personnel Administration (Replaces POLI 4160 Public Personnel Administration)	3
POLI 7360	Foundations of Public Policy (Replaces POLI 3270 Policy Process)	3

Junior/Senior Year for Students in ABM - BA Public Administration

Courses marked with an asterisk are those used by students enrolled in the ABM program to meet up to 12 undergraduate hours toward their undergraduate degree and 12 graduate hours to be used toward their graduate degree.

Junior

Fall	Hours	Spring	Hours
Course from Group 2 - Nonprofit Organizations and Community Governance	3	*POLI 7360 Foundations of Public Policy	3
Course from Group 4 - State and Local Governance	3	Course from Group 1 - Democratic Political and Administration Systems	3
GEEL 1000 General Elective	3	Course from Group 3 - Elections and Democratic Practice	3
*POLI 7140 Financial Management for Public and Nonprofit Organizations	3	GEEL 1000 General Elective	6

Senior

Fall	Hours	Spring	Hours
POLI 3260 Organization Theory	3	GEEL 1000 General Elective	6
*POLI 7150 Public Personnel Administration	3	*POLI 7000 Research Methods for Public and Nonprofit Organizations	3
Course from Group 7 - Public Law	3	Course from Group 5 - Community Planning	3
GEEL 1000 General Elective	3	Course from Group 6 - Global Public Service and Cultural Competency	3

Accelerated Master of Public Administration

First Year

Fall	Hours	Spring	Hours	Summer	Hours
POLI 7350 Foundations of Public Administration and Public Service	3	POLI 7330 Seminar in Administrative Leadership, Responsibility, and Democratic Government	3	POLI 7920 MPA Internship	3
Graduate Electives	6	Graduate Elective	6		
	9		**9**		**3**

Second Year

Fall	Hours
POLI 7930 MPA Research Project	3
Graduate Elective	6
	9

Total Hours: 30

Graduate School

Points of Contact

GEORGE T. FLOWERS, *Dean*
MARIA WITTE, *Associate Dean*

The Graduate School is open 7:45–11:45 a.m. and 12:45–4:45 p.m., Monday through Friday.
Telephone: (334) 844-4700 Fax: (334) 844-4348
E-mail: gradadm@auburn.edu
Web: graduate.auburn.edu (https://graduate.auburn.edu/)
Mailing Address: 106 Hargis Hall, Auburn, AL 36849-5122

Admissions

- Admission Requirements
- Policies and Procedures for Admissions
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- Master's Accelerator Program (p. 1510)

Admission Requirements

Departments make admissions decisions based on the compatibility of the applicant's goals with departmental resources, the availability of spaces for new students, and a holistic evaluation of the applicant's potential for success in the program. Other considerations might typically include standardized test scores, grades and/or GPAs, letters of recommendation, writing samples, research or applied experience, and interviews.

To be considered for admission, the applicant must satisfy the following requirements:

1. The applicant must hold a bachelor's degree from a regionally accredited U.S. institution or provide proof of equivalent training from a recognized academic institution outside the United States. Equivalency is determined by international evaluators in the Graduate School.
2. The applicant must be in good standing at the institution last attended.
3. The applicant must submit standardized examination scores (GRE, GMAT, TOEFL, and/or IELTS) if required for application to the degree program. Applicants with an earned doctorate (Professional, EdD, PhD) from an accredited institution whose instruction is in English may be exempted from this requirement.
4. The successful applicant normally will meet one of the following: a) a GPA of at least 2.75 on all undergraduate course work at an accredited United States institution in fulfillment of the requirements for a baccalaureate degree; b) a GPA of at least 3.0 on all graduate course work at an accredited United States institution in fulfillment of the requirements for a graduate degree; or c) an acceptable GRE or GMAT score as determined by the program to which the applicant applies.
5. Applicants whose native language is not English must submit: 1) TOEFL scores of at least 550 on the written test (213 on the computer-based test); 2) 79 on the Internet Based Test with at least 16 in each section; 3) IELTS overall band score of at least 6.5; or 4) demonstrate English proficiency during an oral examination (interview) satisfactory to the examining committee and approved by the graduate dean.

6. The applicant must be recommended for admission by the graduate faculty in the applicant's area of study. Departments may (and frequently do) establish higher standards than those described here, and may require that applicants submit additional materials. Applicants should contact the department to which they seek admission for information about additional requirements.
7. The applicant must disclose all institutions beyond secondary school, including Auburn University, which the applicant has previously attended; similarly, all course work and/or degrees must be disclosed. Withholding information requested on the application for admission, including attendance at any other institution, or giving false information, may make the applicant ineligible for admission to the university or subject to dismissal.

Final evaluation of application files will not occur until all of the above requirements have been met. Applicants will be notified by the dean of the Graduate School when an admissions decision has been made. Some departments, operating with a limited number of spaces for students each year, make final decisions for the fall semester in early spring.

Policies and Procedures for Admissions

Auburn University is an equal-opportunity educational institution, and as a matter of policy, does not discriminate in its admissions policy on the basis of race, color, sex, religion, disability, sexual orientation, age, or national origin. Applications for resident and non-resident students are accepted for all curricula; however, the number of students and academic credentials of the applicants accepted for admission are determined by the availability of facilities and faculty.

Admission of Transfer Students

Transfer applicants must provide official transcripts (not duplicated or faxed copies) from each college attended, including any at which the applicant enrolled while in high school. A minimum 3.00 cumulative GPA on a 4.0 scale on all college work attempted and eligibility to re-enter the institution last attended are required to be considered for transfer admission.

Application for Admission

To apply for graduate study, submit to the Office of Graduate Admissions:

1. A formal application. Applications for admission are submitted online at applygrad.auburn.edu/portal/apply (https://applygrad.auburn.edu/portal/apply/). Domestic applications must be accompanied by a fee of $60; international applications must be accompanied by a fee of $70. These fees may be paid online via credit card.
2. Unofficial transcript(s) from all institutions that were attended. If admitted to a program, applicants will be required to submit a final official transcript from each institution, sent directly from the institution(s), prior to registration. Official transcripts may be sent at any time but will be required before registration. An applicant who, because of current enrollment, cannot provide final transcripts at the time of application, should submit the incomplete transcripts from the current institution. Applicants do not need to provide transcripts for credits earned at Auburn University.
3. Standardized general test scores may be required for graduate program admission. A waiver of standardized test scores may be available in certain circumstances—please check the Graduate School's Test Score Waivers (https://nam11.safelinks.protection.outlook.com/?url=http%3A%2F%2Fgraduate.auburn.edu%2Fprospective-students%2Ftest-score-waivers%2F&data=05%7C01%7Ckcc0019%40auburn.edu%7C96eb20ddecb84a0f95bb08da7569efb8%7Cccb6deedbd294b388979d72780f62d3b%7C1%7C0%7C637951395097017301%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=aD2CMNBndWaWhy29D83ciDxgkOKo2D8beEdu5aRHWNs%3D&reserved=0) webpage for current information. Prospective graduate applicants should check with individual departments for specific program admission requirements. International applicants must also submit Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) scores. Applications and dates for these tests may be obtained at many colleges and universities; by writing the Educational Testing Service, P.O. Box 6000, Princeton, NJ 08541-6000; by telephoning (609) 771-7670 for the GRE, (609) 771-7330 for the GMAT, or (609) 771-7100 for the TOEFL; or by accessing the Educational Testing Service website at www.ets.org (https://nam11.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.ets.org%2F&data=05%7C01%7Ckcc0019%40auburn.edu%7C96eb20ddecb84a0f95bb08da7569efb8%7Cccb6deedbd294b388979d72780f62d3b%7C1%7C0%7C637951395097017301%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=%2BT2Y59atBBW6RkNxg3Ur6Erb3XHFf2yRqtrGFvEM92s%3D&reserved=0).

4. Additional Materials. Academic programs typically require additional materials to evaluate an applicant's potential for graduate study. Prospective students must also contact the department in which they wish to study to obtain information regarding additional admission requirements, such as writing samples and letters of recommendation. With the exception of the application, official transcripts, and standardized test scores, which should be sent to the Graduate School, materials requested by programs should be sent directly to the academic department.

Admission to any graduate degree program is granted by the dean of the Graduate School upon the recommendation of the department of proposed study. Applications and all other relevant material must be received by the Graduate School at least 45 days before the first day of class of the semester in which the student wishes to begin graduate study. International applicants should submit all required materials at least 90 days before the first day of class of the semester in which the student wishes to begin graduate study. However, most academic units make admission decisions several months in advance. Thus, applicants should check with the department to which they seek admission to determine when materials should be submitted. Approval is valid for a maximum of 12 months beyond the beyond the entrance date given on the application, with the approval of the program admitting the student. If the student does not register during this period, a new request for approval must be submitted. Application materials become the property of Auburn University and may not be returned to the applicant or forwarded to other institutions.

Admission of Transient Graduate Students

A graduate student in good standing in an accredited college or university may be admitted as a transient when faculty and facilities are available. To be eligible, the student must submit a special Graduate Transient Form prior to the beginning of the semester for which transient status is requested. The form, available from the Graduate School or on the Web at www.grad.auburn.edu, must bear the signature of the student's department head and graduate dean or his/her designee. Transient status is granted for one semester only and does not constitute admission or matriculation as a degree candidate.

Provisional Admission

First-time applicants to Auburn University's Graduate School who hold the bachelor's degree from an accredited U.S. institution (or who provide proof of equivalent training from a recognized academic institution outside the United States) and who are otherwise academically qualified but who do not meet certain other requirements for admission may be admitted on a provisional basis.

These other requirements include but are not limited to the following: 1) scores above the minimum required on standardized tests of English language proficiency, 2) scores above the minimum required on the GRE or GMAT, or 3) the submission of official documentation (e.g., transcripts).

Departments may set higher standards or may not consider students for provisional admission.

International students whose English language proficiency is marginally below the Graduate School's required levels are required to enroll in Auburn University's Auburn Global program and satisfy proficiency requirements before enrolling in graduate-level course work.

Other students who are admitted on a provisional basis are given an opportunity to demonstrate that they can perform graduate-level work and can be expected to make reasonable progress toward earning a graduate degree. They may also be required to remedy deficiencies in undergraduate preparation by taking upper-division courses.

Provisionally admitted students must demonstrate their ability to perform at the graduate level by obtaining a "B" grade point average (3.0 on a 4.0 scale) in their first 12 semester hours of graduate-level work. These 12 semester hours must be completed within the first three consecutive semesters following admission.

Students admitted on a provisional basis will be fully admitted to the Graduate School only when all conditions for admission have been met, including the completion of at least 12 semester hours of approved graduate-level courses at Auburn University with a grade point average of at least 3.0.

Students admitted provisionally who fail to satisfy all conditions for admission within the allotted time period will be dismissed from the Graduate School.

McNair Scholars

The Graduate School recognizes the achievement of students who have successfully completed a Ronald E. McNair Postbaccalaureate Achievement Program by waiving the Graduate School application fee. A letter confirming participation in the program is required.

Active Military Personnel

The Graduate School recognizes the contributions of students actively serving in the United States military by waiving the Graduate School application fee. A letter confirming active duty status is required.

Correspondence Work Unacceptable

Study by correspondence shall not be counted toward a graduate degree.

Student Classifications

For administrative purposes, Auburn University students are assigned to a class level. Those that apply to graduate students are:

- MST — Students who hold full admission to Master's programs.
- EDS — Students who hold full admission to Specialist in Education programs.
- PHD — Students who hold full admission to Doctor of Philosophy programs.
- GCRT — Students admitted to an approved Graduate Certificate program.
- GND — Students who hold a Bachelor's degree (or post-baccalaureate degree) may apply for admission to the Graduate School as a non-degree student for personal development, to obtain or renew certification, or to take a limited number of courses preliminary to enrolling in a graduate degree program. No more than 12 hours of credit earned while enrolled as a non-degree student may later be counted toward a graduate degree; however, students officially enrolled in an approved graduate certificate program may count up to the maximum number of credit hours allowed by the certificate program toward a graduate degree. Non-degree students who later decide to pursue a graduate degree must re-apply for admission to the Graduate School and the graduate degree program.
- GPR — Students who meet requirements for provisional admission except that they have not taken the GRE or GMAT (if required by the admitting program) or have not submitted all transcripts. This classification is for one semester only, and satisfactory scores and/or all transcripts must be submitted by the end of that semester. This classification cannot be used by international students, who must submit official transcripts and satisfactory scores on all required examinations before they are admitted.

Master's Accelerator Program

The Master's Accelerator Program (MAP) eases the transition from a bachelor's degree in your home country to graduate school in the U.S. It provides three simple routes to enter your graduate program at Auburn. MAP combines credit-bearing courses from your master's degree with additional support, teaching, and cultural experiences, helping to ensure your future success. All MAP students complete a comprehensive series of English language, research, and professional development modules (the Professional Development Suite), and a series of credit-bearing graduate courses (the Academic Suite) prior to transferring into their intended degree program.

Auburn Global offers four ways for international students to enter their graduate program. The entry path that is best for you will depend on your qualifications and personal preferences. Choose from the Integrated Master's Accelerator, the Master's Accelerator (one term) or Master's Accelerator (two or three terms). For more details on these options see: http://www.auburnglobal.org/about-map. Students in the Master's Accelerator Program are enrolled in a minimum of 14 clock hours in Fall and Spring semesters, and 9 clock hours in summer.

Auburn offers 23 graduate programs through the Master's Accelerator Program, in engineering, education, mathematics, and public administration, and community planning.

MAP students take a core curriculum* and credit bearing courses from their chosen master's degree.

Courses	Map 3	MAP 2- Sem 1/MAP 3- Sem 2	MAP 1- Sem 1/MAP 2 - SEM 2/MAP 3 - Sem 3	IMAP-semester 1
Support		Professional Development I (Optional CAP Program)	Professional Development Sequence II (Optional CAP Program)	Optional
English	Graduate Academic English	English for Professional Purposes (EPP), English for Specific Purposes (ESP), & The Art of Presenting–Advanced Oral Communications	Making the Case: Structure, Argument, and Composition in Research Contexts	Optional, Custom-tailored

Analysis	Special Topics (MATLAB)	The Active Research Colloquium I & Data Management: Gathering, Analyzing, and Interpreting Data	The Active Research Colloquium II Tools of the Trade:	Optional
General Education Courses	Special Topics (Engineering, Mathematics or Programming Language)	Graduate Course A	Graduate Courses A & B (for those joining this term) Or Graduate Courses B & C	Graduate Courses A+B+C
Credits	14	14	14	9

*This is a sample curriculum and may be subject to change.

Registration

- Leave of Absence (p. 1511)
- Withdrawing from Courses (p. 1511)
- Continuous Enrollment Policy (p. 1511)
- Exceptions to the Continuous Enrollment Policy (p. 1512)
- Inactive Status (p. 1512)
- Non-Graduate Students and Graduate Work (p. 1512)
- Non-Graduate Students Enrolled in Accelerated Bachelor's/Master's Degree Plans or in the Honors College (p. 1512)
- Registration and Graduation Requirements (p. 1512)
- Transfer of Credit from Other Institutions (p. 1513)
- Transfer to a Different Degree Program (p. 1513)
- Undergraduate Courses, S/U Option and Auditing Courses (p. 1513)

Leave of Absence

A student may be granted a leave of absence for medical reasons, family necessity or dependent care, military service, or other approved personal reasons. Students planning to discontinue enrollment for a semester or more must request approval for a leave of absence. Students may petition the Graduate School for a leave of absence for a maximum of two semesters during the entire program; however, the Graduate School may approve extensions to the maximum two semester leave of absence (e.g., for military service obligations extending beyond two semesters).

A petition for a leave of absence (or extension), signed by the Graduate Program Officer or head of the academic unit, must be approved by the dean of the Graduate School. The Graduate School may request appropriate documentation. The request must be filed and approved before the anticipated absence. An approved leave of absence will enable students to re-enter their program without applying for re-activation or owing retroactive tuition and enrollment fees.

A student on leave is not required to pay fees, but in turn may not use Auburn University faculty, facilities, resources, or services intended only for enrolled students; receive a graduate assistantship, fellowship or financial aid from the University or take any Auburn courses related to the plan of study.

Withdrawing from Courses

See the Withdrawal Policy (p. 153)

Continuous Enrollment Policy

All full- and part-time degree-seeking graduate students must be continuously enrolled. Continuous enrollment is defined as registration for a minimum of one credit hour in at least two semesters in a given academic year (fall, spring, summer) until the degree is awarded or status as a degree-seeking student is terminated through an official university withdrawal.[1] Students must register for the term in which they take their examinations, defend their dissertations, and complete degree requirements (including summer term). Although the Graduate School and individual graduate programs will monitor the enrollment status of graduate students, it is ultimately the responsibility of graduate students to ensure that they are meeting the enrollment provisions of this policy.

* Students who enroll for the first time during spring or summer semesters will not be declared inactive if they register in at least two semesters during their first full and subsequent academic years.

Exceptions to the Continuous Enrollment Policy

The Graduate School, if circumstances warrant, may grant exceptions to the Continuous Enrollment Policy. Appeals should be made directly to the dean of the Graduate School.

Inactive Status

Students who fail to register for at least two semesters in a given academic year will be declared inactive. To be re-activated, students must apply for re-activation to the program in which they were enrolled and the Graduate School. Students must also complete the re-admission form. Re-activation is not guaranteed. In order to fulfill the continuous registration requirement, students who are re-activated must register retroactively for a minimum of one credit hour and pay the associated tuition and fees for all semesters that have elapsed since they were last enrolled—up to a maximum of two semesters per academic year and a total of four semesters.

Non-Graduate Students and Graduate Work

An Auburn University undergraduate student may register for graduate courses provided that the following conditions are met: the student has at least a 3.0 GPA, is within 30 semester hours of graduating, has the written consent of the instructor of each graduate course, and obtains approval in advance from the Graduate School. A maximum of 12 semester hours of graduate course work taken in this option later may be applied toward a graduate degree at Auburn University with the approval of the student's advisory committee provided that appropriate arrangements are made in advance with the Graduate School and a grade of B or higher is achieved on all courses used for graduate credit. The total course load taken at the time the undergraduate student is in a graduate course may not exceed 16 semester hours per semester. The same guidelines apply to undergraduate students taking graduate courses for undergraduate credit. A student may not use the same graduate course for both undergraduate and graduate credit. An exception is made for non-graduate students officially enrolled in the Honors College or an approved Accelerated Bachelor's/Master's Degree Plan (see Non-Graduate Students Enrolled in Accelerated Bachelor's/Master's Degree Plans below).

Any post-baccalaureate, non-degree student desiring enrollment in a graduate course must receive written consent of the instructor and approval of the Graduate dean in order to register for such a class.

Non-Graduate Students Enrolled in Accelerated Bachelor's/Master's Degree Plans or in the Honors College

An Auburn University undergraduate student officially admitted and enrolled in an approved Accelerated Bachelor's/Master's degree plan (ABM) may register for graduate courses that are listed as required or elective courses in the student's ABM plan. Similarly, students officially admitted and enrolled in the Honors College may enroll in a limited number of graduate courses. A maximum of nine hours (in a 30-hour master's program) or 12 hours (in a 36-hour or more master's program) may be counted towards *both* degrees, provided that a grade of B or higher is achieved on all courses used for graduate credit. No courses may be counted for both undergraduate and graduate credit in a program in which the double counting of courses is prohibited by an accrediting agency. The total course load taken at the time the undergraduate student is in a graduate course may not exceed 16 semester hours per semester.

Registration and Graduation Requirements

Thesis and dissertation students needing thesis or dissertation final approval and submission and the final examination, or non-thesis graduate students needing to complete projects, would register for GRAD 7000, 7990 Research and Thesis, 8990 Research and Dissertation, or 7980 Project, as applicable. Non-thesis graduate students requiring only a final examination would register for GRAD 7000. Students may not register for GRAD 7000 for more than one semester. Exceptions can be made by the Graduate School under special circumstances.

Students are required to submit a graduation application to the Graduate School prior to the semester of expected graduation. Graduation day is the official last day of each semester and, therefore, is the deadline to submit the Committee, Transfers, Exceptions and Candidacy (CTEC) Form and graduation application for graduation in the following semester. It is the responsibility of graduate students to check records for compliance with graduation requirements. Students who have completed a graduation check for a previous term must notify the Graduate School of pending graduation before the 15th class day of each subsequent semester. Graduate degrees are awarded at the end of each semester.

A graduate student may carry a maximum course load of 16 hours per semester (14 in the summer term) including undergraduate courses. Graduate students must carry nine hours per semester or enroll in (GRAD 7AA0/GRAD 8AA0) with concurrent enrollment for a

minimum of one hour of 7990/8990 to be classified as full-time students. Enrollment in (GRAD 7AA0/GRAD 8AA0) requires completion of the Loan Deferment Request form available through the Graduate School website.

Transfer of Credit from Other Institutions

Graduate credit taken in residence at an international institution or at a regionally accredited U.S. institution may be transferred when recommended by the student's major professor, advisory committee, graduate coordinator, and when also approved by the dean of the Graduate School. Such transfer credit must fall within the time limits of the degree. Students seeking transfer credit must provide documentary evidence showing that the course is comparable to similar graduate courses at Auburn University and relevant to the student's plan of study. Students must also provide an official transcript showing credit earned for the course. No prior commitment is made concerning whether transfer credit will be accepted.

The total number of credit hours that may be transferred from another accredited institution towards a master's, education specialist, or doctoral degree varies by program and may be no more than 50% of the total credit hours for the program. Such transfer credit 1) must fall within the time limits of the degree; and, 2) must be approved by the advisory committee and the Dean of the Graduate School.

In the case of graduate degree programs offered through joint, cooperative, or consortial agreements, the student must earn a majority of credits from the participating institutions. No transfer credit will be approved without an official transcript. No course on which a grade lower than B was earned may be transferred. Additionally, credit will not be allowed if the combined GPA on graduate work taken at other schools is less than 3.0 on a 4.0 scale, nor may transfer credit be used to improve the GPA on courses taken at Auburn University.

Students who are admitted to a graduate certificate program may use a limited amount of course work taken at another accredited university to meet certificate requirements, with the approval of the program faculty and the Graduate School.* The total number of credits transferred shall not exceed 40% of the total required for the Certificate. Total credits allowed to transfer may be less as determined by the Certificate Program. Such transfer credit must fall with the time limits of the certificate program. Students must provide an official transcript showing credit earned for the course and documentary evidence that the course is comparable to similar graduate courses in the certificate program at Auburn University. No course on which a grade lower than B was earned may be transferred.

*A student may not use the same graduate course for both undergraduate and graduate credit.

Transfer to a Different Degree Program

For a student to transfer from one department to another requires **that the student be in good academic standing**, a new application for admission and the usual application fee. Changes in application status (master's to doctoral, doctoral to master's) or enrollment status (master's to doctoral or doctoral to master's) must be requested by the applicant/student involved and endorsed by the department head or chair, major professor, and advisory committee for enrolled students and approved by the dean of the Graduate School. Current international students must recertify full financial sponsorship for the issuance of a new 1-20 form.

Undergraduate Courses, S/U Option and Auditing Courses

A graduate student may register for undergraduate courses (1000-4000-level). For students enrolled in Graduate School, grades earned in undergraduate courses will not be used in calculation of the GPA for either retention or graduation but will appear on the graduate transcript. This policy took effect with the posting of grades fall 1998. For courses taken before fall 1998, grades earned in undergraduate courses may be used in calculation of the GPA for retention, but not for graduation. A graduate student may elect any course to be graded under the Satisfactory (S)-Unsatisfactory (U) option, if the major professor so recommends. Students are not allowed to select this option after the 15th class day. Courses listed on the Plan of Study must be graded A, B, C, D or F except for those designated as S/U. Similarly, a graduate student may elect to audit any course not on the Plan of Study. The student may not change from audit to credit after classes begin but may change from credit to audit before the 15th class day. All uses of the S/U and audit option require approval of the Graduate School.

Academic Progress

- Incomplete Grades (p. 1514)
- Grades (p. 1514)
- Academic Standing (p. 1514)
- Advisors (p. 1514)
- Academic and Professional Progress (p. 1514)

- Academic Requirements for Students in the Professional Program of Veterinary Medicine (p. 1515)
- Student Athletes (p. 1516)
- Student Financial Aid Recipients (p. 1516)
- Veterans (p. 1516)

Incomplete Grades

A grade of “incomplete” must be removed within the following six months or it will be recorded permanently as an F and the course will have to be repeated. This applies regardless of the student’s enrollment status. A student not enrolled during the following six months is not exempt from this rule. No student may graduate until “incomplete” and “no record” grades are removed, and the removal must be completed at least three weeks before the date of graduation, regardless of whether or not the course is included on the plan of study worksheet.

Grades

To receive a graduate degree at Auburn University, a student must earn a cumulative GPA of 3.0 on a 4.0 scale on all courses carrying graduate credit. No more than nine hours beyond the student’s Plan of Study is allowed in obtaining the cumulative graduate GPA (CGGPA). No grade below C (including unsatisfactory grades for courses taken under the S/U option) is acceptable for credit toward a graduate degree. Each graduate course in which a grade below C is received must be repeated at Auburn University if it is counted toward the student’s degree. Both the original grade and the grade for any repeated course will be counted in calculating the CGGPA. Course credits transferred from another institution may not be used to satisfy this requirement. Courses retaken will not count against the nine-hour limit beyond the student’s Plan of Study in obtaining the minimum CGGPA.

Academic Standing

Only grades in Auburn University courses approved for graduate credit will be used in determining the overall GPA for continuation in the Graduate School. If at the end of any semester the cumulative graduate GPA (CGGPA) falls below 3.0, the student will be placed on **academic probation.** If the CGGPA remains below 3.0 after the next eleven credit hours of graduate enrollment (both graded and ungraded) or two consecutive terms (whichever comes first), the student will be placed on **academic suspension.*** Students on academic suspension may not hold a graduate assistantship. The student may be readmitted only after completion of a remediation plan recommended by the academic unit and approved by the Dean of the Graduate School. Course work taken as part of the remediation plan must be completed within two consecutive terms and may count toward both the student’s degree and CGGPA with the recommendation of the department head and the approval of the graduate dean.* Upon completion of the remediation plan, the student must have addressed academic deficiencies and have a CGGPA of 3.0 or above. Once approved by the graduate dean, remediation plans may not be amended or extended beyond the original deadline. If a student fails to complete the remediation plan as approved or if the student earns a grade of C or below while completing the remediation plan, the student will be dismissed from the Graduate School and the designation ACADEMIC DISMISSAL will be placed on the student’s official record.

*The summer term is counted as one of the consecutive semesters only if a student is enrolled during the summer term.

Advisors

The dean of the Graduate School is the general counselor to all graduate students. A faculty advisor or major professor will be designated for each student in accordance with departmental policy. There also will be an advisory committee for each student. The major professor generally serves as the chair of the advisory committee. In the case of co-chairs, at least one must be a member of the graduate faculty at the appropriate level at Auburn University. Some required forms and reports regarding the student’s program must be approved by the major professor, advisory committee, department head or chair and the dean of the Graduate School. Students should ascertain which signatures must be obtained.

Academic and Professional Progress

Monitoring the academic progress of graduate students and graduate teaching assistants on a regular basis is important to their success and to the success of Auburn’s graduate programs. The Graduate School requires that each department conduct — at least on an annual basis —an evaluation of the progress of each graduate student enrolled in a doctoral program and each Graduate Teaching Assistant (GTA). Departments are also encouraged to monitor the progress of all other degree-seeking students. Annually, each department will report to the Graduate School, confirming that the evaluation of all doctoral students and GTAs has been completed.

The student’s advisory committee monitors each graduate student’s progress toward a degree, and issues of professional and personal development may be considered. While failure to maintain academic standards is reason for dismissal, a student also may be dismissed from the Graduate School if progress is unsatisfactory in other areas.

In such cases, the advisory committee will prepare a statement of grievance and discuss it in a meeting with the student. The statement must have the unanimous support of all members of the committee. The student will be warned that corrective measures must be taken within a specified time to avoid action that might result in dismissal. The committee determines the period allowed for correction. Copies of the statement of grievance and summary of the meeting will be provided to the student, the department head/chair, and the academic dean.

If the deficiency is not corrected within the time allowed by the committee, a statement reiterating the grievance and recommending dismissal should be sent to the graduate dean with copies to the student, the department head/chair, and the academic dean.

The graduate dean will give the student an opportunity to respond and will make a final determination. The student and the advisory committee will be notified.

The action taken will not appear on the student's official transcript, and release of information is restricted under the University's policy on the confidentiality of student records.

Academic Requirements for Students in the Professional Program of Veterinary Medicine

Academic Requirements

All applicants and students in the professional program are subject to the academic and disciplinary regulations of the College of Veterinary Medicine in addition to those of Auburn University. Any student who earns less than a 2.25 GPA for any term will be placed on academic probation (academic warning). A student who fails to earn a 2.25 GPA in each of the succeeding two terms of enrollment will be dropped from the rolls of the College of Veterinary Medicine for scholastic deficiency. In addition, a student who does not have a veterinary college cumulative average of 2.25 at the end of any academic year will be required to withdraw from the College of Veterinary Medicine. Any student who receives a **D** in any course or is required to remediate a course to receive a passing grade will be placed on academic probation. If the student receives a second **D** in the same calendar year or academic year, they will be required to withdraw from the College of Veterinary Medicine. A student will be removed from academic probation after two terms, assuming they have met the terms of probation. A student who makes a grade of **F** in any course will be required to withdraw from the College of Veterinary Medicine. If a student who is dismissed for academic reasons is re-admitted, they may be required to repeat additional courses as deemed necessary by the Admissions and Standards Committee. Clinical courses are unique in that the art and skills to be developed in them can be acquired only through full participation in the laboratories. Attendance in these courses is required except in case of illness or other extenuating circumstances as may be judged by the involved instructor. Grading in these clinical laboratory courses is primarily by subjective evaluation. When a course involves student rotation through several disciplines or sections, the student must receive a passing grade in each area before a passing grade can be given for the course. Any student who earns a D or F in any clinical rotation or is required to remediate a course to receive a passing grade will be placed on academic probation. If the student receives a second F during clinical rotations, that student will be required to withdraw from the College of Veterinary Medicine. If the student receives a second and third D or F during clinical rotations (i.e., D-D-F or D-D-D), that student will be required to withdraw from the College of Veterinary Medicine. If the college admissions and standards committee permits re-admission, the student may be required to repeat all clinical experiences to meet the requirements for the clinical year.

Required Withdrawal

The faculty of the College of Veterinary Medicine reserve the right to require the withdrawal at any time of any student who in the judgment of the Admissions and Standards Committee is not profiting from the instruction offered, who is neglectful, dishonest or indifferent in the performance of required duties and studies or whose character or conduct is inconsistent with good order of the veterinary college or with the standard of the veterinary profession.

Requirements for Graduation

To be eligible for the D.V.M. degree, candidates must complete all of the required courses in the order listed in the curriculum in veterinary medicine, along with at least four hours of elective credit, with a minimum overall GPA of 2.25. In addition, each senior student must participate in a clinicopathologic conference (CPC) to fulfill their oral communication requirement. Following completion of all academic work, each student is required to serve a preceptorship of 8 weeks with an approved practicing veterinarian. A report of satisfactory completion of the preceptorship is required for graduation. A graduation fee must be paid at the beginning of the semester of graduation and all indebtedness due the institution must be paid prior to graduation.

Student Athletes

In addition to meeting the general academic requirements of the university, student athletes must meet all academic requirements, including those relating to satisfactory progress toward a degree, set forth in the legislation of the Southeastern Conference (SEC) and of the National Collegiate Athletic Association (NCAA).

Student Financial Aid Recipients

In addition to meeting the general academic requirements of the university, applicants for student financial aid funds must maintain Satisfactory Academic Progress to receive, or to continue to receive, assistance through federal, state, and institutional student aid programs. Descriptions of these Satisfactory Academic Progress requirements for distinct classifications of Auburn students are available from the Office of Student Business & Account Services.

Veterans

Veterans Resource Center

The Auburn University Veterans Resource Center (AUVRC) assists veterans, guardsmen, reservists, active duty, military dependents, and survivors receiving Veteran Affairs (VA) federal education benefits in all aspects of academic success, while transitioning to campus and community. The center provides timely and comprehensive support with a range of services for current and former military service members, including eligible military dependents, by collaborating with university faculty and staff, state representatives, the local veteran community, and civilian-advocate organizations.

Contact the AUVRC: (334) 844-8167, veterans@auburn.edu, or visit https://veterans.auburn.edu/.

Priority Registration

Priority Registration is given to groups of students who fall under certain categories, including veterans. The priority status must be recognized by the Registrar's Office when the time tickets are set in order for the student's special registration status to be activated.

International Opportunities

- International Academic Opportunitie (p.)s (p. 1516)
- International Internships, Academic/Curricular Practical Training (p. 1516)
- Office of International Programs (p. 1516)
- OIP International Student and Scholar Services (p. 1517)
- OIP Auburn Abroad Experience (p. 1517)

International Academic Opportunities

Access to international opportunities is provided throughout many colleges, schools, departments and other student support units. However, there are several units on campus that provide specialized services for study abroad and international students attending Auburn University.

International Internships, Academic/Curricular Practical Training

Academic internship experience both within the US and abroad are highly encouraged for all disciplines and all AU students. Students interested in participating in such experiences should check with their academic units for specific requirements. For international students practical training is available: UNIV 4920 Curricula Practical Training depending on US immigration status as Curricular Practical Training (F) or Academic Training (J). Students may also do academic internships abroad under Auburn Abroad. For further details on Auburn Abroad or CPT/AT students should check with the Office of International Programs.

Office of International Programs

The Office of International Programs (OIP) is a unit of the AU Division of Academic Affairs. Its mission is to provide leadership and relevant administrative support to academic units, faculty, students, and staff for the effective promotion and efficient adoption of Auburn University's internationalization goals. The International Students and Scholar Service component of the OIP assists foreign national students, visiting scholars, and university employees in achieving their academic objectives. The Auburn Abroad unit of the OIP promotes and facilitates student and faculty participation in an international education experience through programs outside of the United States. For additional information, contact: Office of International Program, 228 Foy Hall; 334-844-5001; intledu@auburn.edu; or www.auburn.edu/international. (http://www.auburn.edu/academic/international/)

OIP International Student and Scholar Services

The ISSS unit of the OIP provides assistance and guidance to foreign national students, visiting scholars, and University employees regarding US immigration requirements and Auburn policies for studying and/or working at Auburn University. Documentation of eligibility for study in the United States, work authorizations, and other government documents required by international students, scholars, and employees are issued and monitored by the ISSS. ISSS holds orientation programs at the beginning of each term for new international students. Currently, the university has more than 2500 international students, visiting scholars, and employees from over 100 nations. For additional information please visit the ISSS website, https://www.auburn.edu/academic/international/isss/.

OIP Auburn Abroad Experience

The Office of International Programs (OIP) Auburn Abroad unit seeks to develop, expand and facilitate credit bearing study, internship and exchange opportunities outside of the United States. Each year more than 1200 Auburn University students participate in the Auburn Abroad experience on over 93 programs. More than 90 percent of these students go on faculty led programs and Exchange Programs with the rest going on other university or provider programs. With some planning, credit earned through the Auburn Abroad experience can be integrated with Auburn University degrees and applied to core, major, minor, and elective courses. Students on Auburn University faculty-led programs, the CORE curriculum program in Barcelona, Spain and Exchange Programs will earn AU credit and will receive grades on their transcript. Students going on other university programs will earn transient/transfer credit for their courses abroad. If a student chooses to go on other university programs, they will need to be enrolled in an Auburn Abroad placeholder course to be able to use their financial aid.

Auburn Abroad experiences vary considerably in length and are available for all semesters including summer. Each college and school within Auburn University has programs abroad tailored to their students' needs. The Auburn Abroad staff conducts a Fall Study Abroad and Passport Fair, and over 100 other information sessions each year to inform students about international opportunities. Both undergraduate and graduate students can participate in the Auburn Abroad Experience. Requirements for acceptance into the Auburn Abroad Experience include the following: (1) a minimum institutional cumulative GPA of 2.25 for undergraduates and 3.0 for graduate students, (2) the student must attain the age of 19 prior to the start date of program, (3) the student's record must show no pending Auburn University judicial actions and the student must be in good academic standing in their college or school. Faculty directors for programs abroad may also have additional requirements. Although some programs require prior knowledge of a foreign language, there are many that do not.

Students considering any type of credit bearing experience abroad should start their Auburn Abroad Experience by attending either (1) a weekly, thirty-minute Study Abroad 101 session conducted by the Auburn Abroad Staff or (2) by attending a faculty led program orientation session. Sessions are conducted on Thursdays at 3pm and repeated on Fridays at 11am in the Auburn Abroad conference room, 242 Foy Hall. These sessions include an introduction to the on-line Auburn Abroad application process, hints on searching for faculty led and other types of programs abroad, the credit approval process, transcript information, information on a variety of funding resources, and paperwork needed for scholarship, PACT V.A. and other benefit programs. Students interested in faculty led programs must contact the faculty director(s) for the dates of their orientation sessions. After students attend a study abroad orientation session, they are ready to start their on-line study abroad application, found at www.auburn.edu/studyabroad (http://www.auburn.edu/academic/international/auab/) on the Program Search link. They need to complete this on-line application, submit a completed Course Approval Form, and respond to any Auburn Abroad Unit emails requesting additional information. The Course Approval Form requires special attention and students must obtain all required signatures including department chair and dean. The on-line application and requested materials must be completed and submitted by the deadline dates listed on www.auburn.edu/studyabroad (http://www.auburn.edu/academic/international/auab/) to be considered. Current deadline dates are: Summer Programs: March 30; Fall Programs - April 30 and Spring Programs: October 15.

The OIP staff monitors students' on-line applications and will enroll individual students in one of the following Auburn Abroad Full Time Placeholder courses: (UNIV 2940/UNIV 2945 , UNIV 4940 /UNIV 4945 , UNIV 5940 /UNIV 5945 or UNIV 7940/UNIV 7945). These placeholder courses will be listed on the students' transcripts while they are abroad. Once students complete their course work abroad and the Auburn Abroad staff receives and processes their transcript through the registrar, then the actual, approved courses listed on their Course Approval Form will be listed on the students' transcripts as Auburn University Credit. These processes and dates are subject to change and it is the individual student's responsibility to attend orientation sessions and check the website to insure that they are in compliance. In addition to receiving credit for an abroad experience, students enrolled in Auburn Abroad are provided opportunities to attend pre-departure sessions and will be enrolled in the Auburn University International Travel Assistance plan. Students will receive an enrollment card and material to read concerning the assistance plan, health and safety issues. The Auburn Abroad staff, along with the Office of Campus Safety and Security routinely monitor global situations and will provide assistance to students in distress abroad. Returning students are encouraged to become Global Tiger Peer Advisors when they return, share their "Global Tiger Tale" on the Auburn Abroad website and submit photos from their experience abroad for the annual student photo

contest. For additional information please visit the OIP Auburn Abroad Experience Website at www.auburn.edu/studyabroad (http://www.auburn.edu/academic/international/auab/) and/or send an email to: auab@auburn.edu.

Graduate Assistantships & Fellowships

- Tuition Waiver (p. 1518)
- Graduate Assistantships (p. 1518)
- Types of Graduate Assistantships (p. 1519)
- Annual Evaluation of Graduate Teaching Assistants and Doctoral Students (p. 1519)
- Background Check Policy (p. 1520)
- Graduate Fellowships (p. 1520)
- Graduate Assistantship Workload Policy (p. 1520)
- Graduate Assistant Performance Improvement and Administrative Action Policy (p. 1520)
- Sexual and Gender Based Misconduct Policy Training for University Graduate Assistants (p. 1521)

Tuition Waiver

Non-Alabama resident graduate assistants may receive a waiver of the out-of-state portion of their tuition if they are on at least a 25 percent graduate assistantship (new appointments beginning in Fall 2013 must be at 33 percent) and are paid a minimum monthly stipend set each year by the provost. Such graduate assistants who have been on assistantship for consecutive fall and spring semesters are eligible to have the out-of-state portion of their tuition waived for the summer semester whether or not they are on assistantship that semester. Students will need to contact the Graduate School to have this waiver applied.

Graduate Assistantships

Graduate assistant appointments are temporary. Continuation depends upon availability of funds, level of enrollment, research needs, and satisfactory performance. Salaries are paid in accordance with the budget policies and payroll procedures of the university. The Board of Trustees is obligated to pay certain fixed charges against the institution and thereafter pay salaries in full insofar as funds are available. If for any reason beyond the control of the Board of Trustees funds are not available, salaries will be prorated.

Each graduate assistant must be in a degree-seeking program and registered in the classification of MST, EDS, PHD, or GPR. The student also must be registered for at least one course (during each academic term of the assistantship), must satisfy the minimum course load specifications of the individual departments and must be making satisfactory progress toward the degree.

Workloads for graduate assistants are defined on the basis of a normal teaching load or the equivalent time in other duties as determined by each department head and the dean of the school or college in which the assistant is employed. For example, a one-third workload is one-third of a normal teaching load. Graduate students may hold multiple assistantships and the assistantships may come from different units on campus, but together they cannot add up to more than a 0.50 FTE (20 hours per week) appointment. Maximum course loads for graduate assistants are determined by individual departments. It is recommended that graduate students working more than half-time not carry a full academic load.

Requirements that graduate students register for hours not included in the plan of study as a condition of employment or to enhance credit hour production for administrative purposes are inappropriate. Similarly, requiring hours on the plan of study beyond the degree requirements established by the Graduate Faculty for such administrative purposes is also inappropriate unless the additional requirements are required by university policy.

International graduate students on F1 visas cannot hold a greater than 50 percent work appointment. International graduate students on F2 visas cannot hold a work appointment. Multiple assistantships for international graduate students cannot add up to more than a 50 percent work appointment.

All international graduate teaching assistants who are assigned to scheduled lecture or laboratory sections must be certified in spoken English proficiency. Evidence of satisfactory speaking skills can be demonstrated with a score of 23 or higher on the Speaking Section of the Internet-based TOEFL (iBT), or a score of 7 on the Speaking section of the IELTS, or a score of 4.4 and above in the Speaking section of the iTEP (which replaced the SPEAK test), which is administered at Auburn University prior to the start of classes. Applicants who hold a baccalaureate degree from an accredited institution whose instruction is in English may be exempted from this requirement. A student may be asked to enroll in a course designed to improve the oral communication skills of international teaching assistants. Hiring units are responsible for making sure that international Graduate Teaching Assistants meet the minimum requirements for employment, including but not limited to a satisfactory background check and proficiency in English. For each international Graduate

Teaching Assistant, hiring units are required to submit the International Graduate Teaching Assistant Certification of Eligibility for Employment form and supporting documentation.

Types of Graduate Assistantships

Graduate Teaching Assistants (GTAs)

A Graduate Teaching Assistant must meet eligibility requirements and be supervised by an appropriate graduate faculty member. The GTA's primary responsibility is to support the instructional mission of the University. For a student to be classified as a GTA, at least 50% of the student's responsibility as a teaching assistant must be devoted to the direct instruction of students, typically in a classroom or laboratory setting.* The GTA's responsibilities may also include, for example: advising or mentoring of students; proctoring exams; grading papers, homework, and/or projects; preparing instructional materials; or providing other general assistance in the instructional process. GTAs may not be given duties to support faculty research or duties primarily clerical in nature. Whatever their instructional responsibilities, GTAs must be supervised by a faculty member who is responsible for monitoring and evaluating their performance at least on an annual basis. GTAs who have no prior teaching experience must be given some form of training before being allowed to teach. Any GTA with primary responsibility for a course must have a minimum of 18 semester hours of graduate course credit in that field of instruction.

*GTAs are not permitted to serve as instructor of record for courses numbered 6000 or above, although they may assist with laboratories for such courses. Additionally, they may not teach or assist with a course in which they are enrolled.

Graduate Research Assistants (GRAs)

A Graduate Research Assistant (GRA) must meet eligibility requirements and be supervised by an appropriate graduate faculty member. The GRA's primary duty is to engage in original, professional-level research under a faculty member's supervision in the course of obtaining a graduate degree. The faculty supervisor determines the students' specific duties and is responsible for monitoring and evaluating the GRA's performance at least on an annual basis.

Graduate Extension Assistants (GEAs)

A Graduate Extension Assistant must meet eligibility requirements and be supervised by an appropriate graduate faculty member or extension agent. GEAs are responsible for various kinds of extension work and interaction with the public. The various branches of the Extension Service award these assistantships. A faculty member or extension agent should be responsible for monitoring and evaluating the performance of GEAs at least on an annual basis.

Graduate Assistants (GAs)

Graduate Assistants must meet eligibility requirements and be supervised by a faculty member, administrator, or other appropriate university employee. GAs are responsible for duties other than teaching, research, or extension. These responsibilities can be varied and could include performing administrative duties not related to the GA's field of study or the instructional or research missions of the university. Whatever their responsibilities, GAs should be supervised by a faculty member, administrator, or other appropriate university employee who is responsible for monitoring and evaluating their performance at least on an annual basis.

*Tuition waivers for graduate assistants not engaged in teaching, research, or extension are subject to taxation and income tax withholding.

Policy on Paid Leave for Graduate Assistants (GTAs, GRAs, and GAs)

All graduate assistants (GTAs, GRAs, and GAs) are exempt employees, meaning they are paid on a monthly basis for their assigned FTE. It is Auburn University policy that graduate assistants be paid during official University holidays and breaks, including Fall Break, Spring Break, and/or official University closures.

Annual Evaluation of Graduate Teaching Assistants and Doctoral Students

Policy: Effective beginning Fall 2014, the Graduate School will require that each department conduct—at least on an annual basis—an evaluation of the progress of each Graduate Teaching Assistant (GTA) and each graduate student enrolled in a doctoral program. Continuation is contingent upon satisfactory performance.

Reporting: Annually, each department will report to the Graduate School, confirming that the evaluation of all GTAs and doctoral students has been completed. In addition, the department will provide the Graduate School with a summary report of all instances in which a GTA or doctoral student has received an unsatisfactory review.

Expectations: Each department will be responsible for developing procedures (if not already in place) for the annual evaluation of the progress of GTAs and doctoral students. Following guidelines for best practices, the review should include at least the following:

- A student self-report and assessment of academic progress; teaching (if applicable); and research (if applicable) [prepared in advance of the review conference];
- A report prepared by the student's advisor (and preferably at least one other faculty member, e.g., a member of the student's advisory committee) that assesses the student's academic progress, teaching (if applicable), and research (if applicable) that identifies strengths and weaknesses, and establishes expectations for the next year. The report may be augmented by reports from teaching supervisors or other members of the student's advisory committee.
- An opportunity for the student to discuss the report in person.
- A signed copy of the written assessment should be placed in the student's file and a copy given to the student.

Background Check Policy

The Graduate School requires that all graduate student employees (including hourly paid) have an approved consumer report and/or investigative consumer report (background check) as a condition for appointment. The information contained in these reports may be used to deny an individual employment or continued employment with Auburn University. The background report and its contents are deemed private and confidential and shall be disclosed only for the purposes described in "Procedures for Securing Background Reports for Graduate Students Before Hiring" to those University employees who have a need to know, or as otherwise required or permitted by law. This policy is effective for all graduate student employees whose new appointments begin on or after January 1, 2014.

Graduate Fellowships

Auburn University provides in-state tuition fellowships to most of its students holding graduate assistantships. Though administered through the Graduate School, applicants should contact the specific academic departments concerning eligibility and availability.

Graduate Assistantship Workload Policy

Graduate students may not normally hold an appointment of more than 50 percent, whether the appointment is from a single unit or multiple units. This policy also applies to internship appointments (whether called an internship or externship). Graduate students may hold multiple assistantships (assistantships and/or hourly employment) from one or more units on campus, but the cumulative appointments cannot add up to more than a 0.50 FTE (20 hours per week) appointment. This allows the students the time needed to devote to their academic programs. An exception is automatically allowed in the special case of a graduate assistant assigned to teach one four credit course and one three/four credit course. In such cases, appointments will be made at 0.58/0.67 FTE, respectively. Other exceptions may be requested, with compelling academic justification, in writing to the Provost by the dean. For multiple assistantships from different units, coordinating approval memos from the home unit and the hiring units are required. Please note that federal regulations limit the cumulative appointment for international graduate students to no more than a 0.50 FTE (20 hours per week) appointment.

Graduate Assistant Performance Improvement and Administrative Action Policy

Failure to Satisfy Performance Standards

Performance Improvement Meetings — In addition to regularly scheduled performance reviews, when a supervisor determines that a graduate assistant is failing to meet satisfactory performance standards, the supervisor will meet with the assistant. Together, they will review the duties and responsibilities expected of the graduate assistant, and the supervisor will identify those areas in which the performance of those duties and responsibilities is judged to be unsatisfactory. The supervisor will then advise the graduate assistant that if his or her performance does not improve to a satisfactory level within a time period specified by the supervisor, the assistantship will be terminated. The time period established by the supervisor should provide a sufficient and reasonable time for the graduate assistant to demonstrate a satisfactory level of performance. In some instances, the graduate assistant's failure to meet satisfactory standards of performance may be disruptive of the educational process (e.g., failure to appear for a teaching assignment, or failure to grade examinations in a timely fashion). In such instances, the graduate student should be advised that any subsequent failure to meet satisfactory performance standards may result in termination of the assistantship. As soon as possible following this meeting (generally within three working days) the supervisor will provide the assistant with a written summary of the meeting, including notice of areas of unsatisfactory performance and the time period specified for improvement to a satisfactory level. A copy will be sent to the department chair for review/approval and to the dean of the Graduate School.

Termination of an Assistantship — If a graduate assistant fails to meet acceptable standards of performance as prescribed in the performance improvement meeting, the supervisor will notify the department chair. The department chair will schedule a meeting

with the supervisor and graduate assistant as soon as possible, generally within three working days. At that meeting, the graduate assistant's performance will again be reviewed. If it is concluded that the graduate assistant has failed to meet acceptable performance standards, the department chair may terminate the graduate assistantship appointment. The department chair will provide a written notice summarizing the meeting and the action taken to the supervisor, graduate assistant, the dean of the college, and the dean of the Graduate School within five working days of the meeting.

Acts of Misconduct and Unprofessionalism — Acts of misconduct or unprofessionalism may require prompt action. Such acts may include, but are not limited to:

1. Refusing to obey reasonable and necessary instructions or job assignments, insubordination, or using abusive or unprofessional language in the workplace.
2. Indulging in offensive or obscene manner.
3. Drinking intoxicants on University property, with exception of events acting in accordance with the University Campus Alcohol Policy.
4. Using illegal drugs on University property.
5. Stealing or misappropriating University property or property belonging to students or university employees.
6. Scientific misconduct

Appropriate actions include termination of an assistantship, suspension of an assistantship for a specified period, and reduction of the FTE and/or benefits associated with that assistantship. If a supervisor believes a graduate assistant has engaged in such an act of misconduct or unprofessionalism, the following steps are to be taken.

For incident(s) of unprofessional acts or behavior which violate accepted norms of professional conduct, the supervisor will provide notice of the proposed administrative action to the graduate assistant and document the situation in a written report. In such cases, the graduate assistant may be placed on immediate administrative leave with pay from the assistantship duties, at the discretion of the supervisor. The report will be provided to the department chair to whom the supervisor reports, who will schedule a meeting with the supervisor and graduate assistant as soon as possible, generally within three working days. At that meeting, the incident(s) will be reviewed, and the proposed administrative action may be affirmed, amended, or overturned by the department chair. The department chair will provide a written notice summarizing the meeting and his/her decision regarding administrative action to the supervisor, graduate assistant, the dean of the college, and the dean of the Graduate School within five working days of the meeting.

Acts of misconduct may include, but are not limited to, theft, fraud, physical altercation, and sexual harassment. Additionally, for misconduct covered by the Student Code of Conduct, Title IX Sexual Harassment Policy, and/or the Policy Against Discrimination and Harassment, the case will also be referred to the Affirmative Action/Equal Employment Opportunity – Title IX Office.

Supervisors and students should be aware that termination or reduction of the FTE of an assistantship, will have large financial impacts, which can be particularly problematic for a student if termination or FTE reduction occurs before the last class day of a semester. A description of the rules regarding graduate assistant benefits, including tuition fellowships and health insurance, can be found on the Graduate School website.

Appealing Action Regarding an Assistantship — If a graduate assistant wishes to appeal a decision of administrative action regarding an assistantship, including termination, he/she may file a written appeal within five working days of receipt of the department chair's written notice with the dean of that college. The graduate assistant will be notified in writing of the result of the appeal within five working days of the submission of the written appeal. The decision resulting from this process is final and not subject to further appeal.

Sexual and Gender Based Misconduct Policy Training for Auburn University Graduate Assistants

Title IX & Discrimination: Identifying & Responding to Sexual Misconduct Training for Auburn University Graduate Assistants

The Graduate School requires that all Graduate Assistants, including Graduate Teaching Assistants, Graduate Research Assistants, Graduate Extension Assistants, and Graduate Assistants, have approved Title IX & Discrimination: Identifying & Responding to Sexual Misconduct training as a condition for continued appointment. The specific form of the required training will be determined in consultation with the Graduate School and the Office of Affirmative Action/Equal Employment Opportunity.

Doctoral Degrees

- Admission (p. 1522)
- Summary of Procedures for Doctoral Degree Programs (p. 1522)
- Advisory Committee and Plan of Study Worksheet (p. 1523)
- Course Requirements (p. 1523)
- Time Limit (p. 1524)
- Dissertation (p. 1524)
- Annual Evaluation of Graduate Teaching Assistants and Doctoral Students (p. 1524)
- The Doctor of Philosophy Degree (p. 1524)
- Final Examination (p. 1525)
- Language Requirement (p. 1525)

The doctor of philosophy is offered in administration of elementary and secondary education, administration of higher education, administration of supervision and curriculum, adult education, aerospace engineering, animal sciences, biological sciences (botany, microbiology and zoology), career and technical education, chemical engineering, chemistry, civil engineering, computer science and software engineering, counselor education, counseling psychology, discrete and statistical sciences, early childhood education, educational psychology, electrical and computer engineering, elementary education, English, English language arts education, fisheries and allied aquacultures, forestry and wildlife sciences, history, horticulture, human development and family studies, industrial and systems engineering, kinesiology, management, materials engineering, mathematics, mathematics education, mechanical engineering, music education (instrumental and vocal), nutrition, food science, physics, plant sciences (agronomy and soils, plant pathology, and entomology), poultry science, psychology, public administration and public policy, reading education, rehabilitation and special education, science education (biology, chemistry, general science and physics), and social science education (general social science and history), plus interdepartmental programs in biomedical sciences (anatomy, physiology, and pharmacology; large animal surgery and medicine; pathobiology; radiology; and small animal surgery and medicine), economics (agricultural economics and forestry), integrated textile and apparel science (consumer affairs and polymer and fiber engineering), and pharmaceutical sciences.

Admission

Prospective candidates for the degree of doctor of philosophy are admitted under the same procedures and requirements outlined in the general regulations elsewhere in this *Bulletin*. A student must be admitted to a specific doctoral program, but admission does not mean admission to candidacy for the degree, which occurs only after satisfactory completion of the general oral examination.

Summary of Procedures for Doctoral Degree Programs

The student should:

1. Obtain application forms through the Graduate School website and apply by submitting all required materials to the Graduate School by the departmental deadlines. The Graduate School forwards the application to the appropriate departmental screening committee. The department head or chair then makes a recommendation to the dean of the Graduate School, who sends a letter notifying the applicant of the decision.
2. Apply for an assistantship, if applicable, through the department involved.
3. Become familiar with the requirements for the doctoral degree as published in this Bulletin.
4. Consult with the departmental advisor and become familiar with departmental procedures.
5. Discuss and develop a plan of study during the first semester with an advisor or major professor.
6. Acquire necessary forms at the Graduate School or on the Web at www.grad.auburn.edu.
7. Establish an advisory committee through the major professor and department head or chair. Official appointment of the advisory committee occurs when the Committee, Transfers, Exceptions, and Candidacy (CTEC) Form is approved by the Graduate School.
8. Prepare a plan of study worksheet and have it approved by the advisory committee and department head or chair. Submit the Committee, Transfers, Exceptions, and Candidacy (CTEC) Form.
9. Complete course work, including language requirements, if any, and as detailed in the plan of study worksheet.
10. Arrange for the general written and oral examinations through the advisory committee. Students must have completed 30 graded credit hours of coursework in order to proceed with the General Oral Examination. After the written examination, schedule the General Oral Examination by submitting the Request for the Report on the General Oral Examination. The advisory committee, as identified in the Committee, Transfers, Exceptions, and Candidacy (CTEC) Form, must be approved by the Graduate School prior to scheduling the General Oral Exam.

11. Submit the dissertation proposal for approval by the advisory committee and become familiar with Electronic Thesis and Dissertation Guide, available through the Graduate School website.
12. Submit the graduation application through AU Access at least one semester before graduation.
13. Register for at least one course the semester of graduation.
14. Prepare dissertation and submit a committee-approved first draft to the Graduate School for review and approval by the University Reader, who serves as the representative of the graduate faculty.
15. Study recommendations of the University Reader and make appropriate changes in the dissertation.
16. On approval of the dissertation by the Dean of the Graduate School, arrange for final oral examination.

Advisory Committee and Plan of Study Worksheet

After a student has enrolled in the doctoral program, an advisory committee should be selected by the student, student's advisory committee chair (sometimes called the major professor), and department/program chair. As described in the following paragraph, the committee chair and members should be formally selected and approved using the Committee, Transfer, Exception and Candidacy (CTEC) form. If change(s) in the committee makeup are required (either chair or member(s)), the committee chair (for committee makeup) and/or department head (for chair changes) should assist the student in identifying replacement members. Please note that a student must have a full committee (committee chair and at least the minimum number of qualified committee members) in order to continue in the program after the CTEC form has been submitted. Committee chair/membership replacements should be made within one academic term to avoid the student being placed on inactive status (link: https://bulletin.auburn.edu/thegraduateschool/registration/#Inactive%20Status (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fbulletin.auburn.edu%2Fthegraduateschool%2Fregistration%2F%23Inactive%2520Status&data=05%7C01%7Cwittemm%40auburn.edu%7C3dec4ca0b34f435d2dfe08db4cda3008%7Cccb6deedbd294b388979d72780f62d3b%7C1%7C0%7C638188272231877600%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=axDrMiUR1x91Z7nhsJx4lUdskMJsEQ2O1fG4nlW6%2BrU%3D&reserved=0).

The advisory committee is responsible for developing the student's plan of study worksheet and conducting the doctoral general and final examinations. It should consist of at least four members of the Auburn University graduate faculty. Additional voting members may be appointed to the committee (including no more than one non-Auburn University faculty member, who must hold the terminal degree in the field). Three of the Auburn University-affiliated committee members, including the major professor, must be members of the graduate faculty at Level 2. The major professor must also be a graduate faculty member in the department/program granting the degree. The formal appointment of the advisory committee occurs when the Committee, Transfers, Exceptions, and Candidacy (CTEC) Form is approved by the Graduate School.

Changes to the plan of study worksheet may be warranted as required by student needs, research interests, and course availability. If so, submit a new CTEC Form if there are changes such as transfer courses and/or exceptions.

Course Requirements

The minimum number of hours in a doctoral program is 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990 and must include at least 10 hours of 8990. Some departments require more than 60 semester hours, and requirements may vary according to a student's background and interest.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and, 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of 8990. Enrollment in 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the plan of study worksheet. No grade is assigned.

The Dean of the Graduate School is authorized to approve alternatives to these course work requirements in exceptional cases and on an individual basis.

Time Limit

Programs and departments should conduct annual reviews of doctoral candidates to assess progress toward the completion of the degree. Students are expected to achieve candidacy within six years and to complete all requirements for the degree within ten years. Upon admission to candidacy, the student has four calendar years to complete all remaining requirements for the doctoral degree. The student's time to completion begins with the earliest completed course approved for inclusion in the plan of study. If unable for any reason to complete the requirements on time, the student may petition, with the approval of the advisory committee, the dean of the Graduate School for a one year extension. Students failing to complete the degree in the allotted time revert to the status of an applicant and must petition, with the approval of the advisory committee, the dean of the Graduate School to retake the oral examination.

Dissertation

A dissertation is required of all candidates for the degree of doctor of philosophy. It shall constitute an original contribution to knowledge. The student conducts the research and prepares the dissertation under the direction of the major professor. Only dissertations prepared according to the Electronic Thesis and Dissertation Guide, available through the Graduate School website, are accepted by the Graduate School. Submission of a dissertation is defined as the time at which the first complete draft of such is submitted to the major professor for review. All dissertations are published electronically through AUETD and disseminated by ProQuest. Auburn University reserves the right to make copies of the dissertation, but the student retains all publication rights.

Annual Evaluation of Graduate Teaching Assistants and Doctoral Students

Policy: Effective beginning Fall 2014, the Graduate School will require that each department conduct — at least on an annual basis — an evaluation of the progress of each Graduate Teaching Assistant (GTA) and each graduate student enrolled in a doctoral program.

Reporting: Annually, each department will report to the Graduate School, confirming that the evaluation of all GTAs and doctoral students has been completed. In addition, the department will provide the Graduate School with a summary report of all instances in which a GTA or doctoral student has received an unsatisfactory review.

Expectations: Each department will be responsible for developing procedures (if not already in place) for the annual evaluation of the progress of GTAs and doctoral students. Following guidelines for best practices, the review should include at least the following:

- A student self-report and assessment of academic progress; teaching (if applicable); and research (if applicable) [prepared in advance of the review conference];
- A report prepared by the student's advisor (and preferably at least one other faculty member, e.g., a member of the student's advisory committee) that assesses the student's academic progress; teaching (if applicable); and research (if applicable) that identifies strengths and weaknesses, and establishes expectations for the next year. The report may be augmented by reports from teaching supervisors or other members of the student's advisory committee.
- An opportunity for the student to discuss the report in person.
- A signed copy of the written assessment should be placed in the student's file and a copy given to the student.

The Doctor of Philosophy Degree

The doctor of philosophy is conferred in recognition of the mastery of a special field of learning as shown by the satisfactory completion of a prescribed course of study and investigation, the successful passing of general examinations covering the major and minor fields, the preparation of an acceptable dissertation reflecting high achievement in scholarship and independent original investigation, and the passing of a final examination on the dissertation and related subjects. The degree is a research degree. It is not conferred merely upon fulfillment of technical requirements, but awarded in recognition of the ability to think and work independently, originally, and creatively in a chosen field. Some departments have special requirements for the degree, and the student will be governed by those, including the ones listed in departmental statements under Courses of Instruction elsewhere in this publication.

General Doctoral Examination

A general examination, often called the "preliminary examination," is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing by the student's advisory committee (or by an examination committee designated by the student's academic program) in the student's major and minor. The written portion of the examination does not require approval in advance by the Graduate School. The oral portion, however, does require such approval. Students must have completed 30 graded credit hours of coursework in order to proceed with the General Oral Examination. After the written examination, the General Oral Examination is

scheduled by submitting the Request for the Report on the General Oral Examination. The advisory committee, as identified in the Committee, Transfers, Exceptions, and Candidacy (CTEC) Form, must be approved by the Graduate School prior to scheduling the General Oral Exam.

The primary purpose of the General Oral Examination is to assess the student's understanding of the broad body of knowledge in a field of study. The examination also affords the advisory committee an opportunity to review the student's proposed research and understanding of research methods and literature in the chosen field. If the general examination reveals deficiencies in any of these areas, the advisory committee may recommend remedial work, re-examination, or discontinuation of doctoral study.

The General Oral Examination should be conducted immediately after the successful completion of the written examination and well before the final examination. The two examinations should not be taken in the same semester. Some departments have specific requirements for conducting these examinations, and the student should become familiar with these. Successful completion of the General Oral Examination requires unanimous support of the student's advisory committee. If the General Oral Examination is failed, a re-examination may be given on recommendation of the committee and approval by the dean of the Graduate School. Further examinations require exceptional circumstances and approval by the Graduate Council. The student becomes a candidate for the degree upon successful completion of the General Oral Examination.

Final Examination

After the dissertation has been completed (except for minor revisions) and has been approved by the student's advisory committee, it is submitted to the Graduate School. A University Reader (a member of the graduate faculty [Level 1 or 2] who serves to represent the university's graduate faculty and the Graduate School) will be appointed to review the dissertation. However, the student's advisor may request appointment of the University Reader at any time rather than waiting until after the dissertation is drafted. When the Graduate School has received an approved evaluation from the University Reader, the student may apply for the final examination on a form sent by the Graduate School. The examination is administered by the student's advisory committee. The University Reader also attends and participates. The examination, which generally is oral but may be both oral and written, includes the major and minor fields and a defense of the dissertation. Successful completion requires unanimous support of all members of the committee, including the University Reader. Any member of the Graduate Faculty may attend.

Language Requirement

Language requirements for graduate degrees vary with departments. The Department of Foreign Languages offers proficiency courses in a number of languages. The department also offers reading proficiency examinations for those students who wish to demonstrate proficiency without taking a course. Such students must apply to the Graduate School for these examinations by the 15th class day of the semester.

The Master's Degree Program

- Summary of Procedures for Master's Degree (p. 1526)
- Advisory Committee (p. 1526)
- Plan of Study Worksheet (p. 1526)
- Time Limit (p. 1527)
- Language Requirement (p. 1527)
- Master's Degree Options (p. 1527)
- The Thesis Option (p. 1527)
- Major and Minor Subjects (p. 1527)
- The Non-Thesis Option (p. 1528)
- Master of Arts (p. 1528)
- Master of Science (p. 1528)
- Special or Professional Master's Degrees (p. 1528)
- Concurrent Master's Degrees (p. 1528)

The minimum requirements for most master's degrees can be satisfied in one academic year of two semesters or nine months. In practice, however, many students need three semesters or longer. Certain departments have special requirements as outlined in this *Bulletin*. In addition, those students who hold assistantships or fellowships, those who engage in time-consuming work off-campus, or those with scholastic deficiencies of any sort cannot meet all requirements in the minimum time. Also, research is unpredictable and

frequently requires more time than anticipated. Certain departments offer a master's degree under two plans, referred to as the Thesis Option and the Non-Thesis Option.

Summary of Procedures for Master's Degree

The student should:

1. Obtain application forms through the Graduate School website and apply by submitting all required materials to the Graduate School by the departmental deadlines.
2. Apply for an assistantship, if pertinent, with the department involved.
3. Become familiar with requirements for the desired degree as outlined in this *Bulletin*.
4. Consult with departmental advisor and become oriented to departmental procedures.
5. Plan schedule of study for the first semester with advisor.
6. Establish an advisory committee through the department head or chair and departmental advisor; usually done during the first semester of course work.
7. Prepare a plan of study worksheet and have it approved by the advisory committee and department head or chair. Submit the Committee, Transfers, Exceptions, and Candidacy (CTEC) Form.
8. Consult with the advisor on approval for the thesis plan, if applicable, and become familiar with the Electronic Thesis and Dissertation Guide, available through the Graduate School website.
9. Fulfill language requirements, if any.
10. Submit the graduation application through AU Access at least one semester before graduation.
11. Register for at least one course the semester of graduation.
12. Prepare thesis manuscript, if applicable.
13. Arrange for final oral examination with the advisory committee.

Advisory Committee

The student works under the direction of an advisory committee composed of three members recommended by the appropriate department/program head or chair. Two must be members of the Auburn University graduate faculty. Note, only a major professor is required for Master's Non-Thesis, course-only degree options. If change(s) in the committee makeup are required (either chair or member(s)), the committee chair (for committee makeup) and/or department head (for chair changes) should assist the student in identifying replacement members. Please note that a student must have a full committee (committee chair and at least the minimum number of qualified committee members) in order to continue in the program after the CTEC form has been submitted. Committee chair/membership replacements should be made within one academic term to avoid the student being placed on inactive status (link: https://bulletin.auburn.edu/thegraduateschool/registration/#Inactive%20Status (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fbulletin.auburn.edu%2Fthegraduateschool%2Fregistration%2F%23Inactive%2520Status&data=05%7C01%7Cwittemm%40auburn.edu%7C3dec4ca0b34f435d2dfe08db4cda3008%7Cccb6deedbd294b388979d72780f62d3b%7C1%7C0%7C638188272231877600%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=axDrMiUR1x91Z7nhsJx4lUdskMJsEQ2O1fG4nlW6%2BrU%3D&reserved=0).

The committee chair (or one of the co-chairs) must be a graduate faculty member in the department/program granting the degree. This committee will approve the student's program of study, plan of study worksheet, conduct required examinations and direct the required field project or thesis. Students in a teaching field (e.g., music education, science education, foreign language education) work under a committee composed of at least two members from the College of Education and one member from a related academic field. The names of the committee members are submitted through the Committee, Transfers, Exceptions, and Candidacy (CTEC) Form. Submit a new CTEC Form if there are changes such as transfer courses and/or exceptions.

Plan of Study Worksheet

Early in the graduate program, each student should confer with the appropriate departmental advisor or major professor to select courses and discuss research interests. Use the program or department's plan of study worksheet to plan for courses, transfer courses, exceptions, requirements, and/or graduation. Once approved, and at least one semester before graduation, submit the Committee, Transfers, Exceptions, and Candidacy (CTEC) Form to the Graduate School. The student is responsible for carrying out the planned program and for asking the major professor to make necessary changes.

Time Limit

All graduate work toward a master's degree must be completed within a period of six calendar years. The student's time to completion begins with the earliest completed course approved for inclusion in the Plan of Study.

Language Requirement

Language requirements for graduate degrees vary with departments. The Department of Foreign Languages offers proficiency courses in a number of languages. The department also offers reading proficiency examinations for those students who wish to demonstrate proficiency without taking a course. Such students must apply to the Graduate School for these examinations by the 15th class day of the semester.

Master's Degree Options

The following general regulations are minimum requirements. The professor or committee in charge of a student's work may require more than the specified minimum in order to achieve a well-rounded program. All programs require a minimum of 30 semester hours of graduate courses, 6000-level or above.

The Thesis Option

The master of arts, master of science and master of industrial design are offered under the thesis option. Thesis students register for 7990 Research and Thesis in semesters when working on the thesis, when submitting, defending or awaiting final approval of the thesis, and when taking final examinations.

Major and Minor Subjects

A student under the thesis option must earn a minimum of 30 semester hours, of which at least 21 semester hours must be in a major area of concentration. Depending on departmental requirements or the wishes of the student's advisory committee, the remainder of the course work may be taken within the major field or in a separate but closely related area.

If a student has not met all undergraduate pre-requisites in any field chosen for major or minor work, these should be scheduled as soon as possible, preferably before graduate work begins. The major professor can indicate these on the student's plan of study worksheet.

The topic selected for the thesis must be approved by the student's major professor and advisory committee. The student conducts the research and prepares the thesis under the direction of the major professor. The course, Research and Thesis, is number 7990 in all departments. The student must register for a minimum of four credit hours of this course but may register for as many hours as desired. No more than six hours may be counted toward meeting degree requirements. The student may register for one or more hours at a time. No grade is assigned for this course.

The Electronic Thesis and Dissertation (ETD) Guide, which contains information about requirements for the thesis, is available through the Graduate School website. Submission of a thesis is defined as the time at which the first complete draft of such is submitted to the major professor for review. The Graduate School format checks and accepts only theses prepared according to the ETD Guide. The Graduate School Calendar lists the semester deadline for acceptance of final approved theses. If the electronic thesis needs corrections, the student's graduation may be delayed at least one semester. Auburn University reserves the right to make copies of the thesis, but the student retains all publication rights. All theses are published electronically through AUETD and disseminated through ProQuest.

At the discretion of the program, students may be required to pass a comprehensive examination independent of the required thesis defense. If a program requires a comprehensive examination, the program will publish and submit to the Graduate School a description of the scope and form of the assessment (e.g., comprehensive oral or written examination) and the process for appeal or re-examination should the student fail the examination.

The major professor will schedule the thesis defense not later than the deadline indicated in the Graduate School calendar. The thesis defense should be open to members of the graduate faculty as visitors. Successful completion of the thesis defense requires the unanimous support of all members of the advisory committee. If a student fails the thesis defense, one re-examination may be given on the recommendation of the advisory committee and approval by the Dean of the Graduate School. Further examinations will be allowed only under exceptional circumstances and with approval of the Graduate Council.

The Non-Thesis Option

At the discretion of the program, students may be required to pass a comprehensive examination. If a program requires a comprehensive examination, the program will publish and submit to the Graduate School a description of the scope and form of the assessment (e.g., comprehensive oral or written examination) and the process for appeal or re-examination should the student fail the examination. Non-thesis graduate students who complete a special project must register for 7980 in semesters when working on the project. Non-thesis students requiring only a final examination register for GRAD 7000 in the semester when the exam is taken. Credit hours for 7990 Research and Thesis cannot be counted toward graduation requirements for non-thesis degree programs.

Master of Arts Degrees

A listing of master of arts programs is available through the Areas of Study, Graduate School website.

Master of Science Degrees

A listing of master of science programs is available through the Areas of Study, Graduate School website.

Special or Professional Master’s Degrees

These special or professional degrees are offered: master of accountancy, master of aerospace engineering, master of agriculture (agricultural economics, agronomy and soils, animal sciences, entomology, horticulture, plant pathology, and poultry science), master of applied mathematics, master of aquaculture, master of biological studies, master of building construction, master of business administration, master of chemical engineering, master of civil engineering, master of community planning, master of design build, master of education (curriculum and teaching, educational foundations leadership and technology, health and human performance, and special education, rehabilitation, and counseling school psychology), master of electrical engineering, master of forestry, master of Hispanic studies, master of industrial design (thesis and non-thesis option), master of industrial and systems engineering, master of landscape architecture, master of management information systems, master of materials engineering, master of mechanical engineering, master of probability and statistics, master of public administration, master of social work, master of software engineering, and master of technical and professional communication.

Concurrent Master's Degrees

Auburn University offers a number of approved concurrent master’s degree programs, which are specially designed to offer outstanding Auburn graduate students the opportunity to earn two master’s degrees in less time and cost than usual by allowing students to double count or share more credit hours than allowed for a second master’s degree. A list of approved concurrent master’s degrees can be found on the Graduate School website. Such programs require students to be enrolled concurrently in both degrees. They may share up to 9 credit hours if the total hours for both degrees sum to 65 or less. Or they may share up to 12 credit hours if the total hours for both degrees sum to 66 or more. Approval for concurrent programs requires proposal submission by the offering academic unit(s) and review and approval by the Graduate Council Curriculum Committee and the Graduate Council.

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Specialist in Education Degree

- Admission (p. 1528)
- Advisory Committee (p. 1529)
- Plan of Study Worksheet (p. 1529)
- Course Requirements (p. 1529)
- Time Limit (p. 1529)

This degree is designed for professionals in education and human services areas who want increased competence in a field of specialization. Areas of specialization are offered in the various departments in the College of Education.

Admission

Scholarship, interpersonal orientation, and potential for leadership are considered in the screening procedure. Appropriate experience in teaching or a leadership position in education or a human services area is requisite. All work beyond the baccalaureate must have been of high quality with a GPA of at least 3.0 on a 4.0 scale.

Advisory Committee

The specialist student works under the direction of an advisory committee composed of three members recommended by the appropriate department/program head or chair. All must be members of the Auburn University graduate faculty. The committee chair (or one of the co-chairs) must be a graduate faculty member in the department/program granting the degree. This committee will approve the student's program of study, conduct required examinations, and direct the required field project. Students in a teaching field (e.g., music education, science education, foreign language education) work under a committee composed of two members from the College of Education and one member from a related academic field. If change(s) in the committee makeup is required (either chair or member(s)), the committee chair (for committee makeup) and/or department head (for chair changes) should assist the student in identifying replacement members. Please note that a student must have a full committee (committee chair and at least the minimum number of qualified committee members) in order to continue in the program after the CTEC form has been submitted. Committee chair/membership replacements should be made within one academic term to avoid the student being placed on inactive status (link: https://bulletin.auburn.edu/thegraduateschool/registration/#Inactive%20Status (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fbulletin.auburn.edu%2Fthegraduateschool%2Fregistration%2F%23Inactive%2520Status&data=05%7C01%7Cwittemm%40auburn.edu%7C3dec4ca0b34f435d2dfe08db4cda3008%7Cccb6deedbd294b388979d72780f62d3b%7C1%7C0%7C638188272231877600%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=axDrMiUR1x91Z7nhsJx4lUdskMJsEQ2O1fG4nlW6%2BrU%3D&reserved=0).

Plan of Study Worksheet

Prepare a plan of study worksheet and have it approved by the advisory committee and department head or chair. Submit the Committee, Transfers, Exceptions, and Candidacy (CTEC) Form to the Graduate School at least one semester before graduation. Students are required to submit a graduation application to the Graduate School prior to the semester of expected graduation. Graduation day is the official last day of each semester and, therefore, is the deadline to submit the Committee, Transfers, Exceptions and Candidacy (CTEC) Form and graduation application for graduation in the following semester. Submit a new CTEC Form if there are changes such as transfer courses and/or exceptions.

Course Requirements

A minimum of 30 semester hours beyond the master's degree must be taken in a program approved by the student's advisory committee and can be identified through a plan of study worksheet. Professional educators pursuing sixth-year certification are responsible for adapting the plan of study worksheet to requirements in the states in which they will need advanced certification. A relevant field project, approved in advance by the student's committee, must be completed under the supervision of the major professor. A final written report on the field project will be submitted to the advisory committee by the student. The advisory committee will conduct a final examination based on the area of specialization and the field project.

Time Limit

All graduate work toward an Education Specialist degree must be completed within a period of six calendar years. The student's time to completion begins with the earliest completed course approved for inclusion in the plan of study worksheet.

Graduate School General Policies

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Points of Contact

GEORGE T. FLOWERS, Dean
MARIA WITTE, Associate Dean

The Graduate School is open 7:45–11:45 a.m. and 12:45–4:45 p.m., Monday through Friday.
Telephone: (334) 844-4700. Fax: (334) 844-4348.
E-mail: gradadm@auburn.edu
Web: www.grad.auburn.edu (https://graduate.auburn.edu/)
Mailing Address: 106 Hargis Hall, Auburn, AL 36849-5122

Academic Bankruptcy Policy

Auburn University graduate students who have been suspended or expelled because of poor academic performance may petition the Graduate School for a declaration of academic bankruptcy. Academic bankruptcy allows the student to petition their program, department, and the Graduate School to restart their graduate program after a minimum of a one calendar year separation from Auburn University. For readmission, the student must submit a readmission request form and must be recommended for readmission by the graduate program to which the student is applying. If the graduate program recommends readmission, the student must, in coordination with the Graduate School and program Graduate Program Officer (GPO), identify the semester(s) for which they request academic bankruptcy. If approved, the student forfeits all graduate courses and credits earned at Auburn University for those semesters. Auburn University will retain all forfeited courses on the student's transcript but will not include forfeited courses in the calculation of the Graduate Grade Point Average. Students may not declare academic bankruptcy more than once.

Academic Engagement

Any graduate student enrolled in a degree program culminating in a thesis or dissertation will directly engage in research and/or creative scholarship with the major professor, will have access to the tools needed for the research/scholarly activity, will be immersed in the culture of graduate education, will engage in the professional activities of the discipline, and will complete the research/scholarly activity in a reasonable period of time.

Academic Integrity and Student Conduct

Graduate students at Auburn University are expected to adhere to established standards of academic integrity, personal conduct, and professional conduct. The primary code of conduct is detailed in the Auburn University Code of Student Conduct.

Academic units may also define and publish standards appropriate to their disciplines as well as describing the processes for resolving disputes and appealing decisions. Students found in violation of policies defining academic integrity, personal conduct, and professional conduct may be subject to dismissal from the Graduate School.

Academic Programs and Curricula

An **academic program** is an organized plan of study which, when successfully completed, is recognized by the awarding of a degree. It includes all courses and related activities required by the university and those required by a school, college, department or interdisciplinary program. **At Auburn University, the minimum number of hours in a doctoral program is 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses 7990 and 8990 and must include at least 10 hours of 8990.** Some departments require more than 60 semester hours and requirements may vary according to a student's background and interest. **The minimum number of hours in a master's degree program is 30 semester hours of courses, 6000-level and above.**

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of "track," "concentration," "emphasis," or similar terms, are not designated on the transcript; however, all academic programs and designated variations (whether called "options," "tracks," "concentrations," "emphases" or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

A graduate **minor** is an organized sequence or cluster of courses offered by a department or interdepartmental program. Not all departments or interdepartmental programs offer a minor. At Auburn University, the term graduate minor designates those sequences or clusters of courses that have been formally proposed as minors by departments or interdepartmental programs and approved by the Graduate Council. The minimum number of semester hours in a minor is nine, all of which must be in courses at the 6000-level or above and must be completed at Auburn University.

Accelerated Bachelor's/Master's Degree Plan

The Accelerated Bachelor's/Master's Degree Program allows Auburn students in some academic programs to count up to nine approved hours in a 30–35 hour master's program or twelve approved hours in a 36 hour or greater master's program toward both a bachelor's and a master's degrees in the same program area. These hours must be at the graduate level.

Admission Criteria

To be considered for admission, students must have at least 45 hours of credit, with at least 24 hours completed at Auburn University, and must have a cumulative GPA of 3.4 or higher on all coursework completed at Auburn. Individual graduate programs may set higher standards or require additional criteria for admission to the accelerated degree program.

Students must earn the bachelor's degree and meet departmental admission criteria to be fully admitted into the graduate program.

Admission Procedures

Students must work with a graduate advisor in the degree-granting department to complete an Accelerated Bachelor's/Master's Degree Program Application, available on the Graduate School website, including:

1. a list of the courses that count toward both the undergraduate and graduate degree and,
2. the projected dates for the completion of the bachelor's and master's degrees

Students in the Honors College remain eligible to graduate with Honors while participating and should consult with an Honors advisor.

Performance Expectations

Students earning a B or higher in a graduate course can apply the course credit toward the undergraduate and graduate degree (if admitted to the graduate program). A passing grade less than a B cannot count towards the graduate degree but may count toward the undergraduate degree if allowed by the degree program.

Accommodation Policy for Students with Disabilities

Auburn University is committed to providing its students with an accessible campus and equitable learning environment. If you have a disability that requires academic accommodations, access to assistive technology training, or support services, contact the Office of Accessibility for additional information: 1228 Haley Center; 334-844-2096 (Voice/TT) or visit the Office of Accessibility website at accessibility.auburn.edu (https://accessibility.auburn.edu/).

Activities Involving Animals

Auburn University's Animal Resources Program requires compliance with the Animal Welfare Assurance negotiated with the Office of Protection from Research Risks/National Institutes of Health (OPRR/NIH). A major part of that Assurance involves the Institutional Animal Care and Use Committee (IACUC) that ensures compliance with the Assurance, the policies of the U.S. Department of Health and Human Services, the U.S. Department of Agriculture and all other federal, state and local regulations concerning care, treatment and use of animals. All activities, whether teaching, research, production or display of animals, and whether or not the activity is funded, must be approved in advance by the committee. The use of animals for any purpose that is not approved in advance by the IACUC may involve severe penalties for non-compliance with institutional policy and could jeopardize the university's Animal Welfare Assurance filed with the OPRR and the NIH. Information may be obtained through the Animal Care and Use Program (IACUC).

AUETD Publication and Access Policy

AUETD is an online database of electronic theses and dissertations (ETDs) submitted by Auburn University students in partial fulfillment of the university's graduate degree requirements. Its purpose is to make Auburn University's ETDs widely available to the public and easy to find online. The ETDs in the AUETD database are indexed by Google and other internet search engines and may appear in search results for those search engines. Graduate students who want to limit access temporarily to the full text of their ETD must choose one of the limited access options **during the ETD submission process** (see options below). Students who choose to limit access to their ETD should be aware that basic bibliographical information about their ETD (including the abstract) will appear in the AUETD database and that the full text of their ETD will become publicly available immediately upon the expiration of the time limit set for limited access. Students who have questions or concerns about this policy are encouraged to contact a Graduate School advisor at (334) 844-4700 **BEFORE** submitting their ETD to AUETD.

Limited Access Options

1. **Unlimited access:** Publication in AUETD with unlimited access is immediate and irreversible. Once a thesis/dissertation is published in AUETD, access via the world-wide-web may not be denied or reversed.
2. **Limited access:** Upon request, students may limit access to their thesis/dissertation only to users with a valid AU user id and password for a limited time period. Upon request, limited access is granted for a period of time not to exceed: i) six months; ii) one year; iii) two years; or iv) five years. Unless the student petitions to extend the period of limited access, the thesis/dissertation will be published with unlimited access immediately upon the expiration of the time period.
3. **Withheld access:** Upon request, students may withhold access to their thesis/dissertation to all users for a limited time period. This means that all users, including the students and their advisory committees are denied access to the thesis/dissertation in AUETD. Upon request, withheld access is granted for a period of time not to exceed: i) six months; ii) one year; iii) two years; or iv) five years. Unless the student petitions to extend the period of limited access, the thesis/dissertation will be published with unlimited access immediately upon the expiration of the time period.
4. **Copyright:** If students plan to copyright some of all of their thesis/dissertation, these plans should be discussed in advance with the major professor, especially if the thesis/dissertation includes shared data.

Calendar

The university operates on the semester system. The Graduate School calendar at the beginning of this *Bulletin* is also available at the Graduate School and contains the dates of various important deadlines. It should be followed carefully.

Class Attendance

Students are expected to attend all their scheduled classes. College work requires regular class attendance as well as careful preparation. Specific policies regarding class attendance are the prerogative of individual faculty members. Faculty shall inform each class in writing at the beginning of the course regarding the effect of absences on the determination of grades.

The student is expected to carry out all assigned work and to take examinations at the class period designated by the instructor. Failure to carry out these assignments or to take examinations at the designated times may result in an appropriate reduction in grade, except as provided below.

Instructors shall determine the policy regarding grading which they feel is best for the course. This policy shall be presented to the class, in writing, at the beginning of the term and will govern the actions of the instructor in the course.

Arrangement to make up missed major examinations (e.g. hour exams, midterm exams) due to properly authorized excused absences (as defined by the Student Policy eHandbook) shall be initiated by the student within one week from the end of the period of the excused absence. Normally, a make-up exam shall occur within two weeks from the time that the student initiates arrangements

for it. Instructors are encouraged to refrain from giving make-up examinations during the last three days prior to the first day of final examinations. The format of make-up exams and opportunities for students to make up work other than major examinations are at the discretion of the instructor whose make-up policies should be stated in writing at the beginning of the term. Instructors are expected to excuse absences for:

1. Illness of the student or serious illness of a member of the student's immediate family. The instructor may request appropriate verification.
2. The death of a member of the student's immediate family. The instructor may request appropriate verification.
3. Trips for members of the student organizations sponsored by an academic unit, trips for university classes, and trips for participation in intercollegiate athletic events. When feasible, the student must notify the instructor prior to such absences, but in no case more than one week after the absence. Instructors may request formal notification from appropriate university personnel to document the student's participation in such trips.
4. Religious holidays. Students are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays.
5. Subpoena for court appearance.
6. Presentations at professional meetings or conferences.
7. Any other reason the instructor deems appropriate.

If the instructor does not appear within 20 minutes after the designated class hour, it may be assumed the class is canceled.

It is university policy that all classes will meet as scheduled on the last day before and the first day after holiday periods designated by the university.

Unresolved problems regarding class attendance or procedures should be referred to the University Student Academic Grievance Committee.

Examinations

Examinations are classified as (1) final examinations at the end of each term; (2) special examinations; and (3) other course examinations as determined by the instructor.

Announced tests in graduate courses will be administered at a regularly scheduled meeting of the course. Exceptions to this regulation may arise in specialized courses requiring performance or oral tests, and in multiple-sectioned laboratory classes requiring practical laboratory tests. Faculty having sound reasons for scheduling tests at times other than regularly scheduled meeting times are to obtain approval from the department head prior to the beginning of the term, and are to present a written schedule of these changes to the class during the first few days of the term. Rescheduled tests are not to interfere with other scheduled academic endeavors of the students involved, and an appropriate reduction in regularly scheduled class time is to be given to compensate for the rescheduled test period.

Classified or Proprietary Research

No thesis or dissertation should be based exclusively on a proprietary or classified research project, nor should a thesis or dissertation include proprietary or classified information. Any graduate student and advisor engaged in such research should identify an alternative topic for the thesis or dissertation. Should a thesis or dissertation include such information, the document must be rewritten with offending material excised.

Credit for Directed Studies

The university policy on directed studies was approved effective August 2006. Auburn University offers directed readings courses, also referred to as special problems courses or independent studies, in accordance with established policy.

Directed readings courses allow in-depth study of a particular subject by a student who is well into her or his major and, in extraordinary circumstances, accommodate scheduling issues when no other remedy is available.

Directed readings courses should not normally be used as replacements for required courses or as a solution to routine scheduling problems.

Approval to Teach Course—A standard Approval for Independent Study/Directed Readings Form (https://www.auburn.edu/academic/provost/forms/ind_study.pdf), available through the Office of the Provost website, will specify the necessary approvals and serve as the vehicle for obtaining them.

Exceptions to Graduate School Policies

Exceptions may be made to policies of the Graduate School under special circumstances. A person wishing to request an exception should write a letter to the dean of the Graduate School stating the nature of the request and the reasons for it. If a student is making the request, the letter should be submitted first to the major professor, who will write a letter of recommendation. Both letters go to the department head. If a member of the faculty is making the request, the letter goes to the department head, who will write a letter of recommendation. All letters go to the associated college/school dean for approval. Letters and comments then are forwarded to the dean of the Graduate School. A request for an extension of time to meet degree requirements must be justified. It must be accompanied by a proposed schedule for completion and assurance that the student is current in subjects included in the plan of study.

General Regulations

Regulations listed here represent the minimums of the Graduate School. However, individual departments may impose more stringent requirements and students will be governed by them.

Grades

Grade Definitions

Final passing grades are A, superior; B, good; C, acceptable; D, passing; and S, satisfactory. Final failing grades are F, failure; FA, failure for excessive absences; U, unsatisfactory; NR, no grade reported; and WF, officially dropped with permission of the student's dean but failing at time of withdrawal and is calculated into the GPA. (For the definition of W, see the following section on Grade Assignment for Class Withdrawal.)

A TD, thesis and dissertation research credit, is assigned to courses 7990 Research and Thesis and 8990 Research and Dissertation.

A grade of IP (In Progress) is used by professional programs, specifically Pharmacy and Veterinary Medicine, for those courses that extend beyond the end of the regular term. Students who are making progress toward completion of their work but have not completed all course requirements may receive the IP grade. The IP grade is not calculated in the GPA until the grade is cleared.

Grades of SA and SN may be assigned in certain specialized classes in which progress to the next level of a program depends on performance in the class. In such cases, a grade of SA in a particular course may be required for advancement. A grade of SN will give the student appropriate earned credit, but will not allow the student to advance in that program.

An NR is assigned systematically when the instructor does not assign a letter grade.

Faculty Policy on Assigning Grades of Incomplete (excludes distance education courses)

Effective Fall 2007, student (or appropriate representative) must contact the instructor in writing prior to the submission of final course grades to request a grade of Incomplete (IN) due to documented reason (illness/death in family/etc.).

If a student does not request an IN, the instructor should grade the student based upon the percentage of course work completed to date and using a 0 for any exams/ assignments not completed.

To be eligible for a grade of IN, the student must have completed (and have passed) more than half of all class assignments for the semester or summer term.

The instructor must fill out the Incomplete Grade-Memorandum of Understanding form, indicating:

- reason for the IN,
- percent of course work currently completed at the time of submission and the grade average on that work,
- detailed information about the additional work needed to complete the course,
- timeline to complete the work (6 months maximum; preferably sooner), and
- grade the student should be assigned if the additional work is NOT completed by the deadline set for the completion of the work; the missing work is calculated as a 0.

Grades of Incomplete automatically become the grade identified by the instructor, if not cleared within 6 months.

If the instructor assigning a grade of IN leaves Auburn University, the department head should make a reasonable attempt to contact the former instructor and then assign a grade based upon the work presented by the student and the information provided on the Incomplete Grade-Memorandum of Understanding form.

Once an IN has been changed to another grade it may not be changed, in the future, to a different grade without approval of the provost.

Documentation of class work must be maintained by the student; the Incomplete Grade-Memorandum of Understanding form must be maintained by the student, faculty and the Office of the Registrar. For instructors who submit the IN Grade forms to the Office of the Registrar prior to course grades being rolled to academic history, the IN will be reflected on the electronic grade roster; faculty will be unable to change that grade on the electronic grade roster.

Instructors should NOT enter a grade on the electronic course roster for those students who are to be assigned the IN grade but leave the grade blank. The system will automatically convert blanks to NR. Once the IN Grade form is received by the Office of the Registrar, that office will convert the NR to the IN grade.

It is the responsibility of the instructor to send a copy of the Incomplete Grade-Memorandum of Understanding form to the Office of the Registrar.

When the student has completed the outstanding work, it is the responsibility of the instructor to initiate the change of grade form and send it to the appropriate department/dean's office for additional signatures and transmittal to the Office of the Registrar.

These policies apply to all students in undergraduate and graduate courses.

Faculty Policy on Grade Changes (includes NR; Excludes IN)

Grades should be accurate when posted.

- Any change of letter grades (A, B, C, D, F, S, U, FA, and NR) should be made only in extraordinary situations.
- Any grade changes must be completed within 6 months of completion of the course.
- Any grade changes outside of this timeframe must also be approved by the provost.
- A final grade may be changed only by the written request of the instructor, with approval of the department head and dean, submitted to the registrar.
- A grade of F and additional penalties may be assigned for academic dishonesty. See the Student Academic Honesty Code section in the Tiger Cub for further information.

Grade Assignment For Class Withdrawals

A student who withdraws from a course prior to the 15th class day during a semester (or the fifth class day of summer term) will have no grade assignment; however, from the 15th class day during a semester (or the fifth class day of summer term) through the withdrawal deadline published in the academic calendar a W (Withdrawn Passing) grade will be recorded for the course. A course may be dropped with a W after the withdrawal deadline only under unusual conditions and only with permission from the student's dean. When approval for dropping the course under such circumstances is granted, a W may be assigned only when the instructor indicates that the student is clearly passing the course. Otherwise, a grade of WF (Withdrawn Failing) is assigned. All failing grades are calculated into GPA as grades of F.

Grade Average and Quality Point Computation

A 4.0 grade scale is used. An A equals 4.0; B, 3.0; C, 2.0; D, 1.0; and F equals 0.0. Only course work attempted at Auburn University is used in determining the grade report average and continuation–in–residence requirements. S and U grades do not enter into grade-point computations.

S-U Grading

Grades of S (Satisfactory) and U (Unsatisfactory) may be assigned only to courses approved to be graded S-U, and courses elected under the S-U option.

A graduate student may enroll in undergraduate courses, except for 6000-level courses taken for graduate credit, under the S-U option on the major professor's recommendation.

Students are not permitted to change from S-U grading to conventional grading or vice versa after the fifteenth class day of the fall and spring terms or the fifth class day of any summer term.

Grade Reports

Grade information may be obtained through AU Access on Auburn University's website.

Graduate Certificate Definition

Graduate certificate programs constitute an integrated curriculum, but not necessarily one aligned with a specific academic program. They may exist within programs, bridge programs or offer content widely useable across programs. Graduate certificate programs consist of a minimum of 9 and maximum of 21 hours of graduate-level course work. The course work may be graded or non-graded. A minimum GPA of 3.0 must be maintained on all graded course work in the certificate program.

Graduate certificate programs pertain to graduate students, whether degree seeking or non-degree seeking. A graduate certificate is distinguished from graduate minors in two primary ways. First, graduate minors are intended exclusively for degree seeking graduate students. Graduate certificates may be directed to both degree seeking and non-degree seeking students. Second, there are limits to the number of course credits taken in pursuit of graduate minors that may be applied to a graduate degree (e.g., masters degrees require 21/30 hours to be in the major discipline). The limiting factor in the application of certificate course credits to graduate degrees is departmental policy or advisory committee recommendations. As an example, if a department developed a certificate program intended only for non-degree seeking students, that department could prevent those certificate courses from applying to a degree. However, in the absence of departmental policy, and with the approval of a student's advisory committee, both degree seeking and non-degree seeking students (if they later change status to degree seeking) may include all certificate-related courses toward degree requirements.

When new graduate certificates are proposed, they undergo the full process of curriculum review. This same process applies regardless of delivery method (i.e., on campus and distance). Special requirements for applicants may be negotiated between the certificate proposing program and the graduate school at the time the program is proposed. Consistent with Graduate School policy related to the Masters and Specialist degrees, all requirements for a graduate certificate must be accomplished within 6 years unless departmental criteria for the certificate necessitate a longer time. Certificate Programs that require an exception to this 6-year time limit must be approved by the Graduate Council. Not only must the content of the proposed certificate be appropriate, but the availability of a viable group of graduate faculty to teach the courses in the certificate must be documented. Proposals for graduate certificate programs must identify a specific person who will serve as coordinator. Certificates that bridge departments must have a home department to which all certificate applicants apply. But each affiliated department must also designate a coordinator. Students who fulfill all requirements for a graduate certificate should submit the certificate completion application through AU Access. The certificate will be noted on the transcript after successful completion of all certificate requirements and the certificate completion application has been approved.

Graduate certificates are to be differentiated from professional development certificates. No comprehensive definition of the latter is offered here, however, in brief, completion of a professional development certificate does not require admission to the Graduate School and is awarded based on participation in non-credit work. The definition of graduate certificate does not limit the ability of departments or other units from defining, implementing, or awarding professional development certificates. Professional development certificates are not subject to the Auburn University curriculum process, nor are their achievement noted on Auburn University transcripts.

Graduate Curriculum Model Change

When a graduate curriculum model is changed, the changes apply only to students who matriculate after the approval of the changes and to currently enrolled students who voluntarily choose to complete the requirements of the new curriculum model. In no case, for students who are continuously enrolled, will the changed curriculum compel them to accumulate additional hours and grade points to graduate. Curriculum model changes are to be implemented at the beginning of the semester in which the largest number of new students typically enroll (fall semester for most programs). Graduate students who have not been enrolled at Auburn University for two or more semesters and who are returning to the same curriculum may be subject to different university, college, school or departmental requirements than those which existed when continuous enrollment ceased.

Graduate Program Option Definition

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of "track," "concentration," "emphasis," or similar terms, are not designated on the transcript; however, all academic programs and designated

variations (whether called “options,” “tracks,” “concentrations,” “emphases” or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

Graduate Study and University Employees

The educational benefit plan provides tuition waiver benefits to eligible and qualified employees, enabling them to enroll in undergraduate and graduate course work while actively employed at Auburn University. An employee may pursue a graduate degree with the approval by the employee’s immediate supervisor indicating whether or not the requested course is relevant to the student’s current position assignment. The application approval process is through Self Service Banner and is needed for each class each semester. Inquiries should be made through the Human Resource Development, Employee Education Benefits office.

Institutions with Special Affiliations

By special arrangement with Florida A&M University, the Graduate School application fee is waived for students applying from this institution.

Oak Ridge Associated Universities

Auburn University has been a sponsoring institution of the Oak Ridge Associated Universities (ORAU) since 1946. ORAU is a private, not-for-profit consortium of over 145 colleges and universities and a management and operating contractor for the U.S. Department of Energy (DOE) with principal offices located in Oak Ridge, Tennessee. Founded in 1946, ORAU provides and develops capabilities critical to the nation’s technology infrastructure, particularly in energy, education, health and the environment. ORAU works with and for its member institutions to help faculty and students gain access to federal research facilities; to keep members informed about opportunities for fellowship, scholarship and research appointments; and to organize research alliances among our members in areas where their collective strengths can be focused on issues of national importance.

ORAU manages the Oak Ridge Institute for Science and Education (ORISE) for DOE. ORISE is responsible for national and international programs in science and engineering education, training and management systems, energy and environment systems and medical sciences. ORISE’s competitive programs bring students at all levels, K-12 through postgraduate, and university faculty members into federal and private laboratories. Other ORAU activities include the sponsorship of conferences and workshops, the Visiting Scholars program and the Junior Faculty Enhancement Awards. Contact the Office of Vice President for Research and Economic Development for more information about ORAU programs.

Research Involving Humans

Auburn University established the Institutional Review Board for the Use of Human Subjects in Research (IRB) to evaluate research for compliance with the guidelines and policies of the U.S. Department of Health and Human Services, the Public Health Service, the Food and Drug Administration and other federal, state and local regulations. All research using human subjects—whether it is conducted by faculty, staff or students—must be approved in advance by the IRB, regardless of the source of funding, lack of funding or any other consideration. Research involving human subjects not approved in advance may be disallowed and may incur severe penalties for non-compliance with institutional policy. Information and review forms may be obtained through the Office of Human Research (IRB).

Second Graduate or Post-Baccalaureate Professional Degree

For a second graduate or post-baccalaureate professional degree, the student fulfills all requirements applicable to any other graduate or post-baccalaureate professional degree, including the thesis, if appropriate. The student may, on recommendation of the advisory committee, transfer a limited number of credit hours from the previous graduate or post-baccalaureate professional degree. At least 24 semester hours, or 50% of the total hours required for the degree, whichever is greater, must be unique to each degree and be taken at Auburn University.

Student Academic Grievance Policy

The Student Academic Grievance policy, which appears in full in the Student Policy eHandbook, is designed to resolve academic grievances of students which result from actions of faculty or administrators.

Student Records

Confidentiality of Student Records

The university recognizes that the maintenance of student information and educational records is necessary and vital to assist the student’s education and development and to provide opportunities for university research and policy formulation. The university

recognizes its obligation to exercise discretion in recording and disseminating information about students to ensure that their rights of privacy are maintained.

The university will furnish annual notification to students of their right to inspect and review their educational records; the right to request amendment of educational records considered by them to be inaccurate or misleading or that violate privacy or other rights; and of their right to a hearing should the university decline to amend such records. This annual notice will be published in the *Auburn University Bulletin* and an electronic notification is sent to each active Auburn student.

The following guidelines have been developed to ensure the privacy rights of students. For the purposes of this policy statement a student is defined as an individual who has been admitted and has been in attendance in a component unit of the university. Classification as a student in one component unit of the university (e.g., an undergraduate program) does not imply that the person has been accorded the rights outlined below in other component units (i.e., graduate school, professional schools, branch campus).

Student Access to Records

Auburn University's permanent student education record consists of one or more of the following: the official transcript of grades, competency evaluations, and any narrative evaluations. This is in accordance with guidelines established by the American Association of Collegiate Registrars and Admissions Officers (https://www.aacrao.org/) and the State of Alabama policies on Retention of Records.

Students have the right to be provided a list of the type of educational records maintained by the university which are directly related to the student; the right to inspect and review the contents of these records; the right to obtain copies of these records; the right to a response from the university to reasonable requests for explanation and interpretation of these records; the right to an opportunity for a hearing to challenge the content of these records; and if any material or document in the educational record of a student includes information on more than one student, the right to inspect and review only the part of such material or document as relates to the student.

Students do not have access to financial records of their parents; confidential letters and statements of recommendation which were placed in the educational record prior to Jan. 1, 1975, provided such letters or statements were solicited or designated as confidential and are not used for purposes other than those for which they were specifically intended; confidential recommendations, if the student signed a waiver of the right of access, respecting admission, application for employment, and the receipt of an honor or honorary recognition.

Students do not have access to instructional, supervisory or administrative personnel records which are not accessible or revealed to any other individual except a substitute; Campus Security records which are maintained apart from educational records, which are used solely for law enforcement purposes, and which are not disclosed to individuals other than law enforcement officials of the same jurisdiction; employment records except when such employment requires that the person be a student; and the Alumni Office records.

Students do not have access to physical or mental health records created by a physician, psychiatrist, psychologist or other recognized professional acting in his or her capacity or to records created in connection with the treatment of the student under these conditions which are not disclosed to anyone other than individuals providing treatment. A physician or appropriate professional of the student's choice may review these records.

Procedures for Access

The Office of the Registrar has a complete list of educational records maintained by the university which students may obtain. Students should contact the appropriate office to inspect and review their records. An office may require that a university official be present when a student inspects and reviews his or her educational records. Any questions concerning a student's access to records should be directed to the registrar.

Amending Educational Records

Students may request that any information contained in their educational records which they consider to be inaccurate, misleading, or in violation of their privacy or other rights be amended or deleted from the records. (A grade or other academic scores may not be amended, except that the accuracy of recording the information may be challenged.)

Students who request that information in their records be amended should first direct their request to the official with primary responsibility for the information on the record. If the matter is not resolved to their satisfaction, students should direct their requests to the official's dean or division head. If the matter is not resolved to their satisfaction, they may request a formal hearing.

Right to a Formal Hearing and Procedures for Decision

Students may request formal hearings to challenge information contained in their educational records. The hearing will be held in a reasonable time (not to exceed 45 days) and in a reasonable place. Students may be assisted or represented by persons of their choice, including an attorney, at the expense of the student, and shall be afforded a full and fair opportunity to present evidence relevant to the issue(s).

Students or their representative should request the hearing in writing and should specifically identify the information they seek to have amended. The request should be directed to the Office of the Provost/Vice President for Academic Affairs.

The Office of the Provost/Vice President for Academic Affairs will conduct the hearing and render a decision within a reasonable period of time after the conclusion of the hearing and the decision shall be based solely upon the evidence presented at the hearing. The student shall be notified in writing of the reason(s) for the decision and given a summary of the evidence.

If the decision is that the information in the student's educational records is inaccurate, misleading or in violation of his rights and privacy, the statement(s) will be corrected or expunged from the student's records.

If the decision is that the information is not inaccurate, misleading, or in violation of the privacy or other rights of the student and that the information or parts thereof are to remain in the student's educational records, the student shall be notified and given the right to enter a statement in the records setting forth any reason for disagreeing with the decision of the Office of the Provost/Vice President for Academic Affairs. This statement shall be maintained in the records as long as the record or contested portion thereof is maintained, and if the contested educational record or contested portion thereof is disclosed by Auburn University to any party, the student's explanation shall also be disclosed to that party.

The U.S. secretary of education has established a review board to receive complaints regarding violation of student's rights. Students wishing to file a complaint directly to the review board should write to the Family Policy and Regulations Office, Department of Education, Washington, D.C. 20202. Detailed procedures for this complaint procedure are listed under section 99.63 of the regulations issued by the secretary and will be furnished upon request by the registrar, Auburn University.

This policy is adopted pursuant to the Family Educational Rights and Privacy Act, (34 CFR Part 99), and is not intended to impose any restrictions or grant any rights not specifically required by this Act.

Release of Directory Information

The university may release directory information without the student's written consent. Directory information consists of student's complete name; local address and associated telephone number; place of birth; parent/spouse name, address and associated telephone number; mailing address and associated telephone number; E-mail address; photographs, video or other electronic image; participation in recognized activities and sports; weight and height of members of athletic teams; dates of attendance; enrollment time status (full or part time); degrees and awards received; and most recent previous educational agency or institution attended.

A student may deny the release of directory information by completing an Address Change/Information restriction request form available in the Office of the Registrar, Langdon Hall.

To deny the release of information regarding participation in recognized activities the student must notify the vice president for Student Affairs and the student's academic dean in writing. To deny the release of athletic information, the student must notify the director of Athletics in writing. A former student, one who is not in attendance, must contact the appropriate offices to deny the release of information.

Release of Educational Records

The university will release a student's educational record(s) upon the student's written request. The student must:

1. Specify the records to be disclosed.
2. Include the purpose or purposes of the disclosure.
3. State the party or parties and the address to whom the information is to be disclosed.

The student shall, upon request, receive a copy of the record that is to be disclosed. It is university policy to furnish single copies of a student's record at no charge.

The university may release student's educational records to the following without prior written consent:

1. University officials who have a legitimate educational interest in the records. University officials are defined as teachers, administrative personnel and other employees except personnel of the security or law enforcement unit of Auburn University, and other agents acting on behalf of the university. If university officials are required in the performance of their duties to review the educational records of a student, this will be considered to be a legitimate educational interest. Auburn University has designated the National Student Clearinghouse as a university official.
2. Officials of another school in which the student intends to enroll upon request of the transfer school.
3. Government representatives of the Comptroller General of the United States, the Secretary of Education, the U.S. Commissioner of Education, the Director of the National Institute of Education, the Assistant Secretary for Education, State educational authorities, and State officials to whom such information is specifically required to be reported or disclosed by State law adopted prior to Nov. 19, 1974.
4. Appropriate authorities in connection with financial aid with the understanding that only the necessary records will be released.
5. Organizations conducting studies for, or on behalf of, the university or its agencies for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction and student life provided that the studies will not permit the personal identification of students and their parents by individuals other than representatives of the organization and provided that the personally identifiable information furnished will be destroyed when no longer needed for the purposes for which the study was conducted.
6. Accrediting organizations to carry out their accrediting functions.
7. Parents of a dependent student as defined in section 152 of the Internal Revenue Code of 1954. University officials may release educational records to parents on the basis of a written documentation from the parent that the student is a dependent as defined under the Code and there is reasonable notification of the student regarding the request.
8. A court of law to comply with a judicial order or lawfully issued subpoena with the understanding that the student will be notified in advance insofar as possible.
9. Appropriate parties to protect the health and safety of the student or other individuals in emergencies with the understanding that only information essential to the emergency situation will be released, that information will be released only to a party who would be in a position to deal with the emergency, and that the student will be notified insofar as possible of the information released, the purpose for the release, and to whom the information was released.

No personal information on a student will be released without a statement from the university to the party receiving the information that no third party is to have access to such information without the written consent of the student.

Each office with educational records will maintain a record of each request and disclosure of personally identifiable information from the educational records of a student except for information requested in writing by the student, information released to the student or the student’s parents, directory information, and information released to university officials and teachers who have a legitimate educational interest in the records. The student may inspect the record of requests, disclosures and the legitimate interests of parties requesting or obtaining information in the appropriate university office.

Teaching Graduate Courses for Lecturers and Senior Lecturers Policy

Lecturers and senior lecturers who otherwise meet graduate faculty criteria (level 1) for the department may be granted permission to teach graduate-level courses and/or serve on graduate student committees on an exceptions basis under the following conditions:

1. A lecturer/senior lecturer desiring to teach a graduate course or serve on a graduate student committee should make a written request to the department chair.
2. If this request is acceptable to the majority of the department's tenure and tenure track graduate faculty and chair, a memo requesting such authorization will be submitted to the graduate dean for review and approval.
3. Authorization may be requested for teaching only, committee service only, or both.
4. No more than one lecturer/senior lecturer may serve on a graduate student committee.
5. Authorization must be requested for each semester a graduate course is to be taught by a given lecturer/senior lecturer.
6. Authorization must be provided each time that a lecturer/senior lecturer serves on a graduate student committee.
7. The department will provide the faculty member with resources appropriate to the graduate service being provided. What constitutes appropriate support would vary by department, but the following points would generally apply:
    a. Service on a graduate committee should not simply be added on top of current service if the lecturer is already performing at least 5% service and has an appointment that is supposed to be 95% teaching and 5% service. If a lecturer serves on a graduate committee, other forms of service should be reduced, or the lecturer should receive a higher percent of his or her appointment for service.

b. In most cases, teaching a graduate course requires being completely up-to-date with the most recent research in the field. Appropriate support might include a course release for a lecturer teaching the course for the first time.
c. A lecturer should not teach a graduate course as an overload class.

Two-Campus Studies

A student seeking a graduate degree at Auburn University, Auburn University at Montgomery, the University of Alabama, the University of Alabama at Birmingham, or the University of Alabama at Huntsville may take up to half the course work at another of these institutions. The courses taken must be approved in advance by the student's Advisory Committee and the respective graduate deans. All credit must be earned at the two institutions in which the student is working, and none may be transferred from another institution. Students engaged in two-campus studies are required to meet the requirements of continuous enrollment at Auburn University.

Withdrawal Policy

A **partial withdrawal** refers to a student dropping one or more courses but remaining enrolled in at least one Auburn University credit-bearing course. A **full withdrawal** (sometimes referred to as a **resignation**) refers to a student dropping all courses and no longer being enrolled in any courses or credit hours at Auburn University.

Before withdrawing from any course(s), students are encouraged to contact their advisors or other relevant offices such as Auburn Cares, Financial Aid, Scholarships, Veterans Resource Center, International Programs, and Athletics due to possible impacts on tuition, graduation timing, financial aid, veteran's benefits, international student standing, eligibility for varsity athletics, etc.

Withdrawing by the Withdrawal Deadline

A student may withdraw from one or more courses anytime on or before the withdrawal deadline published in the Academic Calendar. Withdrawing on or before the census date (also published in the Academic Calendar) results in no course grade and no record of attempting the course on the transcript. Withdrawing after the census date but on or before the withdrawal deadline results in a course grade of W. Grades of W are not used in calculating the Auburn University term or cumulative GPA.

Students withdrawing before the deadline due to a documented serious physical and/or psychological condition or the death or serious illness of an immediate family member should consult with the Auburn Cares office before withdrawing.

Withdrawing After the Withdrawal Deadline

A student may request to withdraw after the withdrawal deadline only under specific conditions or circumstances. Because the conditions necessary for approval of withdrawals after the deadline usually impact all courses, these are normally approved only as full withdrawals. All withdrawals after the deadline require permission through the appropriate approval process. Most commonly, medical or family medical withdrawals begin with the Auburn Cares office and personal or military withdrawals begin with the student's Advising Office.

Medical or family medical withdrawal: A medical withdrawal may be requested when, by recommendation of a licensed health care provider, a student cannot continue enrollment because of a serious physical and/or psychological condition. A family medical withdrawal may be requested when a student cannot continue enrollment due to the death or serious illness of an immediate family member. These withdrawals are reviewed and approved by the Auburn Cares office.

Personal withdrawal: A personal withdrawal may be requested when a student cannot continue enrollment due to documentable, extraordinary personal circumstances. These withdrawals are reviewed and approved by the student's Associate Dean for Academics.

Military withdrawal: A military withdrawal may be requested when a student is called to active military duty prior to the end of the term. These withdrawals are reviewed and approved by the Office of the Registrar.

When a withdrawal after the deadline is approved, grades of W and WF are assigned to courses the student is passing and failing, respectively, as of the withdrawal date. Grades of W are not used in calculating the Auburn University term or cumulative GPA. Grades of WF are used and have the same impact as a grade of F. In situations where it can be clearly demonstrated that a failing grade was directly related to the medical or personal situation leading to a withdrawal, the withdrawal approver may also approve a course grade of W.

Retroactive Dating of Withdrawals

Retroactive dating refers to establishing an effective withdrawal date prior to the actual date of withdrawal. Retroactive dating is most frequently initiated when a student has documentation from a health professional verifying a medical condition that prevented the student from withdrawing on the effective date.

Requests for retroactive dating of withdrawals due to medical or immediate family medical reasons are reviewed and approved by Auburn Cares and should be initiated within one calendar year (for family medical withdrawals) or two calendar years (for medical withdrawals) from the end of the term in question. Retroactive dating of withdrawals due to extraordinary personal circumstances are reviewed and approved by the Associate Dean of the student's college and the Graduate School designee and should be initiated no later than the student's next term enrolled at the university. Requests initiated beyond these deadlines must also be approved by the Graduate School designee.

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Aerospace Engineering — MS, PhD

Degree Programs

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Graduate studies in aerospace engineering lead to the degrees of master of science and doctor of philosophy. The graduate program prepares students for careers in the aerospace industry, in government laboratories and in academia. Doctoral studies are also designed to produce research scholars.

Applicants should have a bachelor's degree in aerospace or mechanical engineering or its equivalent from an institution of recognized standing, plus satisfactory GRE scores. Degrees in mathematics, physics and other related engineering disciplines may also be appropriate for entrance into the graduate program. Applications will be evaluated on an individual basis by the department's graduate committee.

The master of science may be earned under either thesis or non-thesis options. For both options, a total of 30 semester graduate credits of 6000-7000 level courses are necessary and at least 21 credits must be in aerospace engineering or the AERO category. Substitution of up to six (of the 21) credit hours from other engineering and science disciplines is permitted with prior approval by the graduate programs committee when appropriate courses are unavailable in aerospace engineering. The remaining nine graduate credits can be earned through technical courses in engineering, science or mathematics.

Students pursuing a master of science degree under the thesis option should include six hours of AERO 7990 Research and Thesis as part of their 30 hours. After the completion of thesis research supervised by a major professor, the student must submit a written thesis to a committee of at least three faculty members and pass a final oral examination that includes defending the thesis.

Students pursuing a master of science degree under the non-thesis option will have a plan of study supervised by their graduate committee. The non-thesis master of science degree option does not have a residency, research or final oral examination requirement. The non-thesis degree can be earned entirely through the engineering online graduate program or though on-campus instruction.

For the doctor of philosophy degree, the student must complete a minimum of 60 credit hours beyond the bachelor's degree. A plan of study will be arranged on an individual basis and students may elect to specialize in the general areas of aerodynamics, computational fluid dynamics, control theory, flight dynamics, orbital mechanics, propulsion, structures or structural dynamics. A written qualifying examination and a general doctoral examination, with both written and oral parts, are required of all doctoral candidates. An oral defense of the doctoral dissertation is also required of each student.

There is no language requirement for the master of science or PhD degree.

Aerospace Engineering — MS

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Applicants should have a bachelor's degree in aerospace or mechanical engineering or its equivalent from an institution of recognized standing, plus satisfactory GRE scores. Degrees in mathematics, physics and other related engineering disciplines may also be appropriate for entrance into the graduate program. Applications will be evaluated on an individual basis by the department's graduate committee.

The master of science may be earned under either thesis or non-thesis options. For both options, a total of 30 semester graduate credits of 6000-7000 level courses are necessary and at least 21 credits must be in aerospace engineering or the AERO category. Substitution of up to six (of the 21) credit hours from other engineering and science disciplines is permitted with prior approval by the graduate programs committee when appropriate courses are unavailable in aerospace engineering. The remaining nine graduate credits can be earned through technical courses in engineering, science or mathematics.

Students pursuing a master of science degree under the thesis option should include six hours of AERO 7990 (or 7996 for online students): Research and Thesis as part of their 30 hours. After the completion of thesis research supervised by a major professor, the student must submit a written thesis to a committee of at least three faculty members and pass a final oral examination that includes defending the thesis.

Students pursuing a master of science degree under the non-thesis option will have a plan of study supervised by their graduate committee. The non-thesis master of science degree option does not have a residency, research or final oral examination requirement. The non-thesis degree can be earned entirely through the Engineering Online Graduate Program or though on-campus instruction.

There is no language requirement for the master of science degree.

Aerospace Engineering — PhD

Code	Title	Hours
Aerospace Engineering (PhD)		
AERO 8990	Research And Dissertation	10
Select 30 Credits in Committee Approved Graded Graduate Coursework (6000-8999)		30
Select 20 Credits in Committee Approved Graduate Level Courses or Dissertation Hours (6000 – 8999)		20
Total Hours		**60**

Agricultural Economics — MS, MAg; Applied Economics — PhD

Degree Programs

- Agricultural Economics — MS (p. 1549)
- Agricultural Economics — MAg (p. 1549)
- Applied Economics (Agriculture) — PhD (p. 1550)

Graduate degrees in the Department of Agricultural Economics and Rural Sociology (DAERS) include the master of science (MS) in agricultural economics or rural sociology, the master of agriculture (MAg) in agricultural economics, as well as the PhD in applied economics. Admission to the masters program in agricultural economics requires a bachelors degree from an accredited institution with 15 semester hours in related courses including economics, sociology, statistics, or related subjects accepted by the Graduate Committee. Applicants are required to have a bachelors degree from an accredited institution and generally are required to have a minimum score of 290 (150 V and 140 Q) and a GPA of 3.0 on all completed coursework. Admission into the MS programs requires a minimum GRE score of 900 (450 V and 450 Q). Admission into the PhD program requires and minimum GRE score of 1000 (400 V and 600 Q). Admission into the Master of Agriculture program requires a minimum GRE score of 800 (400 V and 400 Q). International applicants from non-English speaking countries must have a minimum TOEFL score of 550 (213 computer). Applicants with GRE scores below 400 will be required to complete specified English courses. Applicants to all graduate programs are generally required to have a minimum GRA of 3.0 on the last 60 semester hours of completed coursework.

The master's program in rural sociology is part of an Interdepartmental Graduate Program in Sociology. Admission to the program is administered by co-directors representing the Department of Sociology, Anthropology & Social Work and the Department of Agricultural Economics & Rural Sociology. Applicants are required to have a bachelor's degree from an accredited institution and generally are required to have a minimum GRE score of 290 (150 V and 140 Q) and a GPA of 3.0 on all completed coursework. The applicant's resume and letters of recommendation also are considered in making a decision on admission. Further details on the master's degree in rural sociology can be found in the AU Bulletin (p. 1759) and the Interdepartmental Graduate Program in Sociology guide (http://www.cla.auburn.edu/sociology/sociology-program/graduates/program-guide/).

The MS in agricultural economics (thesis option) requires a minimum of 30 semester hours of graduate credit with 6 hours of thesis research. Required of all MS students:

Code	Title	Hours
ECON 6020	Advanced Microeconomics	3
ECON 7130	Mathematical Economics	3
AGEC 7590	Intro To Ag Econometrics	3
AGEC 7700	Research Methods In Ag Econ	3
Total Hours		**12**

Course substitution for will be allowed for ECON 6020 upon approval of the Graduate Program Officer. A total of 12 hours of core course is required in a program of 24 course hours. The remaining 12 hours can be filled with any graduate-level courses approved by the major professor and thesis committee. At least one-half of all credit hours toward the minimum degree requirement must be earned in courses at the 7000-level or above. All MS candidates must pass a comprehensive examination covering the major field, as well as research and thesis. This usually is a two-hour oral examination upon completion of coursework and the thesis, but the student’s advisory committee also may require a written examination.

There is a non-thesis MS option that requires 30 hours of coursework. Twelve of these hours must be in core courses:

Code	Title	Hours
ECON 6020	Advanced Microeconomics	3
ECON 7130	Mathematical Economics	3
AGEC 7590	Intro To Ag Econometrics	3
AGEC 7700	Research Methods In Ag Econ	3
Total Hours		**12**

The remaining 18 hours can be filled with any graduate-level courses approved by the major professor and graduate committee. At least one-half of all credit hours toward the minimum degree requirement must be earned in courses at the 7000-level or above. The non-thesis option requires a “Plan B” paper that serves as the basis for the student’s final oral exam.

Graduate study in rural sociology (MS thesis or MS nonthesis) (p. 1759) is available through the Interdepartmental Graduate Program in Sociology (http://www.cla.auburn.edu/sociology/sociology-program/graduates/program-guide/), which includes rural sociologists from DAERS as well as sociologists and anthropologists from the Department of Sociology, Anthropology, and Social Work.

The master of agriculture (MAg) in agricultural economics requires 32 graduate credit hours, 18 in the major, as approved by the advisory committee. A final oral examination is given by the advisory committee.

A PhD in Economics is offered through the interdepartmental program in economics, which is administered jointly by the Department of Agricultural Economics and Rural Sociology, the Department of Economics, and the College of Forestry, Wildlife and Environment. For students enrolled in the College of Agriculture, the PhD in Applied Economics requires a minimum of 42 credit hours beyond a masters degree or 60 hours beyond a bachelors degree, plus at least 10 hours of dissertation research. All students must take:

Code	Title	Hours
PhD in Applied Economics Agriculture		
Required Courses (34 credit hours):		
ECON 7110	Microeconomics I	3
ECON 7120	Microeconomics II	3
ECON 7130	Mathematical Economics	3
ECON 7210	Macroeconomics I	3
or ECON 7220	Macroeconomics II	
ECON 7310	Econometrics I	3
or ECON 7320	Econometrics II	
AGEC 7690	Microeconometrics in Agricultural Economics I	3
AGEC 7700	Research Methods in Agricultural Economics	3
AGEC 8690	Microeconometrics in Agricultural Economics II	3
AGEC 8990	Research and Dissertation	10
Select at least 15 credit hours from:		
AGEC 7080	Production Economics I	3
AGEC 7090	Resource Economics II	3
AGEC 7110	Agricultural Economic Development	3
AGEC 8060	Theory of Agricultural Markets	3
AGEC 8080	Production Economics II	3
AGEC 8090	Food and Agricultural Policy	3
Select additional credit hours from 6000-8999 level courses to meet the minimum 60 credit-hour requirement.		11
Minimum total credit hours: 60		
TOTAL HOURS		**60**

The PhD written preliminary examination requirement is satisfied by passing a qualifying exam for microeconomics managed by the Department of Economics, from which the first year PhD students take the required core economics courses listed above. There is an oral examination on the field and proposed dissertation research (referred to as the PhD prelim oral exam), and a final oral defense of

the dissertation. For details on exam requirements, see the DAERS Graduate Handbook posted on the department's web site. After satisfactory completion of the PhD prelim oral exam the student advances to candidacy. PhD students are encouraged to consider a graduate minor in statistics, which requires 12 hours of coursework in statistics (see Statistics Department web site for details).

A Graduate Minor in Agricultural Economics (GMAE) is offered for non-majors wishing to obtain training in the application of economic principles to problems affecting rural communities and households. The GMAE requires 12 credit hours of graduate-level coursework in agricultural economics (6 hours must be at the 7000 level or above). The student's graduate committee must include a faculty member from the agricultural economics department, and the student must demonstrate competence in the application of economic principles to problems in research. The latter requirement is typically met via a chapter or section in the student's thesis or dissertation.

Agricultural Economics — MAg

Code	Title	Hours
MAg Agricultural Business & Economics		
AGEC 7960	Special Problems in Agricultural Economics	3
Select at least 13 credits in major @ 6000-8999		13
Select at least 16 credits (out of total 32) @ 7000-8999		16
Total Hours		**32**

Agricultural Economics — MS

Code	Title	Hours
MS Agricultural Business & Economics-Non-Thesis		
ECON 6020	Advanced Microeconomics	3
or ECON 7110	Microeconomics I	
ECON 7310	Econometrics I	3
or AGEC 7590	Introduction to Agricultural Econometrics	
ECON 7130	Mathematical Economics	3
or AGEC 7100	Operations Research Methods in Agricultural Economics	
AGEC 7700	Research Methods in Agricultural Economics	3
Electives: In total 18 Credits @ 6000-8999 level		18
Note: At most, 15 credits at 6000 level		
Total Hours		**30**

Code	Title	Hours
MS Agricultural Business & Economics-Thesis		
ECON 6020	Advanced Microeconomics	3
or ECON 7110	Microeconomics I	
ECON 7310	Econometrics I	3
or AGEC 7590	Introduction to Agricultural Econometrics	
ECON 7130	Mathematical Economics	3
or AGEC 7100	Operations Research Methods in Agricultural Economics	
AGEC 7700	Research Methods in Agricultural Economics	3
AGEC 7990	Research and Thesis	6
Electives: In total 12 Credits @ 6000-8999 level		12
Note: At most, 15 credits at 6000 level		
Total Hours		**30**

Applied Economics (Agriculture) — PhD

Code	Title	Hours
PhD in Applied Economics Agriculture		
Required Courses (34 credit hours):		
ECON 7110	Microeconomics I	3
ECON 7120	Microeconomics II	3
ECON 7130	Mathematical Economics	3
ECON 7210	Macroeconomics I	3
or ECON 7220	Macroeconomics II	
ECON 7310	Econometrics I	3
or ECON 7320	Econometrics II	
AGEC 7690	Microeconometrics in Agricultural Economics I	3
AGEC 7700	Research Methods in Agricultural Economics	3
AGEC 8690	Microeconometrics in Agricultural Economics II	3
AGEC 8990	Research and Dissertation	10
Select at least 15 credit hours from:		
AGEC 7080	Production Economics I	3
AGEC 7090	Resource Economics II	3
AGEC 7110	Agricultural Economic Development	3
AGEC 8060	Theory of Agricultural Markets	3
AGEC 8080	Production Economics II	3
AGEC 8090	Food and Agricultural Policy	3
Select additional credit hours from 6000-8999 level courses to meet the minimum 60 credit-hour requirement.		11
Minimum total credit hours: 60		
TOTAL HOURS		**60**

Animal Sciences — MS, MAg, PhD

Degree Programs:

- Animal Sciences — MS (p. 1551)
- Animal Sciences — MAg (p. 1551)
- Animal Sciences — PhD (p. 1552)

Graduate study in animal sciences is directed toward the master's and doctoral degrees. The Master of Agriculture (MAg) is offered as a non-thesis degree and prepares students for careers in secondary education, Cooperative Extension and agribusiness. Graduate programs leading to the Master of Science (MS) and Doctor of Philosophy (PhD) degrees provide advanced education and technical training in preparation for careers in public and private sectors related to animal science and technology, food science and technology, animal biotechnology, agribusiness and university-level research and education. Areas of specialization include animal nutrition, biochemistry and molecular biology, food technology and safety, growth biology, meat science and muscle biology, functional genomics and reproductive biology. Interdepartmental minor programs in cell and molecular biosciences, ecology and environmental sciences are also available.

Prospective graduate students are evaluated for admission to the graduate program by a departmental graduate-program committee. The committee makes a recommendation to the department head based on its review of academic transcripts, three letters of recommendation, a written statement of intent from the applicant, and Graduate Record Examination (GRE) General Test score; in the case of an international student, the Test of English as a Foreign Language (TOEFL) is also required. Prior to making formal application, prospective students are expected to first contact a prospective faculty advisor in the Department whose area of specialization is compatible with the prospective student's interest and inquire about openings in his/her program. The departmental graduate-program committee will not review an application from a prospective graduate student unless requested to do so by a

prospective faculty advisor, nor will it recommend that a student be admitted unless a prospective faculty advisor agrees to sponsor the applicant's graduate program.

Admission to the MAg degree program requires that the student has the bachelor's degree or evidence of satisfactory progress toward attainment of the bachelor's degree in animal sciences or a related area in the biological sciences. Admission is based primarily on consideration of Grade Point Average (GPA), GRE scores and, in the case of an international student, TOEFL test scores. Applicants lacking suitable preparatory course work in the basic sciences will be required to correct deficiencies by satisfactorily completing additional courses. The MAg degree requires successful completion of a minimum of 30 credit hours, 21 of which must be in the agricultural or related sciences. Additional courses may be required for individual students. Although MAg students do not write a thesis, they are required to take a comprehensive examination and present a report on their comprehensive scholarly project completed under ANSC 7960 (Special Problems). In addition, MAg students are required to present one academic seminar (ANSC 7950) during their program.

Admission to the MS degree program requires that student have the bachelor's degree or evidence of satisfactory progress toward attainment of the bachelor's degree in animal sciences or a related area in the biological sciences. Admission is based primarily on consideration of GPA, GRE scores and, in the case of an international student, TOEFL test scores. Applicants lacking suitable preparatory course work in the basic sciences will be required to correct deficiencies by satisfactorily completing additional courses. The MS degree requires a minimum of 30 credit hours of graduate work, including at least 21 credit hours in the major field of study. The remainder may be in a minor area selected by the student and upon approval by the advisory committee. In addition to the required course work, the student must complete research, a written thesis and a thesis defense examination as defined by the student's advisory committee. Students are required to present two academic seminars (ANSC 7950) during their program.

Admission to the PhD degree program usually requires that the student have a master's degree from a recognized graduate program. However, evidence of exemplary potential may be considered as a criterion for admission with a bachelor's degree. The doctoral program emphasizes original, scholarly research and includes significant advanced course work. Admission is based primarily on a consideration of GPA, GRE scores and, in the case of an international student, TOEFL test scores. Following completion of all or most course work, doctoral students are required to successfully complete a comprehensive written examination in their area of specialization before taking the oral General Examination, successful performance in which is required for advancement to candidacy. The PhD degree requires a minimum of 60 credit hours beyond the bachelor's degree and a dissertation describing original research. After completion of the dissertation, the student must pass a final oral examination defending the dissertation. There is no foreign language requirement, but knowledge of a foreign language may be recommended by the student's advisory committee. Doctoral students are required to present three academic seminars (ANSC 7950) during their program.

All graduate students receiving departmental assistantships are expected to be engaged in service to the department's research and education programs as deemed appropriate by the academic advisor and department head. All MS and PhD students must register for at least one credit hour of thesis (ANSC 7990) or dissertation (ANSC 8990) research each term. Classified (FLSA-exempt) research associates holding full admission status in the Graduate School for work toward a graduate degree are exempt from this requirement but must complete 10 hours of thesis research in a MS program or 20 hours of dissertation research in a PhD program following completion of a master's degree. A PhD degree program undertaken by classified (FLSA-exempt) research associates but not preceded by a master's degree must include 30 hours of dissertation research credit.

Animal Sciences — MAg

Code	Title	Hours
MAg		
ANSC 7950	Seminar	1
ANSC 7960	Special Problems	4-6
Select 17-19 Credits in Agricultural or Related Sciences 6000-8999		19-17
Select 6 Credits in @ 6000-8999 (Electives)		6
Total Hours		**30**

Animal Sciences — MS

Code	Title	Hours
MS		
ANSC 7950	Seminar	2
ANSC 7990	Research and Thesis	4

Select 21 Credits in Animal-related Life Sciences 6000-8999	21
Select 3 Credits in @ 6000-8999 (Electives)	3
Total Hours	**30**

Animal Sciences — PhD

Code	Title	Hours
PhD		
ANSC 8990	Doctoral Research and Dissertation	10
ANSC 8950	Doctoral Seminar	3
Select 47 Credits in Animal-related Life Sciences @ 6000-8999 (Electives)		47
Total Hours		**60**

Architecture – Public Interest Design Option — MS

The Master of Science in Architecture is a post-professional program designed to provide advanced and specialized training within the discipline of architecture for students who desire in-depth, design –based research in areas of practice not offered in traditional professional degree programs at either the undergraduate or graduate level.

Over time, the School of Architecture, Planning, and Landscape Architecture envisions the MS Architecture as a platform for several specialization “options.“ The MS Architecture curriculum will have thirty to thirty-six (30-36) credit hours of required courses (varies by option.) Common to all options will be eighteen (18) hours of core studios (6 CH each, Fall/Spring/Summer,) with the balance of credit hours made up of coursework specific to the “option.” The initial offering considered in this proposal is an Option in Public Interest Design.

The MS Architecture, Option in Public Interest Design is designed to address issues of design practice associated with pressing social issues (such as affordable housing, design for underserved communities, etc.) and will prepare students to serve these communities and to work effectively within collaborative, interdisciplinary project teams.

In addition to the aforementioned eighteen hours of core studios, the MS Architecture, Option in Public Interest Design curriculum will require five 3CH courses (two 3CH courses in the fall, two in the spring, and one in the summer) for a total of thirty-three (33) credit hours. All classes shall be taken in the full-time format. The plan of study is attached.

Fall	Hours	Spring	Hours	Summer	Hours
ARCH 7010 Fall Studio	6	ARCH 7020 Spring Studio	6	ARCH 7030 Summer Studio	6
ARCH 7110 Seminar in Collaborative Design Methods and Process	3	ARCH 7120 Seminar in Design Tectonics	3	ARCH 7130 Seminar in Project Communications	3
ARCH 7210 Executive Issues: Disciplinary Framework	3	ARCH 7220 Executive Issues: Research Methods	3		

Audiology — AuD

The Department of Speech, Language, and Hearing Sciences offers the professional clinical degree: the Doctor of Audiology (AuD). As opposed to the PhD research degree, the AuD is a clinical practice degree. The AuD degree program spans four years (11 semesters including summers), each cohort group begins fall semester. Details are provided at the Department of Speech, Language, and Hearing Sciences website: https://www.cla.auburn.edu/speech-language-hearing-sciences/.

Most graduates of the AuD program work in clinical settings, such as major hospitals, ear, nose and throat clinics, and private practice facilities. A few graduates teach in clinical programs in academic institutions.

To complete the program, students must have transportation for courses and clinics in both Auburn and Montgomery as well as for additional clinical experiences and internships located in other cities within the surrounding region.

Admissions Requirements

A bachelor's degree from an accredited university is necessary, however highly qualified students from any discipline are considered. Foundation courses in language development and phonetics will be added to the curriculum for students without a bachelor's degree in Speech, Language, and Hearing Science. At least one undergraduate course each of math, life sciences, statistics, physical sciences (chemistry or physics required), and behavioral sciences is an accreditation expectation, and applicants lacking any of these must comply before conferral of the AuD degree.

Potential students must apply both to the Auburn University Graduate School and to Communication Sciences and Disorders Centralized Application System (CSDCAS).

Application to Auburn University's Speech, Language and Hearing Sciences Department requires that you complete both the electronic application through the Communication Sciences and Disorders Centralized Application Service (CSDCAS) AND the online application to the Auburn University Graduate School. Here are the specific steps:

1. Apply online to AU's Graduate School and submit payment.
2. Complete the Casper Assessment through Altus Suite. Casper scores are sent directly to Auburn University so you do not need to upload your scores to CSDCAS.
3. Official transcripts from every college or university attended must be sent to CSDCAS.
4. Three professional letters of recommendation must be submitted to CSDCAS.
5. A video: See website for instructions and prompt.
6. A letter of interest, which will serve as a writing sample. See website for instructions.
7. For international students whose native language is not English, the TOEFL must be taken and submitted to both CSDCAS and AU Graduate School. In keeping with the requirements of the Auburn University Graduate School, successful international applicants must score at least 550 on the Test of English as a Foreign Language (TOEFL) paper version (pBT), 213 on the computer version (cBT), and 79 on the internet version (iBT). Additionally, successful applicants must score minimums of 16 on the listening, reading, speaking, and writing components of the iBT.

January 15th is the annual deadline for applications to the graduate program. To be considered for admission, all materials need to be submitted to AU and CSDCAS no later than January 15th.

Graduation Requirements

The curricular plan of study is a static sequence of academic and clinical coursework. The academic and clinical components of the AuD program interact in a logical progression over a four-year period. A total of 124 semester hours are required for the degree.

The early portion of training is largely academic, and the later portions involve mostly applied clinical work. As the program progresses, the balance of academic and clinical work changes substantially. During the first two years of the program, the emphasis is on academic preparation for clinical work. Students must pass comprehensive exams at the end of the 1st and 3rd year (see handbook). In the third year of the program, academic courses are combined with advanced seminars on current issues in clinical practice and the completion of an applied clinical research project referred to as a capstone experience. During this third year of the program, students are engaged in a series of intensive clinical internships at off-campus clinical settings. Students must successfully complete internships at three different clinical settings during the third year and return to campus to participate in seminar course work. In the final year of the program, students participate in a clinical residency during which they work full time for a period of nine months. Clinical residencies may be done at any facility in the United States where a certified audiologist agrees to supervise the student within ASHA guidelines.

Plan of Study

The four-year sequence of academic and clinical course work, including the semester hours, is as follows:

First Year

Fall	Hours	Spring	Hours	Summer	Hours
SLHS 8100 Hearing Science	3	SLHS 8200 Diagnostic Audiology	3	SLHS 8300 Central Auditiory Processing	3
SLHS 8110 Auditory Physiology	3	SLHS 8210 Medical Aspects of Hearing Disorders	3	SLHS 8310 Aural Rehabilitation	3

SLHS 8120 Audiology Clinical Methods	3	SLHS 8220 Amplification I	3	SLHS 8570 Evaluation of Research in Audiology	3
SLHS 8800 The Neurological Bases of Communication Disorders	3	SLHS 8320 Clinical Applications of Amplification	2	SLHS 8910 Clinical Practice in Audiology	2
SLHS 8910 Clinical Practice in Audiology	2	SLHS 8910 Clinical Practice in Audiology	2	SLHS 8980 Capstone Project	1

Second Year

Fall	Hours	Spring	Hours	Summer	Hours
SLHS 8400 Pediatric Audiology	3	SLHS 8410 Aural Habilitation	3	SLHS 8520 Hearing Conservation	3
SLHS 8420 Amplification II	3	SLHS 8500 Electrophysiological Procedures in Audiology	3	SLHS 8610 Implant Technology	3
SLHS 8430 Clinical Application of Diagnostic Audiology	2	SLHS 8510 Clinical Application of Balance Assessment	2	SLHS 8650 Advanced Audiometry	2
SLHS 8600 Balance Disorders	3	SLHS 8810 Private Practice	3	SLHS 8700 Professional Issues	3
SLHS 8910 Clinical Practice in Audiology	2	SLHS 8910 Clinical Practice in Audiology	2	SLHS 8910 Clinical Practice in Audiology	2
SLHS 8980 Capstone Project	1	SLHS 8980 Capstone Project	1	SLHS 8980 Capstone Project	1

Third Year

Fall	Hours	Spring	Hours	Summer	Hours
SLHS 8620 Outcome Measures In Audiology	3	SLHS 8630 Counseling In Audiology	3	SLHS 8920 Clinical Internship	5
SLHS 8920 Clinical Internship	5	SLHS 8920 Clinical Internship	5	SLHS 8950 Audiology Grand Rounds	3
SLHS 8950 Audiology Grand Rounds	3	SLHS 8950 Audiology Grand Rounds	3		
SLHS 8980 Capstone Project	1				

Fourth Year

Fall	Hours	Spring	Hours
SLHS 8940 Clinical Residency	6	SLHS 8940 Clinical Residency	6

Internships and Clinical Residency

During third year, students complete internships in three different locations, and in the final year, they work full-time under the supervision of a certified audiologist. Off campus clinical experiences for the third year are typically located within a two hour drive time radius to allow the student a quality experience and the ability to return to campus for class and capstone research work. The fourth year clinical residency experience can be anywhere in the United States with appropriate supervision and a broad scope of practice.

Other Requirements for the AuD

Along with their course work and internships, students are required to pass comprehensive written exams in order to advance to candidacy. Oral examinations will be conducted if written responses lack detail or clarity. To graduate, students must also successfully complete a capstone project, which can be a planned audiology-related research or clinical project designed to explore a research hypothesis or meet a clinical outcome.

Graduate Assistantship Opportunities

A limited number of graduate assistantships are available for meritorious students to assist in teaching, research, or clinical roles.

Biological Sciences — Graduate Certificate, MS, PhD

Degree Programs

- Biological Sciences — MS (p. 1555)
- Biological Sciences — MS (Non-Thesis, Pre-Professional Option)
- Biological Sciences — PhD (p. 1555)

Graduate Certificate

- Computational Biology (p. 1556)

The Department of Biological Sciences offers graduate training leading to the MS and PhD degrees in biological sciences; a non-thesis master's degree is optional. Candidates for advanced degrees should have an undergraduate degree in an appropriate area from an accredited institution, with adequate training in biology, chemistry, physics and mathematics. Qualified students lacking pre-requisite subjects can be admitted but may be required by the departmental graduate studies committee to make up the pre-requisites. A satisfactory score on the general GRE is required (suggested minimums of 500 on verbal and quantitative tests).

A major of at least 30 and 60 semester hours may be taken for the MS and PhD degrees, respectively. MS and PhD students must present at least one departmental seminar on their research during the semester of their oral or final examination. There is no foreign language requirement.

Interdisciplinary minors may be taken in biochemistry, cell/molecular biology, ecology, environmental studies and plant, animal, or microbial molecular biology.

Biological Sciences — MS

Code	Title	Hours
Biological Sciences - MS		
BIOL 7950	Masters Thesis Seminar	1
BIOL 7990	Research and Thesis	4
Select 25 Credits in @ 6000-8999		25
Total Hours		**30**

Code	Title	Hours
Biological Sciences Thesis - MS		
Select 30 Credits in @ 6000-8999		30
Total Hours		**30**

Biological Sciences — MS (Non-Thesis, Pre-Professional Option)

The Biological Sciences Pre-Professional MS-NT option will provide students a broad graduate experience, enhancing their knowledge base of biological phenomena and processes, that will improve their credentials for application to dental, medical, optometry, physician assistant, and other health care professional programs.

Code	Title	Hours
Biological Sciences Pre-Professional MS-NT		
BIOL 7960	Special Problems	4
Select 26 Credit Hours @6000-7970		26
Total Hours		**30**

Biological Sciences — PhD

Code	Title	Hours
Biological Sciences - PhD		
BIOL 8950	Doctoral Seminar (I)	1

BIOL 8950	Doctoral Seminar (II)	1
BIOL 8990	Research and Dissertation	10
Select 48 Credits in @ 6000-8999		48
Total Hours		**60**

Computational Biology — Graduate Certificate

Offered by the Department of Biological Sciences, this certificate is designed to provide trainees with a broad understanding and appreciation of the utility of computation in relation to “Big Data”, or large data sets that can only be analyzed with an advanced set of computational skills towards revealing patterns, trends, and associations pertaining to biological and life science phenomena. This certificate program requires 18 credit hours of coursework to be completed. All trainees in the certificate program will complete 11-12 credit hours of required coursework. Trainees will select (at least) 6-7 additional credit hours of coursework from a given list that heavily utilize computational approaches and tailored to their specific research interests.

Code	Title	Hours
Required coursework (11 or 12 credit hours):		**11-12**
BIOL 6800	Introduction to Computational Biology	3
STAT 7000	Experimental Statistics I	4
BIOL 7180	Scripting for Biologists	2-3
or PLPA 6820	Principles and Tools for Reproducible Science in Agriculture	
*Either course is allowed to complete this requirement		
BIOL 7800	Computational Biology Colloquium	2
Selected elective coursework (6-7 credit hours):		**6-7**
From approved list of courses that heavily utilize computational approaches. The list of potential electives is expected to grow and evolve given development of new courses tied to continuing new faculty hires at Auburn University.		

Trainees who successfully complete this certificate program will exhibit proficiency in the comprehension, planning and implementation of computationally intensive experiments and analyses of biological data originating from various sources and should be well-positioned for finding positions in academia, government or the private sector.

Elective coursework list can be found here: https://www.auburn.edu/cosam/departments/biology/certificate/graduate_computational_biology.htm

Biomedical Sciences — MS, PhD

Degree Programs:

- Biomedical Sciences — MS (p. 1557)
- Biomedical Sciences — PhD (p. 1557)

All graduate faculty of the College of Veterinary Medicine participate in a college-wide graduate program leading to the master of science and the doctor of philosophy degrees in biomedical sciences (BMS or VBMS for curriculum descriptions). Participating departments are Anatomy, Physiology and Pharmacology (APP); Clinical Sciences (DCS); and Pathobiology (PATHO).

Applicants to the program are required to meet entrance standards established by the College’s Graduate Program Committee, the Graduate School, and their intended area of study. Either a baccalaureate degree or the Doctor of Veterinary Medicine (DVM) degree or equivalent is required for admission.

The three departmental programs represent the gateway to areas of concentration. The ten BMS concentrations (MS and PhD programs unless otherwise stated): Anatomy (APP), Animal Genetic Disease (PATHO), Animal Parasitology (PATHO), Clinical Sciences (including all DCS Residency Programs, MS only), Infectious Disease (PATHO), Molecular Oncology (multidisciplinary through PATHO), Pathology (Anatomic and Clinical; PATHO), Pharmacology (APP), Physiology (APP), and Veterinary Sports Medicine (DCS, MS only). The BMS program offers specific enrichment activities including seminars and journal clubs, training in grant writing, participation in scientific meetings, and opportunities to present results of research at national and international meetings.

A graduate student advisory committee is appointed by the dean of the Graduate School for each student upon recommendation of the college’s associate dean for research and graduate studies. The student’s faculty adviser usually serves as the chair of this committee, and the remaining members, selected from the graduate faculty, should have expertise relevant to the student’s area of

study. The advisory committee develops a plan of study which must be submitted to the college's associate dean for research and graduate studies for approval and then to the dean of the Graduate School. Study programs are designed to meet the student's needs and interests while featuring research training and assuring a strong background in biochemistry, biophysics and/or molecular biology. Original research is required for all BMS graduates. Courses must be selected in conformity with the regulations of the college's BMS Graduate Program Committee and the Graduate School. For additional information, visit: https://www.vetmed.auburn.edu/.

A dual degree program (DDP) allows students to pursue DVM and graduate degrees simultaneously in a time-and content-integrated manner. Graduates, particularly DVM/PhD graduates, will have strong backgrounds both in veterinary medicine and research so as to be well prepared for successful careers in academia, industry and/or specialty clinics. For the DDP program, students must be admitted into the College of Veterinary Medicine program via application to the Auburn University College of Veterinary Medicine and to the graduate program via application to the Auburn University Graduate School. Students already admitted to the Graduate School may apply for admission to the DVM program in order to gain entry to the combined degree program. Such students must meet specific criteria to be allowed to pursue this course of study (https://www.vetmed.auburn.edu/).

Biomedical Sciences — MS

Code	Title	Hours
Biomedical Sciences - MS		
VBMS 7990	Research and Thesis in Biomedical Sciences	4
Select 26 Credits in @ 6000-8999		26
Total Hours		**30**

Code	Title	Hours
Biomedical Sciences Non-Theis - MS		
VBMS 7980	Non-Thesis Project	3
Select 27 Credits in @ 6000-8999		27
Total Hours		**30**

Biomedical Sciences — PhD

Code	Title	Hours
PhD Biomedical Sciences		
VBMS 8990	Research and Dissertation	10
Select 50 Credits in @ 6000-8999		50
Total Hours		**60**

Bioproducts and Bioprocessing — Graduate Certificate

The Graduate Certificate in Bioproducts and Bioprocess Engineering provides a specialization in the application of biological/biochemical principles to solve complex problems that are needed in developing systems for processing and converting biological materials to fuels, products and chemicals. Because of this, the program is inter-disciplinary in nature.

This graduate certificate program is designed for individuals holding baccalaureate degrees in biosystems engineering, or other appropriate engineering/science fields with an interest in biofuels, bioenergy, and bioprocess engineering. Students can complete the certificate program in one academic year (fall and spring semesters) by passing four of the courses listed below (total of 12 credit hours), and attending (in-person) all required one-week labs for each course.

Curriculum Model: The certificate requires students to complete four of the graduate courses (total of 12 credit hours). Students are required to take two required courses (BSEN 6540 and BSEN 6280) and two elective courses (*) from the list. Other elective courses may be allowed at the discretion of the department. Students must earn a B or higher grade in each course.

Code	Title	Hours
BSEN 6540	Biomass and Biofuels Engineering	3
BSEN 6280	Life-Cycle Assessment for Biological Systems	3
BSEN 6270	Metabolic Engineering for Bioprocess	3

BSEN 6240	Bulk Biological Solids Behavior, Handling and Processing	3
BSEN 6260	Renewable Energy in Biosystems Process Operations	3
BSEN 6220	Geospatial Technologies in Biosystems	3
BIOP 6250	Biocomposites	3
PFEN 6200	Polymer Processing	4
PFEN 6510	Polymer Chemistry	3
MATL 7130	Advanced Polymer Science and Technology	3

Biosystems Engineering — MS, PhD

Degree Programs:

- Biosystems Engineering — MS (p. 1558)
- Biosystems Engineering — PhD (p. 1559)

Graduate study in Biosystems Engineering leads to Master of Science (thesis, non-thesis) or Doctor of Philosophy degrees. Instruction, research training, and experience are available in various specialized fields such as ecological and water resources engineering; bioprocess engineering, bioenergy and bioproducts engineering; smart systems for production ag and forestry, controlled environment in agriculture, climate smart ag and forestry systems, and ag systems modeling and data analytics. Applicants are expected to have earned a baccalaureate degree in biosystems engineering or a closely related area. All applicants should provide a written statement of purpose for their graduate study, three letters of reference, and all other data required by Auburn University. Additional details regarding graduate study in the Department of Biosystems Engineering are available at www.eng.auburn.edu/bsen (http://www.eng.auburn.edu/bsen/).

Biosystems Engineering — MS

The MS (thesis option) in Biosystems Engineering requires a minimum of 30 semester credit hours of graduate course work that includes up to 6 credit hours of thesis research. After completion of research, candidates for the MS thesis option must successfully defend the thesis. The specific requirements for the MS (thesis option) are:

Code	Title	Hours
BSEN 7990	Research and Thesis	6
BSEN 6250	Deterministic Modeling for Biosystems	3
BSEN 7950	Seminar	1
Select 6 Credits of Other BSEN Courses (@6000-8999) *		6
Select 6 Credits of Other Engineering Courses (@ 6000-8999) *		6
Select 3 Credits of Statistics or Other Related Courses (@6000-8999) *		3
Select 5 Credits of Other Courses (@ 6000-8999) *		5
Total Hours		**30**

* Specific courses are approved by student advisory committee. BSEN 7990 should be minimum of four credit hours and not more than 6 credit hours.

The MS (non-thesis option) in Biosystems Engineering is offered to those that desire in-depth knowledge in Biosystems Engineering typically needed for non-academic engineering careers. A minimum of 30 semester credit hours of graduate course work is required for this option.

Code	Title	Hours
Biosystems Engineering Non-Thesis (MS)		
BSEN 6250	Deterministic Modeling for Biosystems	3
BSEN 7950	Seminar	1
Select 9 credits of other BSEN courses (@6000-8999) *		9
Select 6 Credits of Other Engineering Courses (@ 6000-8999) *		6

Select 3 Credits of Statistics or other related courses (@6000-8999) *	3
Select 8 Credits of other Courses (@6000-8999) *	8
Total Hours	**30**

* Specific courses are approved by BSEN Graduate Program Coordinator.

The department also offers an accelerated bachelors/masters (ABM) program in Biosystems Engineering. Interested students should contact the department.

Biosystems Engineering — PhD

The Ph.D. in Biosystems Engineering requires a minimum of 60 semester hours of graduate-level course work beyond the bachelor's degree. The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree must be less than 50 percent of the credit hours listed on the Plan of Study. Students must take a qualifying examination (written and oral) administered by the student's advisory committee that tests the student's knowledge and competence in the proposed research area and in the general field of biosystems engineering. The student advances to Ph.D. candidacy after the successful completion of the qualifying examination. The PhD student will conduct independent research and prepare a dissertation. After completion of the dissertation, the student must pass a final oral examination defending his/her dissertation.

Code	Title	Hours
BSEN 8990	Research and Dissertation (Minimum)	10
BSEN 6250	Deterministic Modeling for Biosystems	3
BSEN 7950	Seminar	1
Select 6 Credits of Other BSEN Courses (@6000-8999) *		6
Select 15 Credits of Engineering Courses (@ 6000-8999) *		15
Select 3 Credits of Statistics or Related Courses (@6000-8999) *		3
Select 22 Credits of Other Courses (@ 6000-8999) *		22
Total Hours		**60**

* Specific courses are approved by student advisory committee

Brewing Science and Operations — Graduate Certificate, MS

The School of Hospitality Management offers the MS in brewing science and operations and a graduate certificate in brewing sciences. Individual program requirements are listed below.

Brewing Science and Operations — MS

The Master of Science (MS) degree in Brewing Science and Operations is designed to provide advanced education for those interested in entering or further developing their career in the craft brewing industry. The MS degree will be non-thesis and delivered entirely online, requiring a minimum of 33 semester hours to complete the degree. The non-thesis track is designed mainly for individuals interested in combining current work life with the need for educational advancement. While there will be an element of primary research attached to the completion of their non-thesis project, the project will primarily relate to some element of the student's current or intended business environment. The program will offer a blend of theoretical and applied courses created to keep students abreast of current management thinking and practice in this emerging field. Particular emphasis is placed on the concepts of good and progressive science, workplace health and safety, effective and sustainable operations, brewing industry supply chains, laws and regulations pertaining to the craft beer industry, and business planning and informed decision-making.

The program will consist of 33 credit hours to be taken across 11 x 3 credit hour classes and will build upon the current Graduate Certificate program in Brewing Sciences. These include:

Code	Title	Hours
HOSP 7100	The Business of Brewing	3
HOSP 7110	Brewing Materials	3
HOSP 7120	Science of Brewing I	3

HOSP 7130	Science of Brewing II	3
HOSP 7140	Facilities and Operations	3
HOSP 7150	Brewing Microbiology	3
HOSP 7160	Applied Engineering in Brewing	3
HOSP 7170	Beer Distribution Systems	3
HOSP 7180	Quality Management and Brewing Analytics	3
HOSP 7910	Practicum in Brewing Science	3
HOSP 7980	Non-Thesis Research	3
Total Hours		**33**

Brewing Sciences — Graduate Certificate

Code	Title	Hours
HOSP 7100	The Business of Brewing	3
HOSP 7110	Brewing Materials	3
HOSP 7120	Science of Brewing I	3
HOSP 7130	Science of Brewing II	3
HOSP 7140	Facilities and Operations	3
HOSP 7910	Practicum in Brewing Science	3
Total Hours		**18**

Building Construction — Graduate Certificates, MBC, PhD

Degree Programs

- Building Construction — MBC (p. 1560)
- Building Construction — PhD (p. 1562)

Executive Graduate Certificates

- Construction Management (p. 1563)
- Executive Technical Construction Management (p. 1563)
- Integrated Processes Construction Management (p. 1563)

Building Construction — MBC

The McWhorter School of Building Science offers the Master of Building Construction (MBC).

The McWhorter School of Building Science's non-thesis master of building construction program provides its students with an unparalleled educational experience. From conceptual idea to post-occupancy of facilities, the degree content offers a practical and industry-oriented study of the interdisciplinary and collaborative processes involved in the planning, financing, design, construction and management of the built environment.

Admission to the master of building construction is competitive, and enrollment is limited. The admissions committee considers GRE scores, undergraduate GPA, educational background, letters of recommendation, prior construction industry experience, and other relevant information.

For students holding an accredited undergraduate degree in construction, the MBC curriculum consists of 35 semester hours of academic credit, including a core of BSCI graduate courses (17 credit hours), electives (15 credit hours) and capstone (3 credit hours), taken over a period of three academic terms beginning in the fall of each year.

Students with undergraduate degrees in areas other than construction are given conditional admission to the program, and are required to take a series of five foundation courses (14 credit hours) commencing the summer term prior to fall admission. Upon successful completion of these classes, they are formally admitted to the 35 credit-hour MBC program.

MBC Degree Requirements

Foundation Courses

Offered in Summer and required for students with undergraduate degree in areas other than construction. There are 5 foundation courses worth 14 semester hours of academic credit.

The Core Curriculum

Code	Title	Hours
BSCI 7020	Integrated Bldg Proc I	3
BSCI 7030	Construction Info Management	3
BSCI 7040	Integrated Bldg Proc II	3
BSCI 7050	Executive Issues in Constructi	3
BSCI 7060	Research Methods in BSCI	3
BSCI 7950	Graduate Seminar (I)	1
BSCI 7950	Graduate Seminar (II)	1

All classes are three credit hours except graduate seminar which is one credit hour.

Electives

Four building science electives (12 credit hours) and one approved graduate elective (3 credit hours) from any field.

Capstone

BSCI 7980, students are required to undertake a capstone project in their final semester. The purpose of the capstone project is to demonstrate the student’s ability to independently explore a new topic, demonstrate appropriate application of the materials, and successfully communicate the information in a professional and academically rigorous format.

Note: Online Master's students are not required to take BSCI 7060 (Research Methods) or BSCI 7950 (Graduate Seminar I and II).

Code	Title	Hours
Building Construction (MBC) - On Campus Program		
BSCI 7020	Integrated Building Processes I	3
BSCI 7030	Construction Information Management	3
BSCI 7040	Integrated Building Processes II	3
BSCI 7050	Executive Issues in Construction	3
BSCI 7060	Research Methods in Building Science	3
BSCI 7950	Graduate Seminar (I)	1
BSCI 7950	Graduate Seminar (II)	1
BSCI 7980	Capstone Project	3
Select 15 Credits in @ 6000-8999 (Electives)		15
Total Hours		**35***

* Does not include credit hours for foundation courses which are required for students with an undergraduate degree in a non-construction discipline.

Code	Title	Hours
Building Science (MBC) - Online Program		
BSCI 7020	Integrated Building Processes I	3
BSCI 7030	Construction Information Management	3
BSCI 7040	Integrated Building Processes II	3
BSCI 7050	Executive Issues in Construction	3
BSCI 7980	Capstone Project	3

Select 21 Credits in @ 6000-8999 (Electives)	21
Total Hours	**36**

Building Construction — PhD

The PhD in Building Construction is a research-based degree focused on the generation of new knowledge through innovative exploration of theory, development of creative perspectives, and applications of new technologies. It emphasizes original interdisciplinary scholarship in key and emerging areas such as high performance buildings, n-D modeling and simulation of building construction processes, sustainability, integrated project delivery, and facilities maintenance and management.

The PhD in Building Construction requires 62 semester hours of graduate course work beyond the bachelor's degree. Up to 21 credit hours from a Master's degree or previous graduate course work are transferable on the approval of the School's PhD committee. It also requires a Comprehensive Written and Oral Examination before dissertation research commencement, a Comprehensive Research Proposal Examination defined as the Proposal Defense, and a Final Oral Examination defined as the Dissertation Defense.

For a PhD in Building Construction, the specific semester hours' requirements are as follows:

Number of credit hours transferable from a Master's degree (6000 or higher level courses): Max.21 (Please refer to degree requirements in the program booklet for details)

Number of credit hours for Building Science (BSCI) graduate courses (6000 level or above): Min. 9

- BSCI 8060: Advanced Research Methods in Building Science-1 (3)
- BSCI 8070: Advanced Research Methods in Building Science-2 (3)
- Other BSCI 6000 or higher level courses from the Course List

Number of credit hours for BSCI or other graduate courses (6000 level or above) directly related to the candidate's area of research: Min. 18

Code	Title	Hours
List of BSCI Graduate Courses		
BSCI 6450	Building Great Structures	3
BSCI 6460	Planning and Decision Making in Construction	3
BSCI 6470	Small Unmanned Aircraft Systems in Construction	3
BSCI 6830	Global Construction Management	3
BSCI 6840	Multi-Cultural Issues in Construction Labor	3
BSCI 6960	Special Problems in Construction	3
BSCI 7010	Construction Labor and Productivity	3
BSCI 7020	Integrated Building Processes I	3
BSCI 7030	Construction Information Management	3
BSCI 7040	Integrated Building Processes II	3
BSCI 7050	Executive Issues in Construction	3
BSCI 7100	Graduate Elective in Project Management: Project Management and Scheduling	3
BSCI 7200	Electives in Construction Labor	3
BSCI 7300	Electives in Information Technology and Innovation	3
BSCI 7900	Directed Reading in Const	3

Dissertation Seminar Credit Hours: Min. 4

- BSCI 8950: Dissertation Seminar (1)

Dissertation Credit Hours: Min. 10

- BSCI 8990: Dissertation (1-10)

Total Credit Hours above Bachelor's degree: Min. 62

Construction Management — Graduate Certificate

This graduate certificate provides a foundation of all construction processes that constitute a project, from development conception, through project financing and design, into the on-site construction phase and management of the facility. The purpose of the certificate is to provide an introduction to comprehensive construction management topics such as estimating and scheduling as well as an understanding of the contractual and legal aspects that drive the decision-making process in the construction industry.

Code	Title	Hours
Construction Management - Graduate Certificate		
BSCI 7100 - Construction Cost Estimating		3
BSCI 7100 - Construction Project Management and Scheduling		3
BSCI 7120	Construction Law and Risk Management	3
BSCI 7110	Construction Contracting Business	3
or BSCI 7150	Heavy Civil Construction	
Total Hours		**12**

Executive Technical Construction Management — Graduate Certificate

Code	Title	Hours
Executive Technical Construction Management - Graduate Certificate		
BSCI 7030	Construction Information Management	3
BSCI 7100: Mechanical & Plumbing Systems in Buildings		3
BSCI 7100: Electrical Systems in Buildings		3
Elective Course:		
BSCI 7140	Structural Systems of Buildings	3
or BSCI 7130	Building Construction Sustainability	
Total Hours		**12**

Integrated Processes Construction Management — Graduate Certificate

This graduate certificate will develop a student's ability to handle comprehensive project budgets, project development and project financing within the construction industry. Individuals will be able to create construction project financing, project development, and program management plans.

Code	Title	Hours
Integrated Processes Construction Management - Graduate Certificate		
BSCI 7020	Integrated Building Processes I	3
BSCI 7040	Integrated Building Processes II	3
BSCI 7050	Executive Issues in Construction	3
Elective Course:		

BSCI 7130	Building Construction Sustainability	3
or BSCI 6460	Planning and Decision Making in Construction	
Total Hours		**12**

Business — MBA, MS, PhD

Degree Programs:

- Master of Business Administration (with On-Campus, Online, and Executive and Physicians Executive Options) — MBA (p. 1565)
- Business - (with concentrations in Finance, Information Systems, Management, and Supply Chain Management) — PhD (p. 1566)

Graduate programs in business administration are fully accredited by AACSB International — the Association to Advance Collegiate Schools of Business (AACSB) — and include the master of business administration, the master of science in business administration with a concentration in finance, and the doctor of philosophy in business with concentrations in finance, information systems, management, and supply chain management.

Application for admission to graduate programs in Business should be made directly to the Graduate School. Information concerning specific program requirements may be obtained by visiting https://harbert.auburn.edu/.

An Auburn MBA can be an important part of the advantage needed to succeed in an increasingly competitive business environment. The College of Business offers an on-Campus MBA, an Online MBA, an Executive MBA and a Physicians Executive MBA, all structured to provide students with a world-class learning experience. An MBA from Auburn prepares individuals to enter the workplace in key leadership positions. Hands-on leadership training is integrated throughout the program. The MBA is a 39-hour program. MBA students without two years full-time work experience are also required to do an additional 3-credit hour internship. For on-campus and online students, dual MBA/MS graduate degree options are available in Finance, Management Information Systems, and Industrial and Systems Engineering.

For more information on MBA Program options, please visit: www.harbert.auburn.edu (http://harbert.auburn.edu/).

Graduate Executive Programs

The Graduate Executive Programs comprise the Executive MBA, the Physicians Executive MBA, and the Masters of Real Estate Development Executive programs. These programs are designed to be taken as a cohort with one start in the Fall of each year, an exact sequence of courses taken each term and with graduation in the Spring – five semesters later.

Due to the hybrid nature of these Graduate Executive programs, which use a format that combines on-campus residency with online learning, the residencies typically occur during breaks on campus. See the relevant program website for the exact calendar dates per term for each executive program.

Students in the Graduate Executive Programs are restricted to the exact courses which are offered to that cohort in any one semester.

The course load varies from term to term — from a minimum of 5 hours to a maximum of 9 hours.

The course load is thus considered to be full time as they cannot take more hours or less as they follow the mandated and approved curriculum.

Tuition Costs Excluded VA Benefit Coverage:

VA benefits will not cover costs for lodging, meals, travel, books, supplies or memberships to organizations. As many of these costs are included in the Graduate Executive Programs' tuition, those costs have been broken out and will be billed separately. See the relevant program website for the exact amounts per term.

MBA/MS Dual Degree Options

The MBA/MSIS is a 54-hour program administered jointly by the Business Analytics and Information Systems faculty and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work experience are required to do an additional 3-credit hour internship. Students must apply separately to each program (MSIS and MBA), but only have to pay one application fee. Students can also opt to apply for the second degree program during their first year in the other program.

The MBA/MS-Finance is a 54-hour program administered jointly by the Finance faculty and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work

experience are required to do an additional 3-credit hour internship. Students must apply separately to each program (MS-Finance and MBA), but only have to pay one application fee. Students can also opt to apply for the second degree program during their first year in the other program.

The MBA/MS in Industrial & Systems Engineering is a 55-credit hour concurrent degree program administered jointly by the Industrial and Systems Engineering faculty and the MBA program. Students must apply separately to each program (MS Industrial & Systems Engineering and MBA). The concurrent degree path consists of 27 credit hours of MBA core (BUSI) classes, 9 credit hours of INSY core classes, 12 credit hours of INSY electives, a one credit hour INSY seminar course and 6 hours of approved electives. The program saves the student fifteen hours of coursework over completing both degrees separately.

Business Administration — MBA

On-Campus, Online, and Executive and Physicians' Executive Options

Code	Title	Hours
MBA Business Administration (on-campus/full-time)		
BUSI 7110	Financial Analysis	3
BUSI 7120	Quantitative Analysis for Business Decisions	3
BUSI 7130	Strategic Analysis and the Competitive Environment	3
BUSI 7140	Organizational Leadership, Ethics and Change	3
BUSI 7150	Operational Excellence Through Supply Chain and Quality Management	3
BUSI 7210	Strategic Marketing Management	3
BUSI 7220	Information Technology for Competitive Advantage	3
BUSI 7230	Cost Analysis and Systems	3
BUSI 7310	Integrated Business Project and Case Analysis	3
12-13 Credits from an approved list; BUSI 7250 (1) Global Business Experience is strongly encouraged		12
BUSI 7920	MBA Internship (0-3 hours required for those with less than 2 years work experience)	
Total Hours		**39**

Code	Title	Hours
MBA Business Administration (online)		
BUSI 7110	Financial Analysis	3
BUSI 7120	Quantitative Analysis for Business Decisions	3
BUSI 7130	Strategic Analysis and the Competitive Environment	3
BUSI 7140	Organizational Leadership, Ethics and Change	3
BUSI 7150	Operational Excellence Through Supply Chain and Quality Management	3
BUSI 7210	Strategic Marketing Management	3
BUSI 7220	Information Technology for Competitive Advantage	3
BUSI 7230	Cost Analysis and Systems	3
BUSI 7310	Integrated Business Project and Case Analysis	3
12 Credits from an approved list		12
Total Hours		**39**

Code	Title	Hours
MBA Business Administration (Physicians Executive)		
BUSI 7110	Financial Analysis	3
BUSI 7120	Quantitative Analysis for Business Decisions	3
BUSI 7130	Strategic Analysis and the Competitive Environment	3
BUSI 7140	Organizational Leadership, Ethics and Change	3
BUSI 7150	Operational Excellence Through Supply Chain and Quality Management	3
BUSI 7210	Strategic Marketing Management	3
BUSI 7220	Information Technology for Competitive Advantage	3

BUSI 7230	Cost Analysis and Systems	3
BUSI 7310	Integrated Business Project and Case Analysis	3
12 Credits from an approved list		12
Total Hours		**39**

Code	Title	Hours
MBA Business Administration (Executive)		
BUSI 7110	Financial Analysis	3
BUSI 7120	Quantitative Analysis for Business Decisions	3
BUSI 7130	Strategic Analysis and the Competitive Environment	3
BUSI 7140	Organizational Leadership, Ethics and Change	3
BUSI 7150	Operational Excellence Through Supply Chain and Quality Management	3
BUSI 7210	Strategic Marketing Management	3
BUSI 7220	Information Technology for Competitive Advantage	3
BUSI 7230	Cost Analysis and Systems	3
BUSI 7310	Integrated Business Project and Case Analysis	3
12 Credits from an approved list		12
Total Hours		**39**

Business — PhD

The PhD Business offer four concentrations:

- Business (Finance) — PhD (p. 1663)
- Business (Information Systems Management) — PhD (p. 1566)
- Business (Management) — PhD (p. 1567)
- Business (Supply Chain Management) — PhD (p. 1787)

The PhD in Business requires 60 semester hours earned through instruction beyond the bachelor 's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990, and must include at least 10 hours of 8990.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of 8990. Enrollment in 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.

Business (Information Systems Management) — PhD

Code	Title	Hours
PhD Business - Information Systems Management		
ISMN 8990	Research and Dissertation	10
50 Credits in @ 6000-8999		50
Total Hours		**60**

The PhD in Business requires 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990, and must include at least 10 hours of 8990. Up to 30 hours (if less than half of the total number of hours) of applicable master's level course work may be used to satisfy part of these requirements with advisor approval.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of 8990. Enrollment in 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.

Business Analytics — Graduate Certificate

This graduate certificate will help develop working skills in building data models used in business decision making and business applications, basic data analytics techniques for the business setting;

Managing, governing, extracting, merging, and preparing large data sets for analysis; and data management, emphasizing loading and cleansing data for analysis.

Students must take the two required courses listed below. The remaining 6 hours may come from any BUAL course at the 6000 level or higher, ISMN 6290, or ISMN 6650. Current Auburn University graduate students may substitute one of their program courses for 3 of the 6 hours of electives with approval from the certificate-granting department advisor.

Code	Title	Hours
BUAL 6610	Predictive Modeling for Business Decisions	3
BUAL 6650	Business Data Management and Acquisition	3

Business (Management Concentration) — PhD

Degree Programs:

- Business (Management Concentration) — PhD (p. 1568)

The Doctor of Philosophy in Business with a concentration in Management prepares students for careers in research and teaching. It provides the depth of knowledge and skills required to conduct first-rate research in the field, effectively analyze that research, and present those findings in world-class scholarly presentations and publications.

The Ph.D. in Business - Management, provides students with the opportunity to develop expertise in all phases of the process of change in organizations. The program emphasizes diagnosing organizational problems and implementing interventions to improve performance.

The Ph.D. in Business - Management is a four-year, full-time program. The bulk of coursework is completed in the first two years. The third year is devoted to two required research papers. The fourth year is spent on dissertation research. Completion of the dissertation and its defense is the last requirement for completion of the degree. Students with assistantships may also be required to teach. Students are expected to have a full-time presence on campus.

Applicants to the program must hold a bachelor's degree from a recognized institution, complete a Graduate School application including submitting GMAT (preferred) or GRE scores. For full considerations, applications must be received no later than February 1, prior to the Fall term.

Information concerning specific program requirements may be obtained by visiting the Raymond J. Harbert College of Business website.

Business (Management Concentration) — PhD

Code	Title	Hours
Business - Management Concentration (PhD)		
MNGT 8990	Research and Dissertation	10
50 Credits in @ 6000-8999		50
Total Hours		**60**

The PhD in Business requires 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990, and must include at least 10 hours of 8990. Up to 30 hours (if less than half of the total number of hours) of applicable master's level course work may be used to satisfy part of these requirements with advisor approval.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of MNGT 8990. Enrollment in MNGT 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.

Chemical Engineering — MS, PhD

Program Degrees

- Chemical Engineering — MS (p. 1569)
- Chemical Engineering — PhD (p. 1570)

The Chemical Engineering Department offers graduate programs leading to the degrees of master of science and doctor of philosophy. Specialized courses and research training are provided in a wide variety of specialties within chemical engineering or related interdisciplinary areas. Some of these specialties include: surface science, biochemical engineering, catalysis, pulp and paper engineering, environmental engineering, waste conversion, computer-aided process design and simulation, novel bioseparations systems, chemical kinetics and reactor design, biomedical engineering, process control and optimization, thermodynamics, advanced energy research, mass and energy transfer, electrochemical engineering, polymer engineering, interfacial phenomena, process synthesis, material science, nanotechnology, and space science. Additionally, individualized interdisciplinary programs which cross the traditional departmental boundaries are encouraged. These may include collaborative work in chemistry, engineering disciplines, physics, mathematics, agriculture, forestry, biology, microbiology, genetics and health sciences or other areas.

The applicant must hold a bachelor's degree or its equivalent from an institution of recognized standing and must have the pre-requisite undergraduate experience in areas of study relevant to the proposed graduate program. The General Test of the Graduate Record Examination (GRE) is required. If the applicant's undergraduate degree is other than chemical engineering, an individualized plan of study will be developed to impart the critical skills inherent in the bachelor's chemical engineering program. All applicants will be evaluated on an individual basis by the Chemical Engineering Graduate Admissions Committee. The admissions committee will evaluate the undergraduate (and graduate) record, GRE scores, letters of recommendation and any experience in research. Non-core, non-duplicating, "A" grade graduate courses from another university are eligible as determined by the graduate program officer for transfer credit (maximum of 6 credit hours for Masters, 12 credit hours for PhD)

The master of science may be earned under a thesis or non-thesis option. There is not a language requirement for either option. For both options, a total of 30 semester hours of work is necessary and at least 21 hours must be in chemical engineering (CHEN). A total of 12 hours must be taken at the 7000 level or higher, the remaining 18 hours must be at the 6000 level or higher. The following core courses must be taken for a total of 9 hours:

Code	Title	Hours
CHEN 7100	Transport Phenomena	3
CHEN 7200	Chemical Engr Thermodynamics	3
CHEN 7250	Chemical Reaction Engineering	3
Total Hours		**9**

Students pursing a MS with thesis degree should enroll in CHEN 7950 Graduate Seminar each semester of enrollment. These students may include six (6) hours of research and thesis as part of the 30 hours. After completion of the thesis, the student must pass a final oral examination defending the thesis. The non-thesis MS degree option does not have a residency, seminar, research or final oral exam requirement. The non-thesis degree can be earned entirely through the Auburn Engineering Graduate Online Program.

The doctor of philosophy provides for advanced course work and emphasizes original, creative research. A dissertation embodying the results of this research represents the major portion of the requirements for this degree. A minimum of 60 semester hours of graduate work past the bachelor's degree is necessary. Each student may include 10 hours of research and dissertation as part of the 60 hours. Four calendar years beyond the bachelor's degree or three past the master's degree usually are needed to complete the PhD. There are four (4) core graduate courses for a total of 12 credit hours:

Code	Title	Hours
CHEN 7100	Transport Phenomena	3
CHEN 7110	Chem Engr Anlys Adv Transport	3
CHEN 7200	Chemical Engr Thermodynamics	3
CHEN 7250	Chemical Reaction Engineering	3
Total Hours		**12**

Additional 18 credit hours of chemical engineering (minimum 9 credit hours) and/or other elective courses at 6000 level or higher is required. The remaining 30 credit hours are composed of research and dissertation (minimum 10 credit hours), formal courses (6000 level or higher), and graduate seminar.

The General Doctoral Examination consists of two parts, the "PhD Qualifying Examination" and the "PhD Preliminary Oral Examination". The PhD Qualifying Examination will be successfully fulfilled by earning a B or higher in each of the four (4) core graduate courses above.

At the PhD Preliminary Oral Examination, the student will present to their Faculty Research Advisory Committee a thorough description and comprehensive discussion of his/her proposed dissertation research. Successful completion of the Preliminary Oral Examination requires unanimous approval of the student's Faculty Research Advisory Committee. Upon successful completion of the PhD Qualifying and Preliminary Oral Examinations, the student advances to candidacy. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

There is no language requirement for the PhD.

Chemical Engineering — MS

The master of science may be earned under a thesis or non-thesis option. There is not a language requirement for either option. For both options, a total of 30 semester hours of work is necessary and at least 21 hours must be in chemical engineering (CHEN). There are three (3) core courses that must be taken for a total of 9 hours, and the remaining 21 hours must be at the 6000 level or higher:

Code	Title	Hours
CHEN 7100	Transport Phenomena	3
CHEN 7200	Chemical Engineering Thermodynamics	3
CHEN 7250	Chemical Reaction Engineering	3
Select 12 Credits in @ CHEN 6000-8999		12

Select 9 Credits in @ 6000-8999	9
Total Hours	**30**

Students pursuing a MS with thesis degree should enroll in CHEN 7950 Graduate Seminar each semester of enrollment. These students may include six (6) hours of CHEN 7990 Research and Thesis as part of the 30 hours. After completion of the thesis, the student must pass a final oral examination defending the thesis. The non-thesis MS degree option does not have a residency, seminar, research or final oral exam requirement. The non-thesis degree can be earned entirely through the Engineering Online Graduate Program.

Chemical Engineering — PhD

The doctor of philosophy provides for advanced course work and emphasizes original, creative research. A dissertation embodying the results of this research represents the major portion of the requirements for this degree. A minimum of 60 semester hours of graduate work past the bachelor's degree is necessary. Each student may include 10 hours of research and dissertation as part of the 60 hours. Four calendar years beyond the bachelor's degree or three past the master's degree usually are needed to complete the PhD. There are four (4) core graduate courses for a total of 12 credit hours:

Code	Title	Hours
CHEN 7100	Transport Phenomena	3
CHEN 7110	Chemical Engineering Analysis and Advanced Transport Phenomena	3
CHEN 7200	Chemical Engineering Thermodynamics	3
CHEN 7250	Chemical Reaction Engineering	3
CHEN 8990	Research and Dissertation	10
Select 9 Credits in CHEN 6000-8999		9
Select 29 Credits in @ 6000-8999		29
Total Hours		**60**

Additional 18 credit hours of chemical engineering (minimum 9 credit hours) and/or other elective courses at 6000 level or higher is required. The remaining 30 credit hours are composed of CHEN 8990 Research and Dissertation (minimum 10 credit hours), formal courses (6000 level or higher), and graduate seminar.

The General Doctoral Examination consists of two parts, the "PhD Qualifying Examination" and the "PhD Preliminary Oral Examination". The PhD Qualifying Examination will be successfully fulfilled by earning a B or higher in each of the four (4) core graduate courses above.

At the PhD Preliminary Oral Examination, the student will present to their Faculty Research Advisory Committee a thorough description and comprehensive discussion of his/her proposed dissertation research. Successful completion of the Preliminary Oral Examination requires unanimous approval of the student's Faculty Research Advisory Committee. Upon successful completion of the PhD Qualifying and Preliminary Oral Examinations, the student advances to candidacy. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

There is no language requirement for the PhD.

Chemistry — MS, PhD

Degree Programs

- Chemistry — MS (p. 1571)
- Chemistry — PhD (p. 1571)

Graduate study in chemistry leads to the MS and PhD degrees. By the end of the second semester, graduate students must submit a Plan of Study which details the courses that will be taken. This is done with the assistance of the major professor and with the consent of the student's advisory committee. The Plan of Study will include the balance of formal graded courses. These should be selected to align with the research project and interests of the student, and should include Seminar (CHEM 7950), Formal Presentations

(CHEM 7750), Directed Individual Study (CHEM 7930), as well as Research and Thesis (MS) or Research and Dissertation (PhD) hours (CHEM 7990 or CHEM 8990).

- For the MS degree, the plan of study will consist of a minimum of 30 hours.
- For the PhD degree, the plan of study will consist of a minimum of 60 hours.
- Both MS and PhD students must pass the final written (thesis/dissertation) and oral (defense) examination.

Chemistry — MS

MS plan of study will consist of a minimum of 30 hours.

Code	Title	Hours
Chemistry (MS)		
CHEM 7750	Formal Presentations in Modern Chemistry	1
4 credits in CHEM 7950 (Seminar)		4
CHEM 7990	Research and Thesis	4
21 Credits in @ 6000-8999		21
Total Hours		**30**

By the end of the second semester, MS students must submit a plan of study which details the courses which will be taken. This is done with the assistance of the major professor and with consent of the student's advisory committee. The courses usually are taken in the major area. Directed Study, CHEM 7930, may be taken for a maximum of 15 hours. Students must orally present their research and defend their theses in the final oral examination.

Chemistry — PhD

PhD students must complete a minimum of 60 hours of courses.

Code	Title	Hours
Chemistry (PhD)		
3 Credits in CHEM 7750		3
6 Credits in CHEM 7950		6
CHEM 8990	Research and Dissertation	10
41 Credits in @ 6000-8999		41
Total Hours		**60**

By the end of the second semester, PhD students must submit a plan of study which details the courses that will be taken. This is done with the assistance of the major professor and with the consent of the student's advisory committee. The rest of the courses usually are taken in the major area. Directed study, CHEM 7930, may be taken for a maximum of 15 hours. Students must pass the written and oral general examination. Students must orally present their research and defend their dissertations in the final oral examination.

Civil Engineering — MCE, MS, PhD

Degree Programs:

- Civil Engineering — MCE (p. 1572)
- Civil Engineering — MS (On-Campus and Distance) (p. 1572)
- Civil Engineering — PhD (p. 1573)

The Department of Civil Engineering offers graduate-level instruction and research programs leading to the degrees of Master of Civil Engineering (MCE), Master of Science (MS) and Doctor of Philosophy (PhD). These programs provide qualified students opportunities for advanced training and specialization and enable them to gain experience conducting engineering research and interpret and communicate their findings. The department offers programs in construction engineering and management, environmental engineering, geotechnical engineering, hydraulics/hydrology, pavements and materials, structural engineering, and transportation engineering.

Coursework may be taken in supportive disciplines including applied statistics, building science, computer science or mathematics, with sufficient justification.

Applicants for the graduate programs must have an earned baccalaureate degree (BCE, BS or BSCE) in civil engineering or a closely related area and must have completed such formal training as to warrant advanced study in the major and minor fields. Applicants from related disciplines may be required to take prerequisites, as determined by the relevant specialty program and the department. There is no formal foreign language requirement.

All MS candidates must write a thesis. At least 30 semester hours of graduate-level course credit must be completed satisfactorily. At least six of the 30 hours must be in CIVL 7990 and at least 24 hours must be in graduate course work other than CIVL 7990. Candidates must pass a comprehensive examination covering the coursework, research and thesis.

Admission requirements for MCE are the same as those for MS. MCE students must take at least 30 semester hours of graduate-level courses, which may include three-semester hours of CIVL 7980. A plan of study must be approved by the student's advisory committee.

PhD applicants must have earned a BS or master’s degree in civil engineering or a related area. Applicants from other related disciplines may be required to take prerequisites determined by the relevant specialty program and the department.

The PhD is conferred in recognition of mastery of a specific field of knowledge and a contribution to that engineering discipline through the doctoral dissertation. The degree is a research degree, requiring not only completion of certain technical requirements but proof of the candidate’s ability to work independently in an engineering research environment.

To be qualified as a PhD candidate, an admitted doctoral student must pass a written comprehensive examination and a follow-up oral critique administered by the student’s advisory committee. The examination may not be taken sooner than one year after the student begins doctoral course work. Additional academic preparation may be prescribed by the advisory committee to strengthen deficiencies identified by the examination, or the student may be suspended from the program. One retake may be permitted after the student has completed the prescribed preparation. Upon successful completion of the examination, the student becomes a candidate for the PhD.

After successfully completing the comprehensive examination, the doctoral candidate will defend the proposed dissertation topic, which must represent a significant contribution to the state-of-the-art. This defense may be included in the oral critique of the comprehensive examination if the advisory committee agrees. Once the committee approves the research topic, the doctoral candidate may proceed with the research and dissertation. When it is completed, the candidate defends the completed dissertation before the advisory committee and the outside reader appointed by the Graduate School.

Civil Engineering — MCE

Code	Title	Hours
Civil Engineering (MCE)		
30 hours of approved 6000-7980 graduate level courses		30
Total Hours		**30**

Code	Title	Hours
Civil Engineering (Distance MCE)		
30 hours of approved 6006-7986 graduate level courses		30
Total Hours		**30**

Civil Engineering — MS

(On-Campus and Distance Tracks)

Code	Title	Hours
Civil Engineering (MS)		
CIVL 7990	Research and Thesis (4-6 credit hours)	4
24-26 hours in approved graduate level courses 6000-7980 (Electives)		26
Total Hours		**30**

For MS Civil Engineering (Distance) program, students will take the distance sections (D**) of approved graduate-level courses (CIVL 6000-7980 D**) and Research and Thesis (CIVL 7990 D**).

Civil Engineering — PhD

Code	Title	Hours
Civil Engineering (PhD)		
CIVL 8990	Research and Dissertation	10
30 credit hours in committee approved graded graduate level courses (6000-7986)		30
16-20 credit hours in committee approved graded graduate level courses (6000-7986) or Dissertation (CIVL 8990)		20
0-4 Thesis and Research (7990, optional, maximum of 4 credits in Thesis)		0
Total Hours		**60**

Communication — Graduate Certificate, MA

Degree Programs

- Communication — MA (p. 1575)

Graduate Certificate

- Communication Studies (p. 1575)

The School of Communication and Journalism offers the Master of Arts in Communication and the Graduate Certificate in Communication Studies.

Students earning the MA in Communication have excellent employment opportunities working for organizations ranging from Fortune 100 companies to non-profit groups. For those interested in pursuing a doctorate, our graduates have been admitted to the best PhD programs in the communication discipline.

For more information about both the MA and the Graduate Certificate, see https://cla.auburn.edu/cmjn/. Program statistics (e.g., number of students accepted, average GRE scores, etc.) and additional information on the application process are available on that website.

Master of Arts in Communication

Application Process

Applicants for the MA must hold bachelor's degrees from an accredited college or university and must take the General Test of the GRE. They must submit a statement of purpose, undergraduate transcripts, GRE scores, a writing sample, recommendation review forms, and letters of recommendation for consideration by an admissions committee.

They should ensure that these materials are submitted to the Graduate School web application:

- Application fee
- Official scores for the General Test of the GRE
- Official transcripts for every institution attended

They should ensure that these materials are submitted to the graduate program in the Department of Communication and Journalism:

- Statement of purpose
- Recommendation review forms
- Three letters of recommendation
- Writing sample

Deadlines for application materials are posted on the departmental website.

MA Degree Requirements

Students may pursue either a thesis or a non-thesis option for the MA in Communication. The MA-thesis option requires 31 hours beyond the bachelor's degree, including the thesis. The MA-non-thesis option requires 30 hours beyond the bachelor's degree, including appropriate field experience.

The following courses are required for the MA in Communication:

- COMM 7000 Communication Theory
- COMM 7010 Qual Comm Research
- COMM 7020 Quant Comm Research

Upon completion of the required classes, students must pass a written qualifying examination covering material presented in these three courses before continuing in the degree program. All remaining hours are elective course work.

MA-thesis option students will enroll in a minimum of 4 thesis hours (COMM 7990). MA-non-thesis option students will enroll in a minimum of 3 non-thesis project hours (COMM 7980).

All students seeking the master's degree must pass comprehensive exams prior to graduation. The exams include both written and oral components. The nature of the written portion of the comprehensive exams will vary depending on the choice of the thesis or non-thesis option. For students choosing the thesis option, the thesis typically constitutes the written portion of the comprehensive examination. Students choosing the non-thesis option must pass a written examination covering the program of study as well as any research and special project/internship/field experience.

There is no foreign language requirement.

Graduate Certificate in Communication Studies

Application Process

Applicants for the Graduate Certificate must hold bachelor's degrees from accredited colleges or universities and must take the General Test of the GRE. An admissions committee evaluates the applicant's statement of purpose, undergraduate record, GRE scores, writing sample, recommendation review forms, and letters of recommendation.

Applicants should ensure that these materials are submitted to the Graduate School web application:

- Application fee
- Official scores for the General Test of the GRE
- Official transcripts for every institution attended

They should ensure that these materials are submitted to the graduate program in the Department of Communication and Journalism:

- Statement of purpose
- Recommendation review forms
- Three letters of recommendation
- Writing sample

Requirements

The Graduate Certificate in Communication Studies requires 18 hours beyond the bachelor's degree. It does not require a thesis or field experience.

The following courses are required for the Graduate Certificate in Communication Studies:

- COMM 7000 Communication Theory
- COMM 7010 Qual Comm Research
- COMM 7020 Quant Comm Research

Upon completion of these three required classes, students must pass a written qualifying examination covering material presented in these three courses. The remaining 9 hours are elective course work.

Deadlines for application materials are posted on the departmental website.

Graduate Assistantship Opportunities

A limited number of competitive graduate teaching assistantships are available. To get more information about the assistantships and to learn how to apply, please visit the following website: https://cla.auburn.edu/cmjn/graduate-program/assistantship-information/. Students enrolled in the Graduate Certificate in Communication Studies are not eligible for financial aid.

Communication Studies — Graduate Certificate

This graduate certificate provides a foundation of communication theory and prepare students to understand how people communicate with each other, how organizations communicate with the public, and how communication maintains and develops communities ranging from Fortune 100 companies to non-profit groups.

Code	Title	Hours
Communication Studies (Graduate Certificate)		
COMM 7000	Communication Theory	3
COMM 7010	Qualitative Methods of Communication Research	3
COMM 7020	Quantitative Methods of Communication Research	3
Select 9 Credits in the following:		9
COMM 7230	Rhetorical Criticism	
COMM 7300	Approaches to Studying Language and Social Interaction	
COMM 7410	Development of Rhetorical Theory	
COMM 7420	Seminar in Persuasion and Attitude Change	
COMM 7430	Seminar in American Public Address	
COMM 7440	Seminar in Argumentation and Debate	
COMM 7450	Seminar in Intrapersonal Processes in Communication	
COMM 7460	Seminar in Interpersonal Communication	
COMM 7470	Seminar in Small Group Communication	
COMM 7480	Seminar in Organizational Communication	
COMM 7490	Health Communication	
COMM 7500	Gender Communication	
COMM 7600	Mass Communication Theory	
COMM 7610	Studies in Popular Culture and Mass Communication	
COMM 7620	Broadcast Programming and Criticism	
COMM 7630	Media Management	
COMM 7640	Seminar in Film Theory and Criticism	
COMM 7660	Cultural Studies in Mass Media	
COMM 7670	Contemporary Issues in First Amendment Law	
COMM 7680	Sports, Media, and Culture	
COMM 7810	Public Relations Theory	
COMM 7820	Public Relations Campaigns	
COMM 7830	Public Relations Case Studies	
COMM 7840	Communication Training and Consulting	
COMM 7930	Directed Studies	
COMM 7970	Special Topics in Communication	
Total Hours		**18**

Communication — MA

Code	Title	Hours
Communication - MA		
COMM 7000	Communication Theory	3
COMM 7010	Qualitative Methods of Communication Research	3

COMM 7020	Quantitative Methods of Communication Research	3
COMM 7990	Research and Thesis	4
Select 8 Credits in COMM 6000-8990		8
Select 9 Credits in @ 6000-8999 (Electives)		9
Total Hours		**30**

Code	Title	Hours
Communication Non-Thesis - MA		
COMM 7000	Communication Theory	3
COMM 7010	Qualitative Methods of Communication Research	3
COMM 7020	Quantitative Methods of Communication Research	3
COMM 7980	Non-Thesis Project in Communication	3
Select 9 Credits in COMM 6000-8990		9
Select 9 Credits in @ 6000-8999 (Electives)		9
Total Hours		**30**

Crop, Soil and Environmental Sciences — Graduate Certificate, MS, MAg, PhD

Degree Programs

- Crop, Soil and Environmental Sciences — MS (p. 1577)
- Crop, Soil and Environmental Sciences — MAg (p. 1577)
- Crop, Soil and Environmental Sciences — PhD (p. 1577)

Graduate Certificates

- Crop and Soil Science (p. 1577)

Graduate training in this department enables outstanding students to achieve a high level of scholarly attainment in the soil, crop and environmental sciences. Within these broad areas, research training and experience may be gained in the specialized fields of soil fertility and plant nutrition; soil chemistry; soil genesis, morphology and classification; soil mineralogy; soil physics; soil microbiology; plant breeding and genetics; weed science; forage, fiber, bioenergy and grain crop production; crop ecology; environmental quality; and turfgrass management.

All graduate students are required to have core undergraduate courses in math, chemistry, physics, botany, plant physiology, genetics, and statistics. The Graduate Studies Committee evaluates each applicant's record and determines prerequisite deficiencies. Qualified students lacking prerequisite subjects can be admitted but will be required to complete course work to satisfy undergraduate course deficiencies. Students are encouraged to visit the department's web site and view the graduate student handbook for specifics. Admission is based primarily on a combination of required grade point average (GPA) and graduate record examination (GRE) scores and TOEFL tests for international students.

Three degrees are offered:

1. **Master of Science** (MS), earned only under the thesis option where importance is placed on both classroom and research training. The MS requires a minimum of 30 semester hours at or above the 6000 level of which 4 hours of thesis research and 2 hours of seminar are included. The student's advisory committee along with the student determines the course of study. In addition, the student must complete research, a written thesis and an oral defense examination of the thesis research.
2. **Master of Agriculture** (MAg) earned under the non-thesis option places more emphasis on classroom training over a broader range of subject matters. The MAg degree requires at least two additional graded courses that replace thesis research hours. An oral defense of course subject matter is required and students must register for GRAD 7000 during the semester the exam is taken. MAg students must write a professional paper as part of a special problems course (CSES 6960) and present an exit seminar (CSES 7950) on this paper.
3. **Doctor of Philosophy** (PhD) requires a minimum 60 semester hours of course work beyond the Bachelor of Science. Of the 60 semester hours, 30 must be graded courses 6000 level and above, 20 of which must be completed at Auburn University while registered in the PhD program. There is no language requirement for this degree. Upon completion of the course work, a PhD

student must satisfy a general written examination administered by each member of the graduate advisory committee. A student must pass all parts of the written examination before scheduling the preliminary oral examination. After satisfactory completion of the preliminary examination, the student advances to candidacy. The PhD student will conduct independent research and prepare a dissertation through the guidance and direction of the advisory committee. Upon completion of the dissertation, the student must pass a final oral examination defending the dissertation.

Graduate students in a program requiring a thesis or a dissertation must register for at least one hour of CSES 7990 or CSES 8990 per semester. Research Associates and similar classifications that also are graduate students are exempt from this requirement but must complete 10 hours of 7990 in the master's program or 20 hours of 8990 if in a PhD program.

Crop, Soil and Environmental Sciences — MS

Code	Title	Hours
CSES 7950	Seminar (I)	1
CSES 7950	Seminar (II)	1
CSES 7990	Research and Thesis	4
Select 24 Credits in @ 6000-8999		24
Total Hours		**30**

Please contact the Department of Crop, Soil and Environmental Sciences regarding the online MS program.

Crop, Soil and Environmental Sciences — MAg

Code	Title	Hours
CSES 6960	Special Problems	3
CSES 7950	Seminar	1
Select 26 Credits in @ 6000-8999		26
Total Hours		**30**

Please contact the Department of Crop, Soil and Environmental Sciences regarding the online MAg program.

Crop, Soil and Environmental Sciences — PhD

Code	Title	Hours
CSES 7950	Seminar (I)	1
CSES 7950	Seminar (II)	1
CSES 8990	Research and Dissertation	10
Select 48 Credits in @ 6000-9999		48
Total Hours		**60**

Within the total 60 hours beyond the B.S. degree, at least 18 hours must be completed at Auburn University, 30 hours must be at or above the 6000, and 6 hours must be at or above the 7000 level in the major area of study.

Crop and Soil Science — Graduate Certificate

This graduate certificate prepares students in the soil, crop and environmental sciences and the knowledge can be applied within the public and private sectors. The purpose of the certificate is to provide research training and experience in specialized fields such as soil fertility and plant nutrition; soil chemistry; morphology and classification; plant breeding and genetics; weed science; and forage.

Code	Title	Hours
Crop and Soil Science - GCRT		
CSES 6020	Soil Fertility and Nutrient Management	3
Select 12 Credits of the following:		12
CSES 6010	Analy Plant, Soil & Ani Data	
CSES 6030	Advanced Crop Science	

CSES 6060	Soil Microbiology
CSES 6061	Soil Microbiology Lab
CSES 6080	Soil Resources and Conservation
CSES 6160	Advanced Turfgrass Management
CSES 6300	Soil Chemistry
CSES 6400	Bioenergy and the Environment
CSES 6500	Forage Production and Utilization
CSES 6960	Special Problems
CSES 7140	Chemistry and Use of Herbicides in Crop Production
CSES 7540	Principles of Plant Nutrition
PLPA 6200	Mycology
PLPA 6500	Plant Nematology
ENTM 6360	Landscape Entomology

Community Planning — MCP

The community planning program at Auburn University is a professionally oriented master's degree program that focuses on the skills that professional planners need for practice in an interactive and interdisciplinary environment. The centerpiece of the program is the opportunity for students and faculty to engage with under-served communities throughout Alabama and the Southeast through outreach, teaching, and engaged research. Through working on projects with communities throughout Alabama and the Southeast, students learn to help diverse and complex communities create and implement plans that improve and protect their quality-of-life, culture, resource base, built environment, natural environment, and economic vitality.

The Master of Community Planning (MCP) is a professional, non-thesis degree. Students will normally earn the degree in two academic years by successfully completing 45 credit hours of course work, including two capstone plan-making workshops. The program offers dual degree options with public administration, and landscape architecture (each of which requires a separate application). Enhanced opportunities for interdisciplinary teaching and learning are offered by the program’s distinctive Alabama City Year Program, in which the program focuses on one city in the Southeast each year and students complete multiple outreach and engagement projects in that city in each of their classes.

Master of Community Planning (45 credit hours)

Code	Title	Hours
CPLN 6010	Introduction to Community Planning	3
CPLN 6050	Land and Urban Economics	3
CPLN 6460	Geographic Information Systems for Planning and Policy	3
CPLN 7200	Urban Design Studio	3
CPLN 7240	Quantitative Methods for Planning	3
or POLI 7000	Research Methods for Public and Nonprofit Organizations	
CPLN 7300	Community-Based Qualitative Methods	3
CPLN 7350	Planning History and Theory	3
CPLN 7430	Land Use Law	3
CPLN 7600	Synthesis Studio I	3
CPLN 7610	Synthesis Studio 2	3
Electives (with MCP director approval)		15
Total Hours		**45**

Computer Science and Software Engineering — Graduate Certificate, MS, PhD

Degree Programs:

- Artificial Intelligence Engineering — MS (p. 1579)
- Computer Science and Software Engineering — MS (p. 1580)
- Computer Science and Software Engineering (Distance) — MS (p. 1580)
- Computer Science and Software Engineering — PhD (p. 1581)
- Cybersecurity Engineering — MS (p. 1581)
- Data Science and Engineering — MS (p. 1582)

Graduate Certificates:

- Artificial Intelligence Engineering (p. 1579)
- Data Engineering (p. 1582)
- Cybersecurity Engineering (p. 1581)

Artificial Intelligence Engineering — MS

The Master of Science in Artificial Intelligence Engineering (MS-AIEN) degree is a graduate degree that is open to everyone with a baccalaureate degree from an institution of recognized standing, either in computer science, software engineering or another STEM discipline, or with relevant professional experience that provides necessary background knowledge of programming, computing, and mathematics.

It entails a minimum of 30 semester graduate credit hours. All students are required to take three core courses (COMP 6130, COMP 6600, COMP 6630) and seven technical electives from a department-prescribed list of courses related to AI and its subareas such as machine learning, computer vision, natural language processing, etc. These electives may include 3 credit hours of directed studies (COMP 7930) and/or 3 credit hours of capstone engineering project (COMP 7980).

Students who have taken the 5000 level version of any 6000 level course cannot take the course in its 6000 level format. Those students must substitute other graduate courses as approved by the department. All courses required for the degree must be taken for a grade.

Code	Title	Hours
Core Courses:		
COMP 6600	Artificial Intelligence	3
COMP 6630	Machine Learning	3
COMP 6130	Data Mining	3
Technical Electives:		
Select 21 graded credits from a list of department-prescribed technical electives related to AI and its subareas.		21
Total		**30**

Artificial Intelligence Engineering — Graduate Certificate

The graduate certificate program in Artificial Intelligence Engineering (GCRT-AIE)is open to everyone with a baccalaureate degree from an institution of recognized standing, either in computer science, software engineering or another STEM discipline, or with relevant professional experience that provides necessary background knowledge of programming, computing, and mathematics. It entails 12 graduate credit hours. All students are required to take three required courses (COMP 6130, 6600, 6630) and an approved technical elective from a list of department-prescribed courses related to AI and its subareas.

Code	Title	Hours
Required Courses		
COMP 6600	Artificial Intelligence	3
COMP 6630	Machine Learning	3
COMP 6130	Data Mining	3

Approved AI elective	3
Total	
Total Hours	**12**

Computer Science and Software Engineering — MS

The master of science may be earned under a thesis or non-thesis option. The MS (non-thesis) degree requires a minimum of 33 graduate semester credit hours. All courses in the degree must be taken for a grade. The three required 7000-level courses are COMP7270, COMP7300, and COMP7500. Students may take up to three (3) credit hours of COMP7930 Directed Study. Students may take three (3) credit hours of COMP7980 Master of Science Capstone Engineering Project, which is a graded course.

Code	Title	Hours
COMP 7270	Advanced Topics in Algorithms	3
COMP 7300	Advanced Computer Architecture	3
COMP 7500	Advanced Topics in Operating Systems	3
Select 18 Credits in COMP 6000-8999		18
Select 6 Credits in @ 6000-8999		6
Total		**33**

The Master of Science degree (thesis option) requires a minimum of 30 graduate semester credit hours. All courses in the degree must be taken for a grade; the exception is COMP7990 Research and Thesis, which is offered in incomplete/complete format. The three required 7000-level courses are COMP7270, COMP7300, and COMP7500. Students may take up to three (3) credit hours of COMP7930 Directed Study. A thesis is required for the MS-CSSE degree (i.e., thesis option). A written proposal supporting thesis project must be approved by a student's supervisory committee, which is comprised of at least three faculty members. One member of the committee is designated as the major professor (a.k.a., advisor). Students must pass a comprehensive oral examination at the conclusion of their studies. All students with thesis option are required to submit Master's Final Examination Form to the graduate school.

Code	Title	Hours
COMP 7270	Advanced Topics in Algorithms	3
COMP 7300	Advanced Computer Architecture	3
COMP 7500	Advanced Topics in Operating Systems	3
COMP 7990	Research and Thesis	6
Select 9 Credits in COMP 6000-8999		9
Select 6 Credits in @ 6000-8999		6
Total		**30**

Computer Science and Software Engineering (Distance) — MS

The distance-learning option enables students to participate in online learning. The Department of Computer Science and Software Engineering (CSSE) offers the Master of Science distance program (non-thesis), which is the online version of the Master of Science Program in Computer Science and Software Engineering (non-thesis option). The MS (non-thesis) degree requires a minimum of 33 graduate semester credit hours. All courses in the degree must be taken for a grade. The three required 7000-level courses are COMP 7270, COMP 7300, and COMP 7500. Students may take up to three (3) credit hours of COMP 7930 Directed Study. Students may take three (3) credit hours of COMP 7980 Master of Science Capstone Project, which is a graded course.

Code	Title	Hours
COMP 7270	Advanced Topics in Algorithms	3
COMP 7300	Advanced Computer Architecture	3
COMP 7500	Advanced Topics in Operating Systems	3
COMP 6000-8999		18
6000-8999		6
Total Hours		**33**

Computer Science and Software Engineering — PhD

The doctor of philosophy program offers advanced course work and emphasizes original, creative research in computer science and software engineering. A dissertation embodying the results of this research represents the major portion of the requirements for the Ph.D. degree program. A minimum of 60 semester hours of graduate work past the bachelor's degree is required. Each student may include a minimum of 24 hours of research and dissertation (COMP 8990) as part of the 60 hours. There are three (3) core graduate courses for a total of 9 credit hours:

Code	Title	Hours
Core:		
COMP 7270	Advanced Topics in Algorithms	3
COMP 7300	Advanced Computer Architecture	3
COMP 7500	Advanced Topics in Operating Systems	3
Additional:		
Select 9 Graded Credits (Lecture-based) in COMP 6000 or above		9
Select 12 Graded Credits in 6000 or above		12
Select 6 Credits in 6000 or above		6
COMP 8990 Research and Dissertation		24
Total Hours		**60**

Additional 21 credit hours of graded credits (minimum 9 credits of graded lecture courses in COMP 6000 or above) and/or other elective courses at 6000 level or higher is required. The remaining 30 credit hours are composed of COMP 8990 Research and Dissertation (minimum 24 credit hours) and other graduate courses (Graded or Ungraded) at 6000 level or higher. The selected 6 credits in 6000 or above may include COMP 8990; however, these 6 credits cannot be non-COMP ungraded courses.

The General Doctoral Examination consists of two parts: the Ph.D. Qualifying Examination and the Ph.D. General Oral Examination. The Ph.D. Qualifying Examination will be successfully fulfilled by earning a B or higher in each of the three (3) core graduate courses above. In the general oral exam, a Ph.D. student will present to the student's advisory committee a thorough description of the proposed dissertation research. Successful completion of the general oral exam requires unanimous approval of the student's advisory committee. Upon successful completion of the general examination, the student advances to candidacy. After completion of the dissertation, the student must pass a final examination defending the dissertation.

There is no language requirement for the Ph.D. program.

Cybersecurity Engineering — Graduate Certificate, MS

Cybersecurity Engineering — MS

On-Campus or Online

This graduate program prepares students for understanding, analyzing, developing, investigating, protecting, and defending the cyber ecosystem of organizations. As such, it focuses on the engineering and technical aspects of cybersecurity. The degree is designed to appeal to traditional students as well as practitioners through the inclusion of capstone experience.

The Master of Science in Cybersecurity Engineering degree entails a minimum of 33 semester graduate credit hours. The following courses are required:

Code	Title	Hours
Foundational Courses (3 credit hours)		
COMP 7500	Advanced Topics in Operating Systems	3
Required Cybersecurity-Specific Courses (18 credit hours)		
COMP 6350	Digital Forensics	3
COMP 6370	Computer and Network Security	3
COMP 6530	Secure Cloud Computing: Principles, Practice, and Applications	3
COMP 6830	Cybersecurity Threats and Countermeasures	3
COMP 7370	Advanced Computer and Network Security	3

COMP 7720	Software Reverse Engineering	3
Elective Cybersecurity Courses (9 credit hours)		
approved 6000/7000/8000-level coursework relevant to cybersecurity		9
Capstone experience (3 credit hours)		
COMP 7980	Capstone Engineering Project	3
Total Hours		**33**

Students who have taken the 5000-level version of any 6000-level course cannot take the course in its 6000-level format. They must substitute another approved cybersecurity-relevant graduate course. All courses in the degree must be taken for a grade.

Cybersecurity Engineering — Graduate Certificate

On-Campus or Online

Students will take the following three (3) required courses. The focus of this coursework is to equip students with the advanced education required to analyze, develop, investigate, protect, and defend computer and information systems.

Code	Title	Hours
Graduate Certificate in Cybersecurity Engineering (On Campus or Distance)		
COMP 6350	Digital Forensics	3
COMP 6370	Computer and Network Security	3
COMP 7370	Advanced Computer and Network Security	3
Total Hours		**9**

Certificate in Data Engineering

Online or On-Campus Options Available

Code	Title	Hours
Required Courses – 9 Hours		
COMP 6120	Database Systems I	3
COMP 6130	Data Mining	3
COMP 6630	Machine Learning	3
Elective Course – 3 Hours (Select one course from the following three electives)		
STAT 6000	Intermediate Statistical Methods for Data Science	3
STAT 6600	Probability and Statistics for Data Science	3
STAT 6650	Statistical Learning	3
Total Hours: 12		

Data Science and Engineering (On-Campus or Online) — MS

On Campus or Online

The Master of Science in Data Science and Engineering (MS-DSE) degree entails a minimum of 30 semester graduate credit hours. There are two concentrations in the MS-DSE program: *Data Engineering* administrated by the Department of Computer Science and Software Engineering; and *Data Science* managed by the Department of Mathematics and Statistics.

The course list for the Data Engineering concentration offered by the Department of Computer Science and Software Engineering:

Code	Title	Hours
COMP 6120	Database Systems I	3
COMP 6130	Data Mining	3
COMP 6630	Machine Learning	3
STAT 6000	Intermediate Statistical Methods for Data Science	3
STAT 6600	Probability and Statistics for Data Science	3
STAT 6650	Statistical Learning	3

Select 6 Credits in COMP 6000-8999		6
Select 3 Credits in 6000-8999		3
COMP 7980	Capstone Engineering Project	3
Total		**30**

The course list for the Data Science concentration offered by the Department of Mathematics and Statistics:

Code	Title	Hours
STAT 6000	Intermediate Statistical Methods for Data Science	3
STAT 6600	Probability and Statistics for Data Science	3
STAT 6650	Statistical Learning	3
COMP 6120	Database Systems I	3
COMP 6130	Data Mining	3
COMP 6630	Machine Learning	3
Select 6 Credits in STAT 6000-8999		6
Select 3 Credits in 6000-8999		3
STAT 7940	Capstone Project	3
Total		**30**

Depending on the concentration, graduate students are required to take the following courses. The two concentrations share the same list of six foundational courses. Among the three elective courses related to data science and engineering, Data Engineering concentration students must choose at least two COMP6/7000-level graduate courses, whereas Data Science concentration students are required to take at least two STAT6/7000-level graduate courses.

Both the Data Engineering and Data Science concentrations offer a list of elective courses that are highly relevant to data science and engineering. The course selections are at the discretion of the students and the respective graduate program officer (GPO).

Students who have taken the 5000#level version of any 6000#level course cannot take the course in its 6000#level format. Those students must substitute other graduate courses as directed by the GPOs. All the courses including COMP 7980 and STAT 7940 in the degree must be taken for a grade.

Consumer and Design Sciences — MS, PhD

Degree Programs

- Consumer and Design Sciences — MS (p. 1584)
- Consumer and Design Sciences — PhD (p. 1585)

Graduate study in the Department of Consumer and Design Sciences, College of Human Sciences, leads to the master of science and the doctor of philosophy. Major focus areas are apparel design or merchandising, interior design, and consumer behavior. The department emphasizes integration of basic and applied knowledge from multiple fields to enhance professional skills for careers in textile and apparel product development and design; production management; retail management; merchandising in textile and apparel retail or design firms; design of residential and commercial interiors; and college teaching and research. A foreign language is not required. Entrants with limited undergraduate backgrounds in their chosen area may need to complete some undergraduate courses. Graduate teaching and research assistantships are available on a competitive basis.

Applicants for the M.S. must have a bachelor’s degree or its equivalent from an accredited college or university. The General Test of the Graduate Record Examination is required. The admissions committee will evaluate the undergraduate record, GRE scores, letter of intent, resume, and three letters of recommendation. International applicants must submit the Test of English as a Foreign Language and meet the Graduate School admission requirements for this test.

The M.S. degree offers a thesis option and a non-thesis option. The thesis and non-thesis options require 30 semester hours. Individually designed focus areas incorporate courses in Consumer and Design Sciences and other departments.

Requirements common to both options include:

Code	Title	Hours
CADS 7040	Protocol for Graduate Study	1
CADS 7060	Consumer and Design Sciences	3
Total Hours		**30**

The thesis option requires an Oral Examination and Defense of the completed thesis, to be administered by the Graduate Advisory Committee.

An Accelerated BS/MS degree program is available in both apparel merchandising, design and production management and in interior design. Please contact the Department of Consumer and Design Sciences for more information about these accelerated programs.

Applicants for the PhD must have a master's degree or its equivalent from an accredited college or university. The General Test of the Graduate Record Examination is required. The admissions committee will evaluate the undergraduate and graduate record, GRE scores, letter of intent, resume, and three letters of recommendation. International applicants must submit the Test of English as a Foreign Language and meet the Graduate School admission requirements for this test.

The PhD focuses on the integration of the science of design and consumer behavior within a research-based product or services management approach for application in the global economy. A minimum of 60 semester hours of graduate level course work is required. At least 30 of these hours must be graded graduate level course work; at least 20 of these hours must be completed at Auburn University.

Individually designed focus areas incorporate courses in Consumer and Design Sciences and other departments. At least 20–25 graduate credit hours, excluding thesis and dissertation hours, must be in Department of Consumer and Design Sciences courses (or the equivalent).

Requirements include:

Code	Title	Hours
CADS 7040	Protocol for Graduate Study	1
CADS 7050	Research Methods	3
CADS 7060	Consumer and Design Sciences	3
At least 2 CADS graduate level theory courses		6
At least two Graduate level Statistics courses		6-8
Electives to support dissertation topic and/or to meet career goals		27-31
Research & Thesis [1,2]		4
Research & Dissertation		10
Total Hours		**60-66**

1 If student has a non-thesis master's degree, a manuscript suitable for submission to a research journal must be prepared and submitted prior to beginning the dissertation research.

2 If thesis hours are not applicable, 4 hours must be satisfied with approved electives.

PhD students must pass a General Doctoral Examination after completion of the course work and prior to proceeding to the dissertation. The General Doctoral Examination has written and oral parts to evaluate comprehension of existing knowledge in the student's area of study. Upon successful completion of the Examination, the student enters the candidacy for the Doctor of Philosophy degree and proceeds with the dissertation research. The Final Oral Examination is the defense of the dissertation, which must receive unanimous approval by the Graduate Advisory Committee and the outside reader before the PhD can be conferred.

Consumer and Design Sciences — MS

Code	Title	Hours
Consumer and Design Sciences Thesis (MS)		
CADS 7040	Protocol for Graduate Study	1
CADS 7050	Research Methods in Consumer and Design Sciences	3
CADS 7060	Survey of Consumer and Design Sciences Research	3

Select One of the following Graduate level Statistics Course:		3
BUAL 6600	Principles of Predictive Modeling	
BUAL 6610	Predictive Modeling for Business Decisions	
BUAL 6650	Business Data Management and Acquisition	
BUAL 6660	Descriptive Analytics for Business Decisions	
ECON 7310	Econometrics I	
ERMA 7210	Theory and Methodology of Qualitative Research	
ERMA 7220	Applied Qualitative Research	
ERMA 7300	Design and Analysis in Education I	
ERMA 7310	Design and Analysis in Education II	
HDFS 8050	Advanced Research Methods: Covariance Structure Analysis	
HDFS 8060	Multilevel Modeling	
SOCY 7100	Statistical Analysis of Survey, Aggregate, and Large Data Sources	
STAT 7000	Experimental Statistics I	
STAT 7010	Experimental Statistics II	
STAT 7020	Regression Analysis	
STAT 7030	Categorical Data Analysis	
STAT 7100	Statistical Analysis of Survey, Aggregate and Large Data Sources	
STAT 7620	Nonparametric Statistics	
STAT 7840	Applied Multivariate Statistical Analysis	
STAT 7860	Applied Time Series Analysis	
Select One of the following Graduate level Theory Course:		3
CADS 7100	Environmental Design Theories and Applications	
CADS 7200	Aesthetics Theory in Consumer and Design Sciences	
CADS 7670	Social Psychological Theories in Consumer and Design Sciences	
CADS 7690	Consumer Theory in Apparel and Interiors	
CADS 7530	Sustainability Theory and Applications	
CADS 8100	Branding Research and Theories in Consumer and Design Sciences	
Electives to support thesis topic or to meet career goals		13
Research and Thesis (Thesis Option) 4-6 credit hours		4-6
Total Hours		**30-32**

Code	Title	Hours
Consumer and Design Sciences Non-Thesis (MS)		
CADS 7040	Protocol for Graduate Study	1
CADS 7060	Survey of Consumer and Design Sciences Research	3
Electives to support career goals to include a minimum of 14 CADS course hours		26
Total Hours		**30**

Consumer and Design Sciences — PhD

Code	Title	Hours
Consumer and Design Sciences (PhD)		
CADS 7040	Protocol for Graduate Study	1
CADS 7050	Research Methods in Consumer and Design Sciences	3
CADS 7060	Survey of Consumer and Design Sciences Research	3
At least 2 CADS graduate level theory courses (select from options below)		6
CADS 7690	Consumer Theory in Apparel and Interiors	
CADS 7100	Environmental Design Theories and Applications	

CADS 7670	Social Psychological Theories in Consumer and Design Sciences	
CADS 7200	Aesthetics Theory in Consumer and Design Sciences	
CADS 7530	Sustainability Theory and Applications	
CADS 8100	Branding Research and Theories in Consumer and Design Sciences	
At least two Graduate level Statistics courses		6-8
Electives to support dissertation topic and/or to meet career goals		27-31
CADS 7990	Research And Thesis	4
CADS 8990	Research And Dissertation	10
Total Hours		**60**

Curriculum and Teaching — Graduate Certificates, MEd, MS, EdS, PhD

Degree Programs

- Agriscience Education — MS, MEd, EdS (p. 1588)
- Business and Marketing Education — MS, MEd, EdS (p. 1591)
- Career and Technical Education — PhD (p. 1594)
- Early Childhood Education — MS, MEd, EdS, PhD (p. 1595)
- Elementary Education — MS, MEd, EdS, PhD (p. 1602)
- English for Speakers of Other Languages — MEd (p. 1608)
- English Language Arts Education — MS, MEd, EdS, PhD (p. 1605)
- French Education — MS, MEd, EdS (p. 1597)
- Mathematics Education — MEd, EdS, PhD (p. 1609)
- Music Education: Instrumental — MS, MEd, EdS, PhD (p. 1612)
- Music Education: Vocal — MS, MEd, EdS, PhD (p. 1612)
- Reading Education — MS, MEd, PhD (p. 1616)
- Science Education: General Science — MS, MEd, EdS, PhD (p. 1617)
- Science Education: Biology — MS, MEd, EdS, PhD (p. 1617)
- Science Education: Chemistry — MS, MEd, EdS, PhD (p. 1617)
- Science Education: Physics — MS, MEd, EdS, PhD (p. 1617)
- Social Science Education: General Social Science — MEd, EdS, PhD (p. 1627)
- Social Science Education: History — MEd, EdS, PhD (p. 1627)
- Spanish Education — MS, MEd, EdS (p. 1597)
- Teaching English for Specific Purposes — MS (Non-Certification) (p. 1632)

Graduate Certificates

- Community Music (p. 1632)
- Reading Instruction (p. 1633)
- Teaching English as a Second Language (TESL)/Teaching English as a Foreign Language (TEFL) (p. 1633)

The Department of Curriculum and Teaching offers graduate degree programs leading to the Master's of Education (certification option), Master’s of Science (non-certification option), Education Specialist, and Doctor of Philosophy. All graduate teacher certification programs are approved by the Alabama State Board of Education (ALSBE). Auburn University's College of Education is accredited through the Council for the Accreditation of Educator Preparation (CAEP). Music education programs are also accredited by the National Association of Schools of Music (NASM).

Master’s Degree Programs (MEd/MS)

Master’s of Education (MEd) degree programs include both alternative and traditional certification options. Alternative MEd certification programs offer qualified students who hold non-teaching baccalaureate degrees a route to initial teacher certification while simultaneously earning a master’s degree. Traditional MEd certification programs offer advanced study in pedagogy. MS non-

certification programs provide interdisciplinary graduate-level education for community-based or international educators who do not wish to gain teacher certification/licensure in the United States.

Applicants to Master's degree programs must satisfy the Graduate School's admission requirements. Departmental admission requirements include a bachelor's degree from an accredited college or university and meet current ALSDE or Program GPA requirements at the time of unconditional admissions. The GPA must be documented on the official transcript of the degree granting institution and must be the GPA that was used as the basis for granting the degree, not a GPA that includes post-degree courses. Admission requirements also include academic good standing at the institution last attended, letters of recommendation, current resume, clear background check, and approval by the department.

In addition, applicants to alternative MEd certification programs must satisfy the ALSDE teaching field admission requirements. Applicants to a traditional MEd certification program must hold a valid bachelor's-level professional educator certificate in the same teaching field as the MEd, except for English for speakers of other languages (ESOL) and reading education. Admission to the MEd ESOL program requires at least a valid bachelor's-level professional educator certificate in any teaching field. Admission to the MEd certification program in reading education includes (a) a valid bachelor's-level professional educator certificate in early childhood education, elementary education, or collaborative special education teacher Grades K-6 and two full years of full-time classroom teaching experience or (b) a valid bachelor's-level professional educator certificate in any area of education, two full years of full-time classroom teaching experience, and a passing score on the Praxis II Teaching Reading test validated for use in Alabama.

Degree requirements for MEd certification programs are in compliance with regulations established by the ALSBE. Alternative MEd certification programs range from 30-44 hours and typically take a minimum of four semesters to complete if enrolled full-time; additional undergraduate coursework may be required. Degree requirements include a semester long, full-time internship; satisfactory completion of the State's testing program including passing scores on the appropriate content assessments prior to internship; and a written comprehensive exam.

Traditional MEd certification programs and MS non-certification programs require a minimum of 30 semester hours and a comprehensive examination. Requirements for MEd certification programs in reading education and ESOL include a passing score on the appropriate content subject assessment.

In accordance with State regulations, effective for students unconditionally admitted to an MEd certification program prior to July 1, 2017, a minimum GPA of 3.00 is required on all courses used to meet master's-level certification program requirements. Effective for students unconditionally admitted to an MEd certification program July 1, 2017 and after, a minimum GPA of 3.25 will be required on all courses used to meet master's-level certification program requirements.

Specialist in Education Degree Programs (EdS)

Applicants to EdS programs must satisfy the Graduate School's admission requirements. Departmental admission requirements include a master's degree from an accredited college or university, academic good standing at the institution last attended, letters of recommendation, current resume, a valid master's-level professional educator certificate in an appropriate area of teaching, clear background check, and approval by the department. Some programs may have additional requirements (e.g., GRE Score).

Degree requirements for specialist-level teacher certification programs are in compliance with regulations established by the ALSBE. Specialist programs include a minimum of 30 semester hours beyond the master's degree. Additional requirements include satisfactory completion of a field project and a written comprehensive exam.

In accordance with State regulations, effective for students unconditionally admitted prior to July 1, 2017, a minimum GPA of 3.25 is required on all courses used to meet specialist-level certification program requirements. Effective for students unconditionally admitted July 1, 2017, and after, a minimum GPA of 3.50 will be required on all courses used to meet specialist-level certification program requirements.

Master's and Specialist-Level Certification

Individuals completing State-approved MEd certification programs are eligible to apply for Alabama Class A certification; individuals completing State-approved specialist-level certification programs are eligible to apply for Alabama Class AA certification. Effective September 1, 2018, the Alabama State Board for Education will require an acceptable score on the edTPA for initial certification in a teaching field. This state certification requirement applies to individuals completing alternative master's programs. Individuals seeking certification in states other than Alabama are responsible for contacting those state certification offices to obtain their application form and requirements. The State of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of program graduates when they apply for certification in other states.

Doctor of Philosophy Degree Programs (PhD)

Applicants to PhD programs must satisfy the Graduate School's admission requirements. Departmental admission requirements include a competitive GRE score, current resume, statement of purpose, letters of recommendation, and approval by the department.

All doctoral programs require a minimum of 80 semester hours beyond the bachelor's degree. Research methods, statistics, and foundations of education courses are components of all doctoral programs. The remaining hours are divided between the area of specialization and approved support courses. Plans of study for students in secondary education fields must contain at least 30 semester hours of graduate courses in the appropriate teaching fields. After satisfactory completion of coursework and a general written and oral examination, the student advances to candidacy. Doctoral students must register for at least 10 semester hours of doctoral research while completing a dissertation. Doctoral students must enroll each semester during their program.

Graduate Certificates

The Department of Curriculum and Teaching offers graduate certificates in Teaching English as a Second Language (TESL)/Teaching English as a Foreign Language (TEFL), Community Music Education, and Reading Instruction. Departmental admission requirements for these graduate certification programs include a transcript showing the applicant's last degree completed, a current resume, and three letters of recommendation.

The Department in collaboration with the Department of Educational Foundations, Leadership and Technology also offers a graduate certificate in Adult Education and English Language Teaching. Applicants should contact the Department of Educational Foundations, Leadership and Technology for admission requirements for the Adult Education and English Language Teaching graduate certificate program.

Online Learning Graduate Programs and Courses

The Department of Curriculum and Teaching offers the majority of graduate programs through online learning as well as through residential study.

Additional Information

Detailed admission and program requirements for the department's multiple areas of graduate study are available on the Department of Curriculum and Teaching's website, Graduate Application and Admission.

Information about undergraduate programs for the Department of Curriculum and Teaching is available at: Curriculum and Teaching: Undergraduate (p. 471)

Agriscience Education — MEd/MS, EdS

Agriscience Education — MEd/MS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/agriscience-education/med-ms-agriscience-education.php), EdS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/agriscience-education/eds-agriscience-education.php)

Agriscience Education — MEd (Alternative Certification, Online)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 12 hours		
Required 6 hours:		6
CTCT 7910	Practicum in Area of Specialization	
CTCT 7300 Integrating Technology in Career and Technical Education OR CTSE 7970 Principles of Technology		
Select 6 hours from the following:		6
CTCT 7100	Teaching Mechanical Technology	
CTCT 7120	Courses of Study in Agriscience Education	
CTCT 7300 Integrating Technology in Career and Technical Education OR CTSE 7970 Principles of Technology		
CTCT 7400	Agricultural Literacy Education	

CTCT 7900	Directed Studies	
CTCT 7960	Special Problems	
CTCT 7970	Special Topics in Area of Specialization	
Other advisor-approved courses 6000 level and above in the teaching field (i.e., AGEC, AGRI, ANSC, CSES, CTCT, CTSE, ENTM, FISH, FORY, FOWS, HORT, PLPA, POUL, RSOC)		
Professional Studies: 18-21 hours		**18**
CTCT 6050	Methods of Teaching in Area of Specialization	
CTCT 6060	Program Planning in Area of Specialization	
CTRD 6000	Language and Literacy in the Content Areas [1]	
RSED 6000	Advanced Survey of Exceptionality [1]	
CTCT 7920	Clinical Residency [2]	
Total Hours		**30**

[1] RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy and the 3-hour course requirement for RSED 6000 will be waived resulting in 18 hours in Professional Studies and 30 total program hours.

[2] Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total hours noted above and must be completed prior to Clinical Residency.

Agriscience Education — MEd (Certification, Online)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 15 hours		
At least 1/3 of the program shall be teaching field courses.		
Required 6 hours:		6
CTCT 7300 Integrating Technology in Career and Technical Education OR CTSE 7970 Principles of Technology		
CTCT 7910	Practicum in Area of Specialization [1]	
Select 9 hours from the following:		9
CTCT 7100	Teaching Mechanical Technology	
CTCT 7120	Courses of Study in Agriscience Education	
CTCT 7300 Integrating Technology in Career and Technical Education OR CTSE 7970 Principles of Technology		
CTCT 7400	Agricultural Literacy Education	
CTCT 7900	Directed Studies	
CTCT 7960	Special Problems	
CTCT 7970	Special Topics in Area of Specialization	
Other advisor-approved supporting courses 6000 level and above in the teaching field (i.e., AGEC, AGRI, ANSC, CSES, CTCT, CTSE, ENTM, FISH, FORY, HORT, PLPA, POUL, or RSOC)		
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [2]		
Additional Courses: 12 hours		
Required 6 hours:		6
CTCT 7010	Youth Program Development	

CTCT 7710	Advanced Teaching Methods	
Select 6 hours from the following:		6
CTCT 7000	Foundations of Career and Technical Education	
CTCT 7720	Advanced Program Planning in Area of Specialization	
CTCT 7730	Program Evaluation	
CTCT 7750	Administration of Career and Technical Education	
CTCT 7760	Comprehensive Planning in Career and Technical Education	
Other advisor-approved supporting courses 6000 level and above [3]		
Total Hours		**30**

1 Required unless teaching in area of certification at an approved school site.

2 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Agriscience Education — MS (Non-certification, Online Option Available)

Code	Title	Hours
Agriscience Education - MS (Non-certification)		
Teaching and Learning: 15 Hours		15
Advisor-Approved CTCT Courses: 15 Hours		
Advisor-Approved Electives: 15 Hours		15
6000-level and above advisor-approved AGEC/AGRI/ANSC/CSES/CTCT/CTSE/ENTM/FISH/FORY/FOWS/HORT/PLPA/POUL/RSOC		
Total Hours		**30**

Agriscience Education — EdS (Certification, Online)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 12 Hours		
At least 1/3 of the program shall be teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses from the following:		12
CTCT 7100	Teaching Mechanical Technology	
CTCT 7120	Courses of Study in Agriscience Education	
CTCT 7900	Directed Studies	
CTCT 7960	Special Problems	
CTCT 7970	Special Topics in Area of Specialization	
Other advisor-approved courses 7000 level and above in the teaching field (i.e., AGEC, AGRI, ANSC, CSES, CTCT, CTSE, ENTM, FISH, FORY, HORT, PLPA, POUL, or RSOC)		
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 15 Hours		
Required: 6 hours		6
CTCT 8910	Practicum in Area of Specialization	

CTCT 8980	Field Project	
Select 9 hours from the following:		9
CTCT 7000	Foundations of Career and Technical Education	
CTCT 7010	Youth Program Development	
CTCT 7200	Career and Occupational Information	
CTCT 7300	Integrating Technology in Career and Technical Education	
CTCT 7400	Agricultural Literacy Education	
CTCT 7710	Advanced Teaching Methods	
CTCT 7720	Advanced Program Planning in Area of Specialization	
CTCT 7730	Program Evaluation	
CTCT 7750	Administration of Career and Technical Education	
CTCT 7760	Comprehensive Planning in Career and Technical Education	
CTCT 7770	Clinical Supervision	
CTCT 7780	Research in Career and Technical Education	
Other advisor-approved courses 7000 level and above in the teaching field (i.e., AGEC, AGRI, ANSC, CSES, CTCT, CTSE, ENTM, FISH, FORY, HORT, PLPA, POUL, RSOC, ERMA, FOUN, EDMD, or EPSY) [3]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 To ensure a field experience, CTCT 8910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTCT 8980 is required for those seeking the EdS degree.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Business and Marketing Education — MEd/MS, EdS

Business and Marketing Education — MEd/MS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/business-marketing-education/ms-med-business-marketing.php), EdS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/business-marketing-education/eds-business-marketing.php)

Business/Marketing Education — MEd (Alternative Certification, Online Option Available)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 22 hours		
At least 1/3 of the program shall be in teaching field courses.		
Required: 4 hours		
CTCT 7300	Integrating Technology in Career and Technical Education	3
CTCT 7950	Seminar in Area of Specialization	1
Select 18 hours from the following:		18
CTCT 6080	Principles of Coordination [1]	
CTCT 6200	Records Management Systems [1]	
CTCT 6240	Multimedia Design [1]	
CTCT 6250	Information Design & Analysis [1]	
CTCT 6260	Applied Computer Technology [1]	

CTCT 6940	Work Experience in Information Technology [1]	
CTCT 7970	Special Topics in Area of Specialization	
Other advisor-approved courses 6000 level and above in the teaching field (i.e., CTCT, ACCT, BUSI, FINC, HRMN, ISMN, MNGT, or MKTG)		
Professional Studies: 22 hours		
CTCT 6050	Methods of Teaching in Area of Specialization	3
CTCT 6060	Program Planning in Area of Specialization	3
CTCT 7910	Practicum in Area of Specialization (Co-requisite with CTCT 6050)	1
CTRD 6000	Language and Literacy in the Content Areas [2]	3
RSED 6000	Advanced Survey of Exceptionality [2]	3
CTCT 7920	Clinical Residency [3]	9
Total Hours		**44**

1 Required if not previously completed at undergraduate level.

2 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy and the 3-hour course requirement for RSED 6000 will be waived resulting in 19 hours in Professional Studies and 41 total program hours.

3 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

Business/Marketing Education — MEd (Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 18 hours		
At least 1/3 of the program shall be teaching field courses.		
Required: 3 hours		
CTCT 7300	Integrating Technology in Career and Technical Education	3
Select 15 hours from the following:		15
CTCT 6200	Records Management Systems	
CTCT 6240	Multimedia Design	
CTCT 6250	Information Design & Analysis	
CTCT 6260	Applied Computer Technology	
CTCT 7200	Career and Occupational Information	
CTCT 7240	Administrative Management	
CTCT 7970	Special Topics in Area of Specialization	
Other advisor-approved courses 6000 level and above in teaching field (i.e., CTCT, ACCT, BUSI, FINC, HRMN, ISMN, MNGT, or MKTG)		
Survey of Special Education/ Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 9 Hours		
Required: 4 hours		
CTCT 7710	Advanced Teaching Methods	3
CTCT 7950	Seminar in Area of Specialization	1

Select 5 hours from the following:		5
CTCT 6080	Principles of Coordination	
CTCT 7000	Foundations of Career and Technical Education	
CTCT 7010	Youth Program Development	
CTCT 7720	Advanced Program Planning in Area of Specialization	
CTCT 7730	Program Evaluation	
CTCT 7750	Administration of Career and Technical Education	
CTCT 7760	Comprehensive Planning in Career and Technical Education	
CTCT 7770	Clinical Supervision	
CTCT 7780	Research in Career and Technical Education	
CTCT 7910	Practicum in Area of Specialization [2]	
CTCT 7990	Research and Thesis	
Other advisor-approved supporting courses 6000 level and above [3]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 Required unless teaching in area of certification at an approved school site.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Business/Marketing Education — MS (Non-certification, Online Option Available)

Code	Title	Hours
Business/Marketing Education - MS (Non-certification)		
CTSE 7000	Orientation to Teaching and Learning	1
CTSE 7800	Capstone in Teaching and Learning	2
Advisor-Approved CTCT Courses: 18 Hours		18
Advisor-Approved Electives: 9 Hours		9
Total Hours		**30**

Business/Marketing Education — EdS (Certification, Online Option Available)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 18 Hours		
At least 1/3 of the program shall be teaching field courses.		
Select 18 hours of advisor-approved 6000-8000 level courses from the following:		18
CTCT 6200	Records Management Systems	
CTCT 6240	Multimedia Design	
CTCT 6250	Information Design & Analysis	
CTCT 6260	Applied Computer Technology	
CTCT 7240	Administrative Management	
CTCT 7300	Integrating Technology in Career and Technical Education	
CTCT 7810	Supervised College Teaching [1]	

CTCT 7970	Special Topics in Area of Specialization	
Other advisor-approved courses 6000 level and above in the teaching field (i.e., CTCT, ACCT, BUSI, FINC, HRMN, ISMN, MNGT, or MKTG)		
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [2]		
Additional Courses: 9 Hours		
Select 9 hours from the following:		9
CTCT 7780	Research in Career and Technical Education [3]	
CTCT 7000	Foundations of Career and Technical Education	
CTCT 7010	Youth Program Development	
CTCT 7200	Career and Occupational Information	
CTCT 7710	Advanced Teaching Methods	
CTCT 7720	Advanced Program Planning in Area of Specialization	
CTCT 7730	Program Evaluation	
CTCT 7750	Administration of Career and Technical Education	
CTCT 7760	Comprehensive Planning in Career and Technical Education	
CTCT 7770	Clinical Supervision	
CTCT 7910	Practicum in Area of Specialization	
CTCT 7950	Seminar in Area of Specialization	
CTCT 8800	Teacher Education	
CTCT 8910	Practicum in Area of Specialization [4]	
CTCT 8980	Field Project [4]	
Other advisor-approved supporting courses 6000 level and above [5]		
Total Hours		**30**

1 Required for graduate assistants teaching courses.

2 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3 Required if not previously completed.

4 To ensure a field experience, CTCT 8910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTCT 8980 is required for those seeking the EdS degree.

5 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Career and Technical Education — PhD

Career and Technical Education — PhD (https://education.auburn.edu/curriculum-and-teaching/academic-programs/career-technical-education-phd/)

Code	Title	Hours
Career and Technical Education - PhD		
CTCT 8990	Research and Dissertation	10
Select 80 Hours in @ 6000-8999		80
Total Hours		**90**

Early Childhood Education — MEd/MS, EdS, PhD

Early Childhood Education — MEd/MS (https://education.auburn.edu/graduate-degree-cert/early-childhood-education-m-ed-m-s/), EdS (https://education.auburn.edu/graduate-degree-cert/early-childhood-education-ed-s/), PhD (https://education.auburn.edu/curriculum-and-teaching/academic-programs/early-childhood-education/phd-early-childhood-education.php)

Early Childhood Education — MEd (Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 24 hours		
At least 1/3 of the program shall be teaching field courses.		
Required: 9 hours		
CTEC 7510	Research Studies in Early Childhood Education	3
or CTEE 7510	Research Studies in Education in Areas of Specialization	
CTEC 7520	Curriculum and Teaching in Early Childhood Education	3
EDMD 7210	Integration of Technology Into Curriculum	3
Select 15 hours of the following:		15
CTEC 7200	Early Childhood Education Perspective	
CTEC 7210	Origins of Thought	
CTEC 7260	Play and Early Childhood Education	
CTEC 7270	Theory-Based Problems in Early Childhood Education	
CTEC 7540	Evaluation of Programs in Early Childhood Education	
CTEC 7910	Practicum in Area of Specialization [1]	
CTEC 7990	Research and Thesis (1-5 hours)	
CTEE 7540	Evaluation of Programs in Areas of Specialization	
Other advisor-approved courses 6000 level and above in teaching field (i.e., CTEC, CTEE, CTRD, CTES, CTMU, ERMA, ESPY, FOUN, RSED)		
Survey of Special Education/ Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [2]		
Additional Courses: 3 hours		**3**
Select 3 hours of advisor-approved supporting courses 6000 level or above [3]		
Total Hours		**30**

1 Required unless teaching in area of certification at an approved school site.

2 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Early Childhood Education — MS (Non-certification, Online Option Available)

Code	Title	Hours
Early Childhood Education - MS (Non-certification)		
Teaching and Learning: 15 Hours		

CTSE 7000	Orientation to Teaching and Learning	1
CTSE 7800	Capstone in Teaching and Learning	2
EDMD 7000 or other advisor-approved instructional design course		3
Advisor-approved CTEC Courses: 9 Hours		9
Advisor-Approved Electives: 15 Hours		15
Total Hours		**30**

Early Childhood Education — EdS (Certification, Online Option Available)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 15 Hours		
At least 1/3 of the program shall be teaching field courses.		
Select 15 hours from the following:		
CTEC 7270	Theory-Based Problems in Early Childhood Education	3
CTEC 7540	Evaluation of Programs in Early Childhood Education [1]	3
or CTEE 7540	Evaluation of Programs in Areas of Specialization	
CTEC 8240	Research in Early Childhood Education [1]	3
CTEC 8270	Theory-Based Problems in Early Childhood Education [2]	3
CTEC 8720	Designing Early Childhood Curriculum	3
Other advisor-approved 6000 level or above courses in the Teaching Field (i.e. CTEC, CTEE, CTES, CTMU, CTRD, ERMA, EPSY, FOUN, RSED)		
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [3]		
Additional Courses: 12 hours		
Required: 9 hours		
ERMA 7100	Advanced Study of Educational Measurement and Evaluation	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
or ERMA 7300	Design and Analysis in Education I	
EPSY 7400	Ed Psych & Educational Implica	3
or EPSY 7410	The Individual in the Teaching-Learning Process	
Select remaining 3 hours from the following:		3
CTEC 7910	Practicum in Area of Specialization [4]	
CTEC 8980	Field Project [4]	
Other advisor-approved supporting courses 6000 level or above [5]		
Total Hours		**30**

1. Required if not previously completed.
2. CTEC 8270 may be repeated with different titles (e.g., Possibility & Necessity, Understanding Causality)
3. RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
4. To ensure a field experience, CTEC 7910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTEC 8980 is required for those seeking the EdS degree
5. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Early Childhood Education — PhD

Code	Title	Hours
Early Childhood Education - PhD		
Research: 18-21 Hours		18-21
CTEC 8240	Research in Early Childhood Education	
ERMA 7200	Basic Methods in Education Research	
ERMA 7300	Design and Analysis in Education I	
ERMA 7310	Design and Analysis in Education II	
ERMA 8320	Design and Analysis in Education III	
ERMA 8340	A Practical Introduction to Structural Equation Modeling	
ERMA 7210	Theory and Methodology of Qualitative Research	
ERMA 7220	Applied Qualitative Research	
CTEC 8850	Constructivist Investigations in Early Childhood Settings	
Foundations of Education: 9 Hours		9
EPSY 7400	Ed Psych & Educational Implica	
EPSY 7410	The Individual in the Teaching-Learning Process	
ERMA, ESPY, EDMD, EDLD, or FOUN Elective		
Teaching Field: 30-45 Hours (Generally transfered from Master's or EdS degrees.)		30-45
CTEC 8720	Designing Early Childhood Curriculum	
CTEC 7270	Theory-Based Problems in Early Childhood Education	
CTEC 8270	Theory-Based Problems in Early Childhood Education	
Specialized Professional Courses: 18-21 Hours		18-21
CTEC 8990	Research and Dissertation	10
Total Hours		**85**

Education: French or Spanish — MEd/MS, EdS

Education: French or Spanish — MEd/MS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/foreign-language-education/ms-med-elementary-education.php), EdS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/foreign-language-education/eds-foreign-language.php)

French Education — MEd (Alternative Certification, Online Option Available)

Code	Title	Hours
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 Hours of advisor-approved 6000-7000 level courses in French		12
Professional Studies: 21-24 hours [3]		**21-24**
CTSE 7520	Curriculum and Teaching in Area of Specialization [1]	
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	
or CTRD 6000	Language and Literacy in the Content Areas	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization	
RSED 6000	Advanced Survey of Exceptionality [1]	
CTSE 7920	Clinical Residency [2]	

CTSE 6220	Class Management and Discipline in Foreign Language Classroom [2]	
Total Hours		**33-36**

1 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTSE 7520 Curriculum & Teaching in Foreign Language and the 3-hour course requirement for RSED 6000 will be waived resulting in 24 hours in Professional Studies and 39 total program hours.

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

* In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

3 Undergraduate courses (CTSE 4070 & CTSE 4080) are required if not previously completed at the undergraduate level, in addition to all other program requirements.

French Education — MEd (Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 15 hours		
Select 15 Hours of advisor-approved 6000-7000 level courses in French		15
Survey of Special Education/Diversity Course		
See RSED 6000 and CTSE 7520 in Additional Courses		
Additional Courses: 15 hours		
Required: 12 hours		
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	3
or CTRD 6000	Language and Literacy in the Content Areas	
CTSE 7520	Curriculum and Teaching in Area of Specialization [1]	3
CTSE 7530	Organization of Program in Area of Specialization	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
Select 3 hours of the following:		3
RSED 6000	Advanced Survey of Exceptionality [1]	
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization [2]	
CTSE 7970	Special Topics	
CTSE 7990	Research and Thesis	
Other advisor-approved supporting courses 6000-level and above [3]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with CTSE 7520 Curriculum and Teaching in Foreign Language.

2 Required unless teaching in area of certification at an approved school site.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

French Education — MS (Non-certification, Online Option Available)

Code	Title	Hours
French Education - MS (Non-certification)		
CTSE 7000	Orientation to Teaching and Learning	1
CTSE 7800	Capstone in Teaching and Learning	2
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12 (or other advisor-approved instructional design course - 3 hrs)	3
Advisor-Approved CTSE (Foreign Language Education) courses: 9 hours		9
Advisor-Approved Electives: 15 hours		15
Total Hours		**30**

French Education — EdS (Certification, Online Option Available)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 15 hours		
At least 1/3 of the program shall be teaching field courses		
Select 15 hours of advisor-approved 6000-7000 level courses in French		15
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 12 hours		
Required 3 hours:		
CTSE 8980	Field Project	
Select 9 hours from the following:		12
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7520	Curriculum and Teaching in Area of Specialization [2]	
CTSE 7530	Organization of Program in Area of Specialization [2]	
CTSE 7540	Evaluation of Program in Area of Specialization [2]	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization	
CTSE 7970	Special Topics	
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	
Other advisor-approved supporting courses 6000-level and above [3]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 Required if not previously completed at Auburn University.

3 Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Spanish Education — MEd (Alternative Certification, Online Option Available)

Code	Title	Hours
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Spanish.		12
Professional Studies: 21-24 hours [3]		**21-24**
CTSE 7520	Curriculum and Teaching in Area of Specialization [1]	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization	
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	
or CTRD 6000	Language and Literacy in the Content Areas	
RSED 6000	Advanced Survey of Exceptionality [1]	
CTSE 6220	Class Management and Discipline in Foreign Language Classroom [2]	
CTSE 7920	Clinical Residency [2]	
Total Hours		**33-36**

1 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTSE 7520 Curriculum & Teaching in Foreign Language and the 3-hour course requirement for RSED 6000 will be waived resulting in 24 hours in Professional Studies and 39 total program hours.

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

* In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

3 Undergraduate courses (CTSE 4070 & CTSE 4080) are required if not previously completed at the undergraduate level, in addition to all other program requirements.

Spanish Education — MEd (Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 15 hours		
At least 1/3 of the program shall be teaching field courses.		
Select 15 hours of advisor-approved 6000-7000 level courses in Spanish		15
Survey of Special Education/Diversity Course		
See RSED 6000 and CTSE 7520 in Additional Courses		
Additional Courses: 15 hours		
Required: 12 hours		
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	3
or CTRD 6000	Language and Literacy in the Content Areas	
CTSE 7520	Curriculum and Teaching in Area of Specialization [1]	3
CTSE 7530	Organization of Program in Area of Specialization	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
Select 3 hours from the following:		3
RSED 6000	Advanced Survey of Exceptionality [1]	

CTSE 7510	Research Studies in Area of Specialization
CTSE 7900	Directed Studies
CTSE 7910	Practicum in Area of Specialization [2]
CTSE 7970	Special Topics
CTSE 7990	Research and Thesis
Other advisor-approved supporting courses 6000-level and above [3]	
Total Hours	**30**

1 RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with CTSE 7520 Curriculum and Teaching in Foreign Language.

2 Required unless teaching in area of certification at an approved school site.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Spanish Education — MS (Non-certification, Online Option Available)

Code	Title	Hours
Spanish Education - MS (Non Teacher Certification)		
CTSE 7000	Orientation to Teaching and Learning	1
CTSE 7800	Capstone in Teaching and Learning	2
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	3
or advisor-approved instructional design course		
Select 9 hours of CTSE (Foreign Language Education) Advisor approved courses		9
Select 15 hours of Advisor approved Electives		15
Total Hours		**30**

Spanish Education — EdS (Certification, Online Option Available)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 15 hours		**15**
At least 1/3 of the program shall be teaching field courses.		
Select 15 hours of advisor-approved 6000-7000 level courses in Spanish		
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 12 hours		
Required 3 hours:		
CTSE 8980	Field Project	3
Select 9 hours from the following:		9
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7520	Curriculum and Teaching in Area of Specialization [2]	
CTSE 7530	Organization of Program in Area of Specialization [2]	
CTSE 7540	Evaluation of Program in Area of Specialization [2]	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization	

CTSE 7970	Special Topics	
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	
Other advisor-approved supporting courses 6000-level and above [3]		
Total Hours		**30**

[1] RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

[2] Required if not completed at Auburn University.

[3] Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Elementary Education — MEd/MS, EdS, PhD

Elementary Education — MEd/MS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/elementary-education/ms-med-elementary-education.php), EdS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/elementary-education/eds-elementary-education.php), PhD (https://education.auburn.edu/curriculum-and-teaching/academic-programs/elementary-education/phd-elementary-education.php)

Elementary Education — MEd (Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 24 hours		
At least 1/3 of the program shall be teaching field courses.		
Required: 3 hours		
CTEE 7510	Research Studies in Education in Areas of Specialization	3
Select 21 hours from the following: [1]		21
CTEE 7010	Approaches to Teaching	
CTEE 7410	Curriculum and Teaching in Social Science (Grades K-6)	
CTEE 7420	Curriculum and Teaching in Language Arts (Grades K-6)	
CTEE 7430	Curriculum and Teaching in Natural Science (Grades K-6)	
CTEE 7440	Curriculum and Teaching in Mathematics (Grades K-6)	
CTEE 7490	The Elementary School Program	
CTEE 7530	Organization of Programs in Elementary Education	
CTEE 7540	Evaluation of Programs in Areas of Specialization	
CTEE 7910	Practicum in Area of Specialization [2]	
CTEE 7970	Special Topics	
CTEE 7990	Research and Thesis	
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	
Other advisor-approved courses 6000 level and above in the teaching field (i.e., CTEC, CTEE, CTRD, CTES, CTMU)		
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [3]		
Additional Courses: 3 hours		**3**

Other advisor-approved supporting courses 6000 level and above [4]	
Total Hours	**30**

1 Coursework in the Teaching Field must include content in language arts, math, social studies, and science.
2 Required unless teaching in area of certification at an approved school site.
3 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
4 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Elementary Education — MS (Non-certification, Online Option Available)

Code	Title	Hours
Elementary Education - MS (Non-certification)		
CTSE 7000	Orientation to Teaching and Learning	1
CTSE 7800	Capstone in Teaching and Learning	2
Advisor-Approved CTEE Courses: 15 Hours		15
Advisor-Approved Electives: 12 Hours		12
Total Hours		**30**

Elementary Education — EdS (Certification)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 21 Hours		
At least 1/3 of the program shall be teaching field courses.		
Select 21 hours from the following:		21
CTEE 7010	Approaches to Teaching	
CTEE 7410	Curriculum and Teaching in Social Science (Grades K-6) [1]	
CTEE 7420	Curriculum and Teaching in Language Arts (Grades K-6) [1]	
CTEE 7430	Curriculum and Teaching in Natural Science (Grades K-6) [1]	
CTEE 7440	Curriculum and Teaching in Mathematics (Grades K-6) [1]	
CTEE 7490	The Elementary School Program	
CTEE 7510	Research Studies in Education in Areas of Specialization [1]	
CTEE 7530	Organization of Programs in Elementary Education	
CTEE 7540	Evaluation of Programs in Areas of Specialization [1]	
CTEE 7910	Practicum in Area of Specialization [2]	
CTEE 8980	Field Project [2]	
Other advisor-approved courses 6000 level and above in the teaching field (i.e., CTEC, CTEE, CTRD, CTSE, CTMU)		
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [3]		
Additional Courses: 6 hours required		**6**
ERMA 7200	Basic Methods in Education Research [1]	
Other advisor-approved courses 6000 level and above [4]		
Total Hours		**30**

[1] Required if not previously completed.

[2] To ensure a field experience, CTEE 7910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTEE 8980 is required for those seeking the EdS degree.

[3] RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

[4] Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Elementary Education — PhD

Code	Title	Hours
Elementary Education - PhD		
Elementary Education: 30 Hours		30
CTEE 7010	Approaches to Teaching	
CTEE 7410	Curriculum and Teaching in Social Science (Grades K-6)	
CTEE 7420	Curriculum and Teaching in Language Arts (Grades K-6)	
CTEE 7430	Curriculum and Teaching in Natural Science (Grades K-6)	
CTEE 7440	Curriculum and Teaching in Mathematics (Grades K-6)	
CTEE 7490	The Elementary School Program	
CTEE 7530	Organization of Programs in Elementary Education	
CTEE 7540	Evaluation of Programs in Areas of Specialization	
CTEE 7970	Special Topics	
CTEE 8950	Seminar	
Research Coursework: 18 Hours		18
ERMA 7200	Basic Methods in Education Research	
ERMA 7210	Theory and Methodology of Qualitative Research	
ERMA 7220	Applied Qualitative Research	
ERMA 7300	Design and Analysis in Education I	
ERMA 7310	Design and Analysis in Education II	
Other Coursework: 32 Hours		32
Choose from CTRD 7000-7999, CTEC 7000-7999, EDMD 7000-7999, RSED 7000-7999		
CTEE 8990	Research and Dissertation	10
Total Hours		**90**

English Language Arts Education — MEd/MS, EdS, PhD

English Language Arts Education — MEd/MS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/english-language-arts-education/med-ms-english-language-arts.php), EdS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/english-language-arts-education/eds-english-language-arts.php), PhD (https://education.auburn.edu/curriculum-and-teaching/academic-programs/english-language-arts-education/phd-english-language-arts.php)

English Language Arts Education — MEd (Alternative Certification)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 12 hours [1]		
At least 1/3 of the program shall be in teaching field courses.		
CTRD 6000	Language and Literacy in the Content Areas [2]	3
Select 9 hours		6
CTSE 6010	Selection and Use of Media for Youth [4]	
CTSE 6020	Rhetoric and Composition for Teachers [4]	
CTRD 6030	The Reading of Adolescents	
Other advisor-approved 6000-7000 level courses in English		
Professional Studies: 21 hours		
CTSE 7520	Curriculum and Teaching in Area of Specialization	3
CTSE 7530	Organization of Program in Area of Specialization	3
or CTSE 7510	Research Studies in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization	3
RSED 6000	Advanced Survey of Exceptionality [2]	3
CTSE 6210	Teacher Inquiry Workshop: Problems and Possibilities [3]	1
CTSE 7920	Clinical Residency [3]	8
Total Hours		**30**

1 English Language Arts programs shall require at least one course in two areas within the broader field.

2 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy and the 3-hour course requirement for RSED 6000 will be waived resulting in 18 hours in Professional Studies and 30 total program hours.

3 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

4 Required unless previously completed at the undergraduate level.

English Language Arts Education — MEd (Certification)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be teaching field courses.		

Select 9 hours:		9
CTRD 6030	The Reading of Adolescents	
CTSE 6010	Selection and Use of Media for Youth	
CTSE 6020	Rhetoric and Composition for Teachers	
Advisor-approved 6000-7000 level courses in English		
Select 3 hours of advisor-approved 6000-7000 level courses in the teaching field (i.e., speech, grammar, reading, rhetoric, composition, theater, broadcasting, journalism) [1]		3
Survey of Special Education/Diversity Course: 3 hours		
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [2]		3
Additional Courses: 15 hours		
Required: 10 hours		
CTSE 7520	Curriculum and Teaching in Area of Specialization	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
CTSE 7910	Practicum in Area of Specialization	1
EDMD 7210	Integration of Technology Into Curriculum	3
Select 5 hours from the following:		5
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization	
CTSE 7970	Special Topics	
CTSE 7990	Research and Thesis	
Other advisor-approved supporting courses 6000 level and above [3]		
Total Hours		**30**

1 English Language Arts programs shall require at least one course in two areas within the broader field.

2 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

English Language Arts Education — MS (Non-certification)

Code	Title	Hours
English Language Arts Education - MS (Non-certification)		
CTSE 7000	Orientation to Teaching and Learning	1
CTSE 7800	Capstone in Teaching and Learning	2
Teaching and Learning: 3 Hours		3
EDMD 7000	Instructional Design and Development (or other advisor- approved instructional design course – 3 hrs)	
Advisor-Approved CTSE (English Language Arts) Courses: 9 Hours		9
Advisor-Approved Electives: 15 Hours		15
Total Hours		**30**

English Language Arts Education — EdS (Certification)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 12 Hours		
At least 1/3 of the program shall be teaching field courses.		
Select 9 hours:		9
CTRD 6030	The Reading of Adolescents	
CTSE 6010	Selection and Use of Media for Youth	
CTSE 6020	Rhetoric and Composition for Teachers	
Advisor-approved 6000-7000 level courses in English		
Select 3 hours of advisor-approved 6000-7000 level courses in the teaching field (i.e., speech, grammar, reading, rhetoric, composition, theater, broadcasting, or journalism) [1]		3
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [2]		
Additional Courses: 15 hours		
Select 15 hours from the following:		15
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7520	Curriculum and Teaching in Area of Specialization [3]	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization [3]	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization [4]	
CTSE 7970	Special Topics	
CTSE 8980	Field Project [4]	
Other advisor-approved supporting courses 6000 level and above [5]		
Total Hours		**30**

1 English Language Arts programs shall require at least one course in two areas within the broader field.

2 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3 CTSE 7520 required if a graduate level course in curriculum and teaching in English Education not previously completed;
CTSE 7540 required if a graduate level course in evaluation of English Education not previously completed.

4 To ensure a field experience, CTSE 7910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980 is required for those seeking the EdS degree.

5 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

English Language Arts Education — PhD

Code	Title	Hours
English Language Arts Education - PhD		
Required Departmental Courses: 22 Hours		22
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7520	Curriculum and Teaching in Area of Specialization	
CTSE 7530	Organization of Program in Area of Specialization	

CTSE 7540	Evaluation of Program in Area of Specialization	
CTSE 8990	Research and Dissertation	
Research: 18 Hours		18
ERMA 7200	Basic Methods in Education Research	
ERMA 7210	Theory and Methodology of Qualitative Research	
ERMA 7300	Design and Analysis in Education I	
Other Approved Research Electives		
Department Electives: 6 Hours		6
CTSE 6010	Selection and Use of Media for Youth	
CTSE 6020	Rhetoric and Composition for Teachers	
CTSE 6710	Language Study for Teachers	
Teaching Field: 30 Hours		30
ENGL 6000-8000 (24-30)		
COMM 6000-8000 (6)		
Common Areas: 12 Hours		12
Total Hours		**88**

English for Speakers of Other Languages — MEd

(Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 18 hours		
At least 1/3 of the program shall be teaching field courses.		
CTES 7420	Applied Linguistics in Second Language Acquisition	3
CTES 7430	Teaching ESL Listening and Speaking	3
CTES 7440	Teaching ESL Reading and Writing	3
CTES 7470	Issues in English for Speakers of Other Languages Education (ESOL) [1]	3
CTES 7480	Assessment in English for Speakers of Other Languages (ESOL)	3
CTES 7490	Methods in ESL Grammar	3
Survey of Special Education/Diversity Course:		
See RSED 6000 in Additional Courses AND CTES 7470 in Teaching Field [1]		
Additional Courses: 6 hours		
Required: 3 hours of FOUN coursework		
FOUN 7000	Cultural Foundations of Education	3
or FOUN 7020	Social and Cultural Diversity in American Education	
or other advisor-approved 6000 level or above FOUN course		
Select 3 hours from the following advisor-approved courses:		3
RSED 6000	Advanced Survey of Exceptionality [1]	
Other advisor-approved supporting courses 6000 level and above [2]		
Internship: 6 hours		
CTES 7920	Clinical Residency	6
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with CTES 7470 Issues in ESOL Education.

2 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Mathematics Education — MEd, EdS, PhD

Mathematics Education — MEd (https://education.auburn.edu/curriculum-and-teaching/academic-programs/mathematics-education/med-mathematics-education.php), EdS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/mathematics-education/eds-mathematics-education.php), PhD (https://education.auburn.edu/curriculum-and-teaching/academic-programs/mathematics-education/phd-mathematics-education.php)

Mathematics Education — MEd (Alternative Certification)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 13 hours		
At least 1/3 of the program shall be in teaching field courses.		
MATH 6840	Number Systems and Algebra for Teachers	3
MATH 6850	Functions and Mathematical Modeling for Teachers	3
MATH 6860	Geometry for Teachers	3
MATH 7970	Special Topics (Seminar on History of Math)	1
STAT 6830	Statistics and Probability for Teachers	3
Professional Studies: 25 hours		
CTSE 6040 & CTSE 6041	Technology and Applications in Secondary Mathematics Education and Practicum in Secondary Mathematics Technology (CTSE 6040 (3 hr lecture) and CTSE 6041 (1 hr lab) must be completed simultaneously)	4
CTMD 6010 & CTMD 6011	Teaching Mathematics: Middle School and Practicum in Middle School Mathematics (CTMD 6010 (3 hr lecture) and CTMD 6011 (1 hr lab) must be completed simultaneously)	4
CTSE 6030 & CTSE 6031	Teaching Mathematics: High School and Practicum in High School Mathematics (CTSE 6030 (3 hr lecture) and CTSE 6031 (1 hr lab) must be completed simultaneously)	4
RSED 6000	Advanced Survey of Exceptionality [1]	3
or CTRD 6000	Language and Literacy in the Content Areas	
CTSE 7920	Clinical Residency [2]	9
CTSE 6230	Managing Middle and High School Classroom (Math Education) [2]	1
Total Hours		**38**

1 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission the 3-hour course requirement for RSED 6000 will be waived resulting in 25 hours in Professional Studies and 40 total program hours.

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, students must meet all required minimum ALSDE GPA requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

Mathematics Education — MEd (Certification)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Mathematics		12
Special Education: 3 hours		
RSED 6000 Advanced Survey of Exceptionality [1]		3
Additional Courses: 15 hours		**15**
Required: 7-9 hours		
CTSE 7520	Curriculum and Teaching in Area of Specialization	
CTSE 7530	Organization of Program in Area of Specialization	
or CTSE 7540	Evaluation of Program in Area of Specialization	
CTSE 7910	Practicum in Area of Specialization [2]	
Select the remaining 6-8 hours from the following:		
CTSE 6040 & CTSE 6041	Technology and Applications in Secondary Mathematics Education and Practicum in Secondary Mathematics Technology (CTSE 6040 (3 hr lecture) and CTSE 6041 (1 hr lab) must be completed simultaneously) [3]	
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7900	Directed Studies	
CTSE 7970	Special Topics	
CTSE 7990	Research and Thesis	
Other advisor approved courses 6000 level and above [4]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification.

2 1 hour is required if teaching in area of certification at an approved school site or 3 hours required if not teaching in an area of certification.

3 Required if CTSE 5040 not completed at AU.

4 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, students must also meet all ALSDE minimum GPA requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Mathematics Education — EdS (Certification)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Mathematics.		12
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR CTSE 7560 Equity Issues in Math OR other state-approved diversity course [1]		
Additional Courses: 15 hours		**15**
Required: 1-3 hours		

CTSE 8980	Field Project [2]
Select the remaining 12-14 hours from the following:	
CTSE 7510	Research Studies in Area of Specialization
CTSE 7520	Curriculum and Teaching in Area of Specialization [3]
CTSE 7530	Organization of Program in Area of Specialization [4]
CTSE 7540	Evaluation of Program in Area of Specialization [5]
CTSE 7560	Equity Issues in Mathematics Education [1,3]
CTSE 7900	Directed Studies
CTSE 7910	Practicum in Area of Specialization
CTSE 7970	Special Topics
Other advisor-approved supporting courses 6000 level and above [6]	
Total Hours	**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 To ensure a field experience, a minimum of 1 hour of CTSE 8980 is required for those seeking Class AA certification only; 3 hours is required for those seeking the EdS degree.

3 Required if not previously completed at Auburn University.

4 Required if graduate level course in organization in math education not previously completed.

5 Required if graduate level course in evaluation in math education not previously completed.

6 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

7 In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

8 Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

9 All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Mathematics Education — PhD

Code	Title	Hours
Mathematics Education - PhD		
CTSE 7510	Research Studies in Area of Specialization	3
CTSE 7520	Curriculum and Teaching in Area of Specialization	3
CTSE 7530	Organization of Program in Area of Specialization	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
CTSE 8990	Research and Dissertation	10
ERMA 7200	Basic Methods in Education Research	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
Select 57 Hours in @ 6000-8999		57
Total Hours		**85**

Music Education: Instrumental or Vocal — MEd/MS, EdS, PhD

Music Education: Instrumental or Vocal — MEd/MS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/music-education/ms-med-music-education.php), EdS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/music-education/eds-music-education.php), PhD (https://education.auburn.edu/curriculum-and-teaching/academic-programs/music-education/phd-music-education.php)

Instrumental Music Education — MEd (Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 11 hours		
At least 1/3 of the program shall be teaching field courses.		
Select 11 hours from graduate level courses in Music (MUSI, MUSE, and/or MUAP)		11
Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 16 hours		
Required: 4 hours		
CTMU 7000	School and Community Music	1
CTMU 7910	Practicum in Area of Specialization	3
Select 3 hours from the following:		3
CTMU 7550	Applications of Technology in Music Education	
CTMU 7560	Digital Media Production for Music Education	
CTMU 7570	Music Instruction Multimedia Research and Development	
Select 9 hours from the following:		9
CTMU 7510	Research Studies in Music Education	
CTMU 7520	Curriculum and Teaching in Music Education	
CTMU 7530	Organization of Program in Music Education	
CTMU 7540	Evaluation of Program in Music Education	
CTMU 7970	Special Topics	
CTMU 7990	Research and Thesis (1-5 hours)	
Advisor-approved CTMU or other support courses.		
Total Hours		**30**

[1] RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Instrumental Music Education — MS (Non-certification, Online Option Available)

Code	Title	Hours
Instrumental Music Education - MS (Non-certification)		
CTMU 7000	School and Community Music	1
CTMU 7910	Practicum in Area of Specialization	3
Select 3 hours:		3

CTMU 7550	Applications of Technology in Music Education	
CTMU 7560	Digital Media Production for Music Education	
CTMU 7570	Music Instruction Multimedia Research and Development	
CTMU 7580	Psychology of Music	
Advisor-Approved CTMU courses		9
Advisor-approved Music courses (MUSI/MUSE/MUAP)		6
Advisor-Approved Electives (CTMU, MUSI, PSYC, etc)		8
Total Hours		**30**

Instrumental Music Education — EdS (Certification, Online Option Available)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 11 hours		
At least 1/3 of the program shall be teaching field courses.		
Select 11 hours of advisor-approved 6000-7000 level courses in Music (MUSI, MUSE, and/or MUAP).		11
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course. [1]		
Additional Courses: 16 hours		
CTMU 8980	Field Project	3
Select 10 hours of the following:		13
CTMU 7000	School and Community Music [2,3]	
CTMU 7510	Research Studies in Music Education	
CTMU 7520	Curriculum and Teaching in Music Education	
CTMU 7530	Organization of Program in Music Education	
CTMU 7540	Evaluation of Program in Music Education	
CTMU 7550	Applications of Technology in Music Education	
CTMU 7560	Digital Media Production for Music Education	
CTMU 7570	Music Instruction Multimedia Research and Development	
CTMU 7910	Practicum in Area of Specialization	
CTMU 7970	Special Topics	
Select 3 hours of advisor-approved courses 6000 level and above.		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 Required if not previously completed at Auburn University.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

3 CTMU 7000 is required if not previously taken at Auburn University.

Instrumental Music Education — PhD

Code	Title	Hours
Instrumental Music Education - PhD		
CTMU 8990	Research and Dissertation	10

Select 80 Hours in @ 6000-8999	80
Total Hours	**90**

Vocal Music Education — MEd (Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 11 hours		
At least 1/3 of the program shall be teaching field courses.		
Select 11 hours from graduate level courses in Music (MUSI, MUSE, and/or MUAP)		11
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 16 hours		
Required: 4 hours		
CTMU 7000	School and Community Music	1
CTMU 7910	Practicum in Area of Specialization	3
Select 3 hours from the following:		3
CTMU 7550	Applications of Technology in Music Education	
CTMU 7560	Digital Media Production for Music Education	
CTMU 7570	Music Instruction Multimedia Research and Development	
Select 9 hours from the following:		9
CTMU 7510	Research Studies in Music Education	
CTMU 7520	Curriculum and Teaching in Music Education	
CTMU 7530	Organization of Program in Music Education	
CTMU 7540	Evaluation of Program in Music Education	
CTMU 7970	Special Topics	
CTMU 7990	Research and Thesis (1-5 hours)	
Advisor approved CTMU or other support courses		
Total Hours		**30**

[1] RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Vocal Music Education — MS (Non-certification, Online Option Available)

Code	Title	Hours
Vocal Music Education - MS (Non Teacher Certification)		
CTMU 7000	School and Community Music	1
CTMU 7910	Practicum in Area of Specialization	3
Select 3 hours:		3
CTMU 7550	Applications of Technology in Music Education	
CTMU 7560	Digital Media Production for Music Education	
CTMU 7570	Music Instruction Multimedia Research and Development	
CTMU 7580	Psychology of Music	
Advisor-Approved CTMU courses		9

Advisor-approved Music courses (MUSI/MUSE/MUAP)	6
Advisor-approved Electives (CTMU, MUSI, PSYC, etc)	8
Total Hours	**30**

Vocal Music Education — EdS (Certification, Online Option Available)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 11 hours		**11**
At least 1/3 of the program shall be teaching field courses.		
Select 11 hours of advisor-approved 6000-7000 level courses in Music (MUSI, MUSE, and/or MUAP).		
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 16 hours		
CTMU 8980	Field Project	3
Select 10 Hours of the following:		13
CTMU 7000	School and Community Music [2,3]	
CTMU 7510	Research Studies in Music Education	
CTMU 7520	Curriculum and Teaching in Music Education	
CTMU 7530	Organization of Program in Music Education	
CTMU 7540	Evaluation of Program in Music Education	
CTMU 7550	Applications of Technology in Music Education	
CTMU 7560	Digital Media Production for Music Education	
CTMU 7570	Music Instruction Multimedia Research and Development	
CTMU 7910	Practicum in Area of Specialization	
CTMU 7970	Special Topics	
Select 3 hours of advisor-approved courses 6000 level and above.		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 Required if not previously completed at Auburn University.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

3 CTMU 7000 is required if not previously taken at Auburn University.

Vocal Music Education — PhD

Code	Title	Hours
Vocal Music Education - PhD		
CTMU 8990	Research and Dissertation	10
Select 80 Hours in @ 6000-8999		80
Total Hours		**90**

Reading Education — MEd/MS, PhD

Reading Education — MEd/MS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/reading-education/ms-med-reading-education.php), PhD (https://education.auburn.edu/curriculum-and-teaching/academic-programs/reading-education/phd-reading-education.php)

Reading Education — MEd (Certification, Online Option Available)

Code	Title	Hours
Reading Specialist: Class A Program Checklist for Teaching Field		
Teaching Field: 18 hours		
At least 1/3 of the program shall be teaching field courses.		
CTRD 6000	Language and Literacy in the Content Areas	3
CTRD 6700	Developmental Reading K-12	3
CTRD 7400	Assessment and Instruction for Reading Intervention	3
CTRD 7510	Research Studies in Reading Education	3
CTRD 7520	Curriculum and Teaching in Reading Education	3
CTRD 7530	Organization of Program in Reading Education	3
Survey of Special Education / Diversity Course		
See RSED 6000 in Additional Courses AND CTRD 6000 in Teaching Field [1]		
Additional Courses: 6 hours		**6**
CTRD 7990	Research and Thesis	
RSED 6000	Advanced Survey of Exceptionality [1]	
Other advisor-approved supporting courses 6000 level and above [2]		
Internship: 6 hours		
CTRD 7920	Clinical Residency (with CTRD 7400)	2
CTRD 7920	Clinical Residency (with CTRD 7520)	2
CTRD 7920	Clinical Residency (with CTRD 7530)	2
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy.

2 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Reading Education — MS (Non-certification, Online Option Available)

Code	Title	Hours
Reading Education - MS (Non-certification)		
CTSE 7000	Orientation to Teaching and Learning	1
CTSE 7800	Capstone in Teaching and Learning	2
CTRD 6000	Language and Literacy in the Content Areas	3
Select 9 hours of CTRD (Reading Education) Advisor approved courses		9
Select 15 hours of Advisor approved Electives		15
Total Hours		**30**

Reading Education — PhD

Code	Title	Hours
Reading Education - PhD		
CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	3
CTRD 7400	Assessment and Instruction for Reading Intervention	3
CTRD 7510	Research Studies in Reading Education	3
CTRD 7520	Curriculum and Teaching in Reading Education	3
CTRD 7530	Organization of Program in Reading Education	3
CTRD 7920	Clinical Residency	6
CTRD 8990	Research and Dissertation	10
ERMA 7200	Basic Methods in Education Research	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
Select 43 Hours in @ 6000-8999		43
Total Hours		**80**

Science Education: General Science, Biology, Chemistry, or Physics — MEd/MS, EdS, PhD

Science Education: General Science, Biology, Chemistry, or Physics — MEd/MS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/science-education/ms-med-science-education.php), EdS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/science-education/eds-science-education.php), PhD (https://education.auburn.edu/curriculum-and-teaching/academic-programs/science-education/phd-science-education.php)

General Science Education — MEd (Alternative Certification)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
GEOL 6400	Principles of Earth Science	3
BIOL 6090	Conservation Biology	3
Select 6 hours of advisor-approved 6000-7000 level courses in Science [1]		6
Professional Studies: 25 hours		
CTSE 7510	Research Studies in Area of Specialization	3
or CTSE 7530	Organization of Program in Area of Specialization	
CTSE 6100	Curriculum and Teaching II: Science	4
CTRD 6000	Language and Literacy in the Content Areas [2]	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
RSED 6000	Advanced Survey of Exceptionality [2]	3
CTSE 6240	Clinical Residency Seminar in Science Teaching [3]	1
CTSE 7920	Clinical Residency [3]	8
Total Hours		**37**

1 General Science programs shall require at least one course in two areas within the broader field (e.g., biology, chemistry, physics, and geology).

2 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is

fulfilled with CTRD 6000 Language and Literacy and the 3-hour course requirement for RSED 6000 will be waived resulting in 22 hours in Professional Studies and 34 total program hours.

[3] Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

General Science Education — MEd (Certification)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
GEOL 6400	Principles of Earth Science	3
BIOL 6090	Conservation Biology	3
Select 6 hours of advisor-approved 6000-7000 level courses in Science. [1]		6
Survey of Special Education/Diversity Course: 3 hours		
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [2]		3
Additional Courses: 15 hours		**15**
Required: 6-8 hours		
CTSE 6000	Technology in Science Education	
CTSE 7540	Evaluation of Program in Area of Specialization	
CTSE 7910	Practicum in Area of Specialization [3]	
Select the remaining 7-9 hours from the following:		
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7520	Curriculum and Teaching in Area of Specialization	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7900	Directed Studies	
CTSE 7970	Special Topics	
CTSE 7990	Research and Thesis	
Other advisor-approved supporting courses 6000 level and above [4]		
Total Hours		**30**

[1] General Science programs shall require at least one course in two areas within the broader field (e.g., biology, chemistry, physics, geology).

[2] RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

[3] 1 hour is required if teaching in area of certification at an approved school site or 3 hours required if not teaching in an area of certification.

[4] Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

General Science Education — MS (Non-certification)

Code	Title	Hours
General Science Education - MS (Non-certification)		
CTSE 7000	Orientation to Teaching and Learning	1
CTSE 7800	Capstone in Teaching and Learning	2
Advisor-Approved CTSE (Science Education) courses: 9 hours		9
Advisor-Approved Electives: 18 hours		18
Total Hours		**30**

General Science Education — EdS (Certification)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
BIOL 6090	Conservation Biology	3
GEOL 6400	Principles of Earth Science	3
Select 6 hours of advisor-approved 6000-7000 level courses in Science. [1]		6
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [2]		
Additional Courses: 15 hours		
Select 15 hours from the following:		15
CTSE 6000	Technology in Science Education	
CTSE 7510	Research Studies in Area of Specialization [3]	
CTSE 7520	Curriculum and Teaching in Area of Specialization	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization [3]	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization [4]	
CTSE 7970	Special Topics	
CTSE 8980	Field Project [4]	
Other advisor-approved courses 6000 level and above in Science Education		
Other advisor-approved supporting courses 6000 level and above [5]		
Total Hours		**30**

1 General Science programs shall require at least one course in two areas within the broader field (e.g., biology, chemistry, physics, geology).

2 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3 CTSE 7510 required if a graduate level course in research studies in Science Education not previously completed;
CTSE 7540 required if a graduate level course in evaluation in Science Education not previously completed.

4 To ensure a field experience, CTSE 7910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980 is required for those seeking the EdS degree.

5 Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

General Science Education — PhD

Code	Title	Hours
General Science Education - PhD		
CTSE 8990	Research and Dissertation	10
ERMA 7200	Basic Methods in Education Research	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
ERMA 7220	Applied Qualitative Research	3
ERMA 7300	Design and Analysis in Education I	3
ERMA 7310	Design and Analysis in Education II	3
ERMA 8320	Design and Analysis in Education III	3
Select 60 Hours in @ 6000-8999		60
Total Hours		**88**

Biology Education — MEd (Alternative Certification)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Biology		12
Professional Studies: 25 hours		
CTSE 7510	Research Studies in Area of Specialization	3
or CTSE 7530	Organization of Program in Area of Specialization	
CTSE 6100	Curriculum and Teaching II: Science	4
CTSE 7540	Evaluation of Program in Area of Specialization	3
CTRD 6000	Language and Literacy in the Content Areas [1]	3
RSED 6000	Advanced Survey of Exceptionality [1]	3
CTSE 6240	Clinical Residency Seminar in Science Teaching [2]	1
CTSE 7920	Clinical Residency [2]	8
Total Hours		**37**

1 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy and the 3-hour course requirement for RSED 6000 will be waived resulting in 22 hours in Professional Studies and 34 total program hours.

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

Biology Education — MEd (Certification)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Biology		12
Survey of Special Education/Diversity Course: 3 hours		
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		3
Additional Courses: 15 hours		**15**
Required: 6-8 hours		
CTSE 6000	Technology in Science Education	
CTSE 7540	Evaluation of Program in Area of Specialization	
CTSE 7910	Practicum in Area of Specialization [2]	
Select the remaining 7-9 hours from the following:		
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7520	Curriculum and Teaching in Area of Specialization	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7900	Directed Studies	
CTSE 7970	Special Topics	
CTSE 7990	Research and Thesis	
Other advisor-approved supporting courses 6000 level and above [3]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 1 hour is required if teaching in area of certification at an approved school site or 3 hours required if not teaching in an area of certification.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Biology Education — EdS (Certification)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Biology		12
Survey of Special Education/Diversity Course: 3 hours [1]		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 15 hours		
Select 15 hours from the following:		15
CTSE 6000	Technology in Science Education	
CTSE 7510	Research Studies in Area of Specialization [2]	
CTSE 7520	Curriculum and Teaching in Area of Specialization	

CTSE 7530	Organization of Program in Area of Specialization
CTSE 7540	Evaluation of Program in Area of Specialization [2]
CTSE 7900	Directed Studies
CTSE 7910	Practicum in Area of Specialization [3]
CTSE 7970	Special Topics
CTSE 8980	Field Project [3]
Other advisor approved courses in Science Education	
Other advisor-approved supporting courses 6000 level and above [4]	
Total Hours	**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 CTSE 7510 required if a graduate level course in Research Studies in Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Science Education not previously completed.

3 To ensure a field experience, CTSE 7910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980 is required for those seeking the EdS degree.

4 Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Biology Education — PhD

Code	Title	Hours
Biology Education - PhD		
CTSE 8990	Research and Dissertation	10
ERMA 7200	Basic Methods in Education Research	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
ERMA 7220	Applied Qualitative Research	3
ERMA 7300	Design and Analysis in Education I	3
ERMA 7310	Design and Analysis in Education II	3
ERMA 8320	Design and Analysis in Education III	3
Select 60 Hours in @ 6000-8999		60
Total Hours		**88**

Chemistry Education — MEd (Alternative Certification)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Chemistry		12
Professional Studies: 25 hours		
CTSE 7510	Research Studies in Area of Specialization	3
or CTSE 7530	Organization of Program in Area of Specialization	
CTSE 6100	Curriculum and Teaching II: Science	4
CTSE 7540	Evaluation of Program in Area of Specialization	3
CTRD 6000	Language and Literacy in the Content Areas [1]	3

RSED 6000	Advanced Survey of Exceptionality [1]	3
CTSE 6240	Clinical Residency Seminar in Science Teaching [2]	1
CTSE 7920	Clinical Residency [2]	8
Total Hours		**37**

1 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy and the 3-hour course requirement for RSED 6000 will be waived resulting in 22 hours in Professional Studies and 34 total program hours.

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

Chemistry Education — MEd (Certification)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Chemistry		12
Survey of Special Education/Diversity Course		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 15 hours		**15**
Required: 6-8 hours		
CTSE 6000	Technology in Science Education	
CTSE 7540	Evaluation of Program in Area of Specialization	
CTSE 7910	Practicum in Area of Specialization [2]	
Select the remaining 7-9 hours from the following:		
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7520	Curriculum and Teaching in Area of Specialization	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7900	Directed Studies	
CTSE 7970	Special Topics	
CTSE 7990	Research and Thesis	
Other advisor-approved supporting courses 6000 level and above [3]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 1 hour is required if teaching in area of certification at an approved school site or 3 hours required if not teaching in an area of certification.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Chemistry Education — EdS (Certification)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Chemistry		12
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 15 hours		
Select 15 hours from the following:		15
CTSE 6000	Technology in Science Education	
CTSE 7510	Research Studies in Area of Specialization [2]	
CTSE 7520	Curriculum and Teaching in Area of Specialization	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization [2]	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization [3]	
CTSE 7970	Special Topics	
CTSE 8980	Field Project [3]	
Other advisor approved courses in Science Education		
Other advisor-approved supporting courses 6000 level and above [4]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 CTSE 7510 required if a graduate level course in research studies in Science Education not previously completed;
CTSE 7540 required if a graduate level course in evaluation in Science Education not previously completed.

3 To ensure a field experience, CTSE 7910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980 is required for those seeking the EdS degree.

4 Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Chemistry Education — PhD

Code	Title	Hours
Chemistry Education - PhD		
CTSE 8990	Research and Dissertation	10
ERMA 7200	Basic Methods in Education Research	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
ERMA 7220	Applied Qualitative Research	3
ERMA 7300	Design and Analysis in Education I	3
ERMA 7310	Design and Analysis in Education II	3

ERMA 8320	Design and Analysis in Education III	3
Select 60 Hours in @ 6000-8999		60
Total Hours		**88**

Physics Education — MEd (Alternative Certification)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Physics		12
Professional Studies: 25 hours		
CTSE 7510	Research Studies in Area of Specialization	3
or CTSE 7530	Organization of Program in Area of Specialization	
CTSE 6100	Curriculum and Teaching II: Science	4
CTRD 6000	Language and Literacy in the Content Areas [1]	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
RSED 6000	Advanced Survey of Exceptionality [1]	3
CTSE 6240	Clinical Residency Seminar in Science Teaching [2]	1
CTSE 7920	Clinical Residency [2]	8
Total Hours		**37**

[1] RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy and the 3-hour course requirement for RSED 6000 will be waived resulting in 22 hours in Professional Studies and 34 total program hours.

[2] Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

Physics Education — MEd (Certification)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Physics		12
Survey of Special Education/Diversity Course: 3 hours		
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		3
Additional Courses: 15 hours		**15**
Required: 6-8 hours		
CTSE 6000	Technology in Science Education	
CTSE 7540	Evaluation of Program in Area of Specialization	
CTSE 7910	Practicum in Area of Specialization [2]	
Select the remaining 7-9 hours from the following:		
CTSE 7510	Research Studies in Area of Specialization	

CTSE 7520	Curriculum and Teaching in Area of Specialization
CTSE 7530	Organization of Program in Area of Specialization
CTSE 7900	Directed Studies
CTSE 7970	Special Topics
CTSE 7990	Research and Thesis
Other advisor-approved supporting courses 6000 level and above [3]	
Total Hours	**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 1 hour is required if teaching in area of certification at an approved school site or 3 hours required if not teaching in an area of certification.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Physics Education — EdS (Certification)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in Physics		12
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 15 hours		
Select 15 hours from the following:		15
CTSE 6000	Technology in Science Education	
CTSE 7510	Research Studies in Area of Specialization [2]	
CTSE 7520	Curriculum and Teaching in Area of Specialization	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization [2]	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization [3]	
CTSE 7970	Special Topics	
CTSE 8980	Field Project [3]	
Other advisor-approved supporting courses 6000 level and above [4]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 CTSE 7510 required if a graduate level course in research studies in Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Science Education not previously completed.

3 To ensure a field experience, CTSE 7910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980 is required for those seeking the EdS degree.

[4] Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Physics Education — PhD

Code	Title	Hours
Physics Education - PhD		
CTSE 8990	Research and Dissertation	10
ERMA 7200	Basic Methods in Education Research	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
ERMA 7220	Applied Qualitative Research	3
ERMA 7300	Design and Analysis in Education I	3
ERMA 7310	Design and Analysis in Education II	3
ERMA 8320	Design and Analysis in Education III	3
Select 60 Hours in @ 6000-8999		60
Total Hours		**88**

Social Science Education: General Social Science or History — MEd, EdS, PhD

Social Science Education: General Social Science or History — MEd (https://education.auburn.edu/curriculum-and-teaching/academic-programs/social-science-education/med-science-history-education.php), EdS (https://education.auburn.edu/curriculum-and-teaching/academic-programs/social-science-education/eds-science-history-education.php), PhD (https://education.auburn.edu/curriculum-and-teaching/academic-programs/social-science-education/phd-science-history-education.php)

General Social Science Education — MEd (Alternative Certification)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
CTSE 6050	Analyzing Persistent Issues in History and Geography	3
CTSE 6060	Analyzing Persistent Issues in Political Economy	3
Select 6 hours of advisor-approved 6000-7000 level courses in Social Science. [1, 4]		6
Professional Studies: 21-24 hours		**21-24**
CTSE 7520	Curriculum and Teaching in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization	
CTRD 6000	Language and Literacy in the Content Areas [2]	
CTSE 7910	Practicum in Area of Specialization	
RSED 6000	Advanced Survey of Exceptionality [2]	
CTSE 7920	Clinical Residency [3]	
CTSE 6250	Seminar in Social Science Education [3]	
Total Hours		**33-36**

1 General Social Studies programs shall require at least one course in two areas within the broader field (i.e., ECON, GEOG, HIST, POLI).

2 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy and the 3-hour course requirement for RSED 6000 will be waived resulting in 21 hours in Professional Studies and 33 total program hours.

3 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

4 The following undergraduate courses may be required by your advisory committee for your plan of study (CTSE 4210, CTSE 4050, CTSE 4060). This coursework is in addition to all other program requirements and must be completed prior to Clinical Residency.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

General Social Science Education — MEd (Certification; On-Campus or Online)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
CTSE 6050 Analyzing Persistent Issues in History and Geography		3
CTSE 6060 Analyzing Persistent Issues in Political Economy		3
Select 6 hours of advisor-approved 6000-7000 level courses in Social Science. [1]		6
Survey of Special Education/Diversity Course: 3 hours		
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [2]		3
Additional Courses: 15 hours		
Required: 12 hours:		
EDMD 7210	Integration of Technology Into Curriculum	3
CTSE 7520	Curriculum and Teaching in Area of Specialization	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
CTSE 7910	Practicum in Area of Specialization	3
Select 3 hours from the following:		**3**
Other advisor-approved supporting courses 6000 level and above [3]		
Total Hours		**30**

1 General Social Studies programs shall require at least one course in two areas within the broader field (i.e., ECON, GEOG, HIST, POLI).

2 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

General Social Science Education — EdS (Certification)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be teaching field courses.		
CTSE 6050 Analyzing Persistent Issues in History and Geography		3
CTSE 6060 Analyzing Persistent Issues in Political Economy		3
Select 6 hours of advisor-approved 6000-7000 level courses in Social Science. [1]		6
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [2]		
Additional Courses: 15 hours		
Select 9 hours from the following:		9
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7520	Curriculum and Teaching in Area of Specialization [3]	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization [3]	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization [4]	
CTSE 7970	Special Topics	
CTSE 8980	Field Project [4]	
Select the remaining 6 hours from the following:		6
Other advisor-approved supporting courses 6000 level and above [5]		
Total Hours		**30**

1 General Social Studies programs shall require at least one course in two areas within the broader field. (i.e., ECON, GEOG, HIST, POLI).

2 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3 CTSE 7520 required if a graduate level course in Curriculum and Teaching in Social Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Social Science Education not previously completed.

4 To ensure a field experience, CTSE 7910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980 is required for those seeking the EdS degree.

5 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

General Social Science Education — PhD

Code	Title	Hours
General Social Science Education - PhD		
CTSE 7510	Research Studies in Area of Specialization	3
CTSE 7520	Curriculum and Teaching in Area of Specialization	3
CTSE 7530	Organization of Program in Area of Specialization	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
CTSE 8990	Research and Dissertation	10

ERMA 7200	Basic Methods in Education Research	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
Select 60 Hours in @ 6000-8999		60
Total Hours		**88**

History Education — MEd (Alternative Certification)

Code	Title	Hours
Alternative Class A Education Program Checklist [3, 4, 5, 6]		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in History		12
Professional Studies: 24 hours		
CTSE 7910	Practicum in Area of Specialization	3
CTRD 6000	Language and Literacy in the Content Areas [1]	3
CTSE 7520	Curriculum and Teaching in Area of Specialization	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
RSED 6000	Advanced Survey of Exceptionality [1]	3
CTSE 6250	Seminar in Social Science Education [2]	1
CTSE 7920	Clinical Residency [2]	8
Total Hours		**36**

1 RSED 6000 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy and the 3-hour course requirement for RSED 6000 will be waived resulting in 21 hours in Professional Studies and 33 total program hours.

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

3 In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

4 Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

5 All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

6 The following undergraduate courses may be required by your advisory committee for your plan of study (CTSE 4210, CTSE 4050, CTSE 4060). This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

History Education — MEd (Certification)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be in teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in History		12
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 15 hours		
Required: 12 hours		
EDMD 7210	Integration of Technology Into Curriculum	3
CTSE 7520	Curriculum and Teaching in Area of Specialization	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
CTSE 7910	Practicum in Area of Specialization	3

Select 3 hours from the following:	**3**
Other advisor-approved supporting courses 6000 level and above [2]	
Total Hours	**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

History Education — EdS (Certification)

Code	Title	Hours
Class AA Program Checklist for Teaching Field		
Teaching Field: 12 Hours		
At least 1/3 of the program shall be teaching field courses.		
Select 12 hours of advisor-approved 6000-7000 level courses in History		12
Survey of Special Education/Diversity Course: 3 hours		**3**
RSED 6000 Advanced Survey of Exceptionality OR state-approved diversity course [1]		
Additional Courses: 15 hours		
Select 9 hours from the following:		9
CTSE 7510	Research Studies in Area of Specialization	
CTSE 7520	Curriculum and Teaching in Area of Specialization [2]	
CTSE 7530	Organization of Program in Area of Specialization	
CTSE 7540	Evaluation of Program in Area of Specialization [2]	
CTSE 7900	Directed Studies	
CTSE 7910	Practicum in Area of Specialization [3]	
CTSE 7970	Special Topics	
CTSE 8980	Field Project [3]	
Select the remaining 6 hours from the following:		6
Other advisor-approved supporting courses 6000 level and above [4]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 CTSE 7520 required if a graduate level course in Curriculum and Teaching in Social Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Social Science Education not previously completed.

3 To ensure a field experience, CTSE 7910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980 is required for those seeking the EdS degree.

4 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

History Education — PhD

Code	Title	Hours
History Education - PhD		
CTSE 7510	Research Studies in Area of Specialization	3
CTSE 7520	Curriculum and Teaching in Area of Specialization	3
CTSE 7530	Organization of Program in Area of Specialization	3
CTSE 7540	Evaluation of Program in Area of Specialization	3
CTSE 8990	Research and Dissertation	10
ERMA 7200	Basic Methods in Education Research	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
Select 60 Hours in @ 6000-8999		60
Total Hours		**88**

Teaching English for Specific Purposes — MS (Non-Certification)

(Fully On-Campus and Online Options)

Code	Title	Hours
CTSE 7000	Orientation to Teaching and Learning	1
CTSE 7800	Capstone in Teaching and Learning	2
Teaching and Learning: (Select 3 hours)		3
CTES 7430 Teaching ESL Listening and Speaking		
CTES 7440 Teaching ESL Reading and Writing		
CTES 7460	Teaching English to Speakers of Other Languages in P-12	
EDMD 7000	Instructional Design and Development	
Advisor-Approved CTES Courses: (9 hours)		9
Advisor-Approved Electives: (15 hours)		15
Total Hours: 30		

Community Music — Graduate Certificate

Community Music — Graduate Certificate (https://education.auburn.edu/curriculum-and-teaching/academic-programs/music-education/cert-community-music-graduate.php)

This graduate certificate prepares individuals to develop musical skills and learn more about using music in the classroom and community settings, such as businesses, churches, or community ensembles.

Code	Title	Hours
Community Music - GCRT		
CTMU 7000	School and Community Music	1
Select 4 Credits of the following:		4
CTMU 6110	Children's Music Learning	
CTMU 6120	School and Community General Music Education	
CTMU 6130	School and Community Instrumental Music Education	
CTMU 6140	School and Community Vocal Music Education	
Select 3 Credits of the following:		3
MUSI 7000	Graduate Choral Conducting I	
MUSI 7010	Graduate Choral Conducting II	
MUSI 7040	Graduate Instrumental Conducting I	

MUSI 7050	Graduate Instrumental Conducting II	
MUSI 7100	Choral Arranging I	
MUSI 7110	Choral Arranging II	
MUSI 7970	Special Topics in Music	
Select 6 Credits of the following:		6
CTMU 6110	Children's Music Learning	
CTMU 6120	School and Community General Music Education	
CTMU 6130	School and Community Instrumental Music Education	
CTMU 6140	School and Community Vocal Music Education	
CTMU 7510	Research Studies in Music Education	
CTMU 7520	Curriculum and Teaching in Music Education	
CTMU 7530	Organization of Program in Music Education	
CTMU 7540	Evaluation of Program in Music Education	
CTMU 7550	Applications of Technology in Music Education	
CTMU 7560	Digital Media Production for Music Education	
CTMU 7970	Special Topics	
EPSY 8410	Learning in the Social Context	
RSED 6000	Advanced Survey of Exceptionality	
Total Hours		**14**

Reading Instruction — Graduate Certificate

Reading Instruction — Graduate Certificate (https://education.auburn.edu/curriculum-and-teaching/academic-programs/reading-education/cert-reading-instruction-graduate.php)

This graduate certificate is designed to develop reading instruction abilities. The purpose of this Reading Instruction graduate certificate is to better develop students' knowledge of reading education to make them more effective teachers.

Code	Title	Hours
Reading Instruction - GCRT		
Required Courses (6 Hours)		6
CTRD 6000	Language and Literacy in the Content Areas	3
CTRD 6700	Developmental Reading K-12	3
or CTRD 6710	Literacy and Inquiry in the Content Areas: Grades 6-12	
Total Hours		**12**

Teaching English as a Second Language/Teaching English as a Foreign Language — Graduate Certificate

Teaching English as a Second Language/Teaching English as a Foreign Language — Graduate Certificate (https://education.auburn.edu/curriculum-and-teaching/academic-programs/esol/cert-tesl-tefl-graduate.php)

This graduate certificate is designed to provide knowledge and skills about teaching students who speak English as a second language. This certificate provides techniques and applicable skills to communicate the English language in an articulate and interesting manner. TESL/TEFL educators encourage students to improve their English skills through efficient instruction pertaining to listening, speaking, reading, and writing abilities.

Code	Title	Hours
TESL/TEFL Education - GCRT		
CTES 7480	Assessment in English for Speakers of Other Languages (ESOL)	3

Select 3 hours from the following:		3
CTES 7430	Teaching ESL Listening and Speaking	
CTES 7440	Teaching ESL Reading and Writing	
CTES 7490	Methods in ESL Grammar	
Select 6 hours from the following:		6
CTES 7400	Technology and Media in English for Speakers of Other Languages Education (ESOL)	
CTES 7410	Curriculum Development in ESOL Education	
CTES 7420	Applied Linguistics in Second Language Acquisition	
CTES 7430 Teaching ESL Listening and Speaking		
CTES 7440 Teaching ESL Reading and Writing		
CTES 7470	Issues in English for Speakers of Other Languages Education (ESOL)	
CTES 7490 Methods in ESL Grammar		
Other advisor approved electives		
Total Hours		**12**

Does not lead to K–12 teacher certification.

CyberSecurity Management — Graduate Certificate

Students would take the following 3 courses. The focus of this coursework is to develop managerial competencies in addressing cyber security issues within a firm. This is a non-technical degree.

Code	Title	Hours
ISMN 6730	Security and Information Assurance	3
ISMN 6740	Information Risk Analysis	3
ISMN 6750	Information Technology Auditing	3

Development Practice — MDP

With a focus on hunger, poverty, global market changes, humanitarian aid, social policy, and more, Auburn University’s MDP is the first of its kind to bring a human science and quality of life perspective to the field. Do you want to make an impact? Earning a Master of Development Practice means you will. Auburn’s MDP program will train you to think differently to create sustainable solutions to the major issues of our world. You’ll take engaging classes such as program design and social policy that will provide a practical and holistic approach to developing strategies with a global perspective.

First Year

Fall	Hours	Spring	Hours	Summer	Hours
CADS 7100 Environmental Design Theories and Applications	3	HDFS 6200 Applied Research and Evaluation Methods	3	GSHS 6920 Graduate Internship in Development Practice	1-3
NTRI 7850 Research Seminar for Master's Program	1	HUSC 6940 Study and Travel in Human Sciences	1		
GSHS 7040 Protocol for MDP Graduate Study	1	Elective[1]	3		
HDFS 6930 Society and Health	3	GSHS 7850 Research Seminar for MDP Program	1		

HDFS 7050 Research Methods for Human Development and Family Science, 8090 Qualitative Methods in the Social Sciences, ***or*** 7070 Research Literacy in Human Development and Family Science	3	GSHS 6050 Design Thinking in Global Studies in Human Sciences	3
	11		**11**

Second Year

Fall	**Hours**
GSHS 7980 Integrated Development Project	3
GSHS 7950 Applied Research in Development	1
HOSP 7500 Global Hospitality Strategy (HOSP 7500 is a fall only course)	3
Elective[1]	3
Elective[1]	1-3
	11-13

Total Hours: 34-38

[1] Electives are selected from a list provided by program advisors.

Earth System Science — Interdisciplinary PhD Program

The formal requirements for the PhD degree are the same as outlined in graduate school web page: http://bulletin.auburn.edu/thegraduateschool/doctoraldegrees/. This PhD program, due to its interdisciplinary nature, has specific course requirements as below:

Course Requirements: The interdisciplinary PhD degree, without previous graduate course work, requires successful completion of a minimum of 60 semester credit hours at the graduate level (6000-8000 level). The total 60 hours must include: 1) 7 hours of required core courses across earth system science disciplines, 2) a minimum of 10 hours of dissertation credit, and 3) additional elective course work to develop an academic focus with the approval of the faculty adviser and dissertation committee. The maximum number of directed-study credits that may be applied toward the degree is six (6) units. The total number of credit hours of previous graduate course or thesis work may be transferred toward the PhD degree must be less than 50 percent of the credit hours listed on the Plan of Study. A maximum of four hours of Master thesis credit may be transferred and counted toward PhD course requirement. Required core courses (7 hours) include:

1. Earth System Science and Global Change (3 hours)
2. Earth System Observation and Analysis (3 hours)
3. Earth System Science Seminar (1 hour)

The Interdisciplinary PhD Program in Earth System Science (ESS)

The interdisciplinary graduate PhD degree program in Earth System Science is based on the integration of scientific disciplines from five participating colleges and 10 academic departments at Auburn University, providing for a curriculum of unusual richness and breadth. The earth system science involves the linkage of the physical, chemical, and biological, and social sciences to understanding the interactions of Earth-system processes and humans. Our program offers an effective way to train the next-generation professionals in the areas of Earth and Environmental Sciences.

Affiliated Colleges and Programs

College of Sciences and Mathematics (http://www.auburn.edu/cosam/)
College of Forestry, Wildlife and Environment (http://sfws.auburn.edu/)
College of Agriculture (http://agriculture.auburn.edu/)

College of Engineering (http://www.eng.auburn.edu/)
College of Liberal Arts (http://www.cla.auburn.edu/cla/)
International Center for Climate and Global Change Research (http://wp.auburn.edu/cgc/)

Research Opportunities and Laboratory Facilities

Students will be engaged in all aspects of research and mentored by strong cross-disciplinary faculty group, including faculty hires from the CHESS (http://wp.auburn.edu/cgc/) (Climate, Human, and Earth System Science) cluster initiatives. Students can choose among various areas of academic specialization (e.g., climate and earth systems, geological sciences and energy, environmental biogeochemistry, water resources and hydrology, coastal processes, ecosystem and food security, coupled natural and human systems, geospatial sciences, big data science, etc.). Laboratory and coursework provide students with a multidisciplinary background that will enable them to conduct state-of-the art research in earth system science. Auburn's state-of-the-art analytical and computational facilities and labs are available to all students in the PhD program.

Department of Geosciences, Research, Instrumentation, and Facilities (https://www.auburn.edu/cosam/departments/geosciences/research_instrument/instrument_fac.htm)
Auburn Allied Facilities (http://www.auburn.edu/academic/pharmacy/research/aurif.html)

Affiliated Faculty for the Program

College of Sciences and Mathematics (http://www.auburn.edu/cosam/)

Department of Biological Sciences (http://www.auburn.edu/cosam/departments/biology/)

- Aaron Rashotte

Department of Geosciences (http://www.auburn.edu/cosam/departments/geosciences/)

- Laura Bilenker, Brian Boston, Philip Chaney, Tom Cullen, Raphael Gottardi, Bill Hames, David King, Ming-Kuo Lee, Luke Marzen, Karen McNeal, Chandana Mitra, Jake Nelson, Ann Ojeda, Stephanie Rogers, Stephanie Shepherd, Ashraf Uddin, Richard Vachula, Lorraine Wolf, Haibo Zou,

Department of Mathematics and Statistics (http://www.auburn.edu/academic/cosam/departments/math/)

- Ash Abebe, Nedret Billor, Jingyi (Ginny) Zheng

College of Forestry, Wildlife and Environment (https://cfwe.auburn.edu/)

- Li An, Christopher Anderson, Georgios Arseniou, Aniruddha Belsare, Matthew Jurjonas, Latif Kalin, Sanjiv Kumar, Christopher Lepczyk, Wayde Morse, Lana Narine, Ajay Sharma, Zutao Yang

Samuel Ginn College of Engineering (https://www.eng.auburn.edu/)

Department of Civil Engineering (http://eng.auburn.edu/civil/)

- Xing Fang, Frances O'Donnell, Jose Vasconcelos

Department of Computer Science and Software Engineering (https://www.eng.auburn.edu/comp/)

- Wei-Shinn Ku

College of Agriculture (http://agriculture.auburn.edu/)

Department of Agricultural Economics and Rural Sociology (https://aers.auburn.edu/)

- Ruiqing Miao, Denis Nadolnyak

Department of Animal Sciences (https://ansc.auburn.edu/)

- Paul Dyce

Department of Biosystems Engineering (https://bsen.auburn.edu/)

- Sushil Adhikar, William Batchelor, Puneet Srivastava

Department of Crop, Soil and Environmental Sciences (https://cses.auburn.edu/)

- Charles Y. Chen, Yucheng Feng, Branda Ortiz, Di Tian, Matthew Waters

Department of Entomology and Plant Pathology (https://enpp.auburn.edu/)

- Nannan Liu

School of Fisheries, Aquaculture and Aquatic Sciences (https://sfaas.auburn.edu/)

- Dennis DeVries

College of Liberal Arts (http://www.cla.auburn.edu/cla/)

Department of Sociology, Anthropology, and Social Work (http://www.cla.auburn.edu/sociology/anthropology/)

- Cynthia Bowling

Auburn University Montgomery (http://www.aum.edu/)

Department of Biology and Environmental Sciences (https://www.aum.edu/collegeofsciences/departments/biology/)

- Benedict Okeke

Ph.D. Program Contact Information

- Dr. Edward Thomas, Dean, College of Sciences and Mathematics, etjr@physics.auburn.edu, 334-844-4126
- Dr. Ming-Kuo Lee, Professor of Geosciences, leeming@auburn.edu (leeming@auburn.edu?subject=Interdisciplinary%20PhD%20Program%20in%20Earth%20System%20Science), 334-844-4898

Economic Development — Graduate Certificate

The Graduate Certificate in Economic Development provides a specialization in the theories and practice of economic development, primarily within the U.S and Alabama. It is an interdisciplinary graduate certificate offered by the faculty of participating departments (Public Administration, Community Planning, and Agricultural Economics and Rural Sociology) and is administered by the Master of Public Administration program.

Students may pursue the Graduate Certificate in Economic Development as a degree-seeking or non-degree seeking student. To earn the graduate minor, students must complete the program's basic course, Economic Development and Competition (POLI 7700/7706), three elective courses selected from an approved list, and a one-week non-credit intensive economic development training course sponsored by the Government and Economic Development Institute (GEDI). The Auburn Intensive Economic Development Course is accredited by the International Economic Development Council (IEDC). Since its inception, this program has produced 1,300 alumni, 70% of whom have had jobs in community economic development. GEDI will be an active partner with the MPA program, linking the program to its extensive network of economic development practitioners throughout Alabama.

Code	Title	Hours
POLI 7700	**Economic Development and Competition**	**3**
Economic Development Seminar by GEDI		
Choose any 3 the following courses:		9
POLI 6150	Intergovernmental Relations and Federalism	
POLI 7140	Financial Management for Public and Nonprofit Organizations	
POLI 7330	Seminar in Administrative Leadership, Responsibility, and Democratic Government	
POLI 7520	Program Evaluation	
POLI 7920	MPA Internship	3-6
CPLN 6050	Land and Urban Economics	
CPLN 6090	Community Development	
CPLN 6460	Geographic Information Systems for Planning and Policy	
AGEC 7110	Agricultural Economic Development	
RSOC 6610	Rural Sociology	
RSOC 6650	Sociology of Natural Resources and the Environment	
RSOC 7620	Sociology of Community	
RSOC 7630	Political Economy of Development	

Economics — MS

The Department of Economics offers the Master of Science in Economics and a PhD track that is described elsewhere. The MS is an academic degree preparing students for careers in business, government, and academia.

More information about the MS in economics is available at https://cla.auburn.edu/economics/.

Admission Requirements for the MS in Economics

Applicants for the MS in economics must have a bachelor's degree or its equivalent from an accredited college or university. A minimum of 18 semester hours of economics and the completion of a calculus sequence are also needed to enter the program. The General Test of the GRE is required. A minimum score of 153 (or 500 on the old GRE scale) on the Verbal GRE portion and a minimum score of 148 (or 600 on the old GRE scale) on the Quantitative GRE portion are required. The graduate committee will evaluate applicants based on their undergraduate records, GRE scores, and letters of recommendation.

Applicants should ensure that the following materials are submitted to the Graduate School web application (https://graduate.auburn.edu/):

- Official scores from the General Test of the GRE
- Official transcripts from every undergraduate institution attended
- Official TOEFL scores for international students

They should ensure that the following materials are submitted to the graduate program officer in the Department of Economics:

- Three letters of recommendation
- Statement of purpose

For applicants to be given full consideration for financial support, a completed application and supporting documents should be received by March 1. Admission and funding decisions will begin shortly thereafter. Later applications will be considered, but decisions will be contingent upon availability.

Graduation Requirements

Students must complete a total of 30 credit hours of course work, including required courses and electives, and comprehensive examinations. No thesis is required for the MS.

Required Core Courses

Masters students are required to complete the following nine core courses. Transferring credit hours from other peer institutions is allowed only in exceptional cases.

First Year			
Fall	**Hours**	**Spring**	**Hours**
ECON 7110 Microeconomics I	3	ECON 7120 Microeconomics II	3
ECON 7130 Mathematical Economics	3	ECON 7210 Macroeconomics I	3
ECON 7310 Econometrics I	3	ECON 7320 Econometrics II	3
Second Year			
Fall	**Hours**		
ECON 7220 Macroeconomics II	3		
ECON 7330 Microeconometrics	3		
ECON 7340 Macroeconometrics	3		

Electives

Students must take 3 hours of electives at the 6000-level or above in consultation with the Director of Graduate Studies. The core curriculum and the electives combine for a minimum of 30 total semester hours.

Comprehensive Examinations

Students must achieve satisfactory (MS level pass) on 3 comprehensive examinations in microeconomics, macroeconomics, and econometrics. Only one retake is permitted on each exam. Please note that there is no thesis required.

Financial Aid

Financial aid, usually in the form of graduate teaching assistantships is available on a competitive basis for PhD students in good academic standing. Funding normally consists of a tuition waiver and monthly stipend.

Applied Economics (Forestry) — PhD

PhD in Applied Economics is administered jointly by the Department of Economics, the Department of Agricultural Economics and Rural Sociology, and the College of Forestry, Wildlife and Environment (CFWE). Forestry students in this program will take core courses in microeconomics, macroeconomics, and econometrics in the Department of Economics and pass written preliminary exams given there. An additional oral examination is required in the CFWE for admission to candidacy. The minimum number of hours in this doctoral program is 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (7000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990 and must include at least 10 hours of 8990. As with all other PhD students in the CFWE, students are required to take Research Methods (FORY 7510) and Seminar (FOWS 7950). Dissertation work under this degree program generally involves in-depth economic analysis of a forestry/natural resources/environment issue or problem.

Code	Title	Hours
Applied Economics Forestry (PhD)		
FORY 7510	Research Methods	2
FOWS 7950	Graduate Seminar	1
FORY 8990	Research and Dissertation	10
Select 37 Credits in @ 6000-8999 (Electives)		37
Select 10 Credits in FORY 6000-8999		10
Total Hours		**60**

Applied Economics (Liberal Arts) — PhD

The PhD in Applied Economics is offered jointly by the Department of Economics, the Department of Agricultural Economics and Rural Sociology, and the College of Forestry, Wildlife and Environment. The PhD track described below is offered in the Department of Economics, which also offers an MS in Economics described elsewhere.

More information about the PhD track offered in the Department of Economics is available at http://www.cla.auburn.edu/economics/.

Admission Requirements

Applicants for the PhD track in Applied Economics offered through the Department of Economics must have a bachelor's degree or its equivalent from an accredited college or university. A minimum of 18 semester hours of economics and the completion of a calculus sequence are also needed to enter the program. The General Test of the GRE is required. A minimum score of 153 (or 500 on the old GRE scale) on the Verbal GRE portion and a minimum score of 148 (or 600 on the old GRE scale) on the Quantitative GRE portion are required. The graduate committee will evaluate applicants based on their undergraduate records, GRE scores, and letters of recommendation.

Applicants should ensure that the following materials are submitted to the Graduate School web application at https://graduate.auburn.edu/:

- Official scores from the General Test of the GRE
- Official transcripts from every undergraduate institution attended
- Official TOEFL scores for international students

They should ensure that the following materials are submitted to the graduate program officer in the Department of Economics:

- Three letters of recommendation
- Statement of purpose

For applicants to be given full consideration for financial support, a completed application and supporting documents should be received by March 1. Admission and funding decisions will begin shortly thereafter. Later applications will be considered, but decisions will be contingent upon availability.

Graduation Requirements

Students must complete a minimum of 60 semester hours of course work at the 7000-level or above. Any course work outside of the Department of Economics must be approved by the director of graduate studies. As part of their 60 credit hours, students complete the required courses listed below. They must also pass comprehensive exams in three areas and complete course work in two advanced fields. Finally, students must write and successfully defend a dissertation.

Core Curriculum

First Year			
Fall	**Hours**	**Spring**	**Hours**
ECON 7110 Microeconomics I	3	ECON 7120 Microeconomics II	3
ECON 7130 Mathematical Economics	3	ECON 7210 Macroeconomics I	3
ECON 7310 Econometrics I	3	ECON 7320 Econometrics II	3
Second Year			
Fall	**Hours**		
ECON 7220 Macroeconomics II	3		
ECON 7330 Microeconometrics	3		
ECON 7340 Macroeconometrics	3		

Program Requirements

Code	Title	Hours
ECON 7110	Microeconomics I	3
ECON 7120	Microeconomics II	3
ECON 7130	Mathematical Economics	3
ECON 7210	Macroeconomics I	3
ECON 7220	Macroeconomics II	3
ECON 7310	Econometrics I	3
ECON 7320	Econometrics II	3
ECON 7330	Microeconometrics	3
ECON 7340	Macroeconometrics	3
ECON Elective at 8000 level		12
ECON 8990	Research and Dissertation	10
ECON 7000 or higher level		11
Total Hours		**60**

Comprehensive Examination

Students must achieve satisfactory performance (Ph.D. level pass) on three comprehensive (preliminary) examinations in microeconomics, macroeconomics, and econometrics. Only one retake is permitted on each exam. Students are graded separately on each exam. All students enrolled in the Ph.D. program MUST pass all three preliminary examinations by the end of the second December after their initial three semesters in the program.

Completion of Two Advanced Fields

Students must complete the coursework and pass a written examination in two advanced fields. Field coursework consists of a minimum two course sequence and must be approved in advance by the director of graduate studies.

Candidacy

Students will be admitted to candidacy after completing two advanced fields, forming a dissertation committee, and successfully passing a general oral examination (dissertation proposal). The oral examination is normally taken during the third year and requires approval by the Graduate School at least one week prior. Upon successful completion of the proposal, the student becomes a candidate for the Ph.D. degree and has four calendar years to complete remaining requirements.

Dissertation and Oral Defense

Students must write a dissertation and pass an oral defense. Students must register for at least 10 semester hours of dissertation research (ECON 8990).

Financial Aid

Financial aid, usually in the form of graduate teaching assistantships, is available on a competitive basis for PhD students in good academic standing. Funding normally consists of a tuition waiver and monthly stipend.

Ecosystems Engineering — Graduate Certificate

The Graduate Certificate in Ecosystems Engineering provides a specialization in the application of ecological and biological principles to solve complex engineering problems in natural and man-made systems. Because of this, the program is inter-disciplinary in nature.

This graduate certificate program is designed for individuals holding baccalaureate degrees in engineering or appropriate science fields with an interest in ecological and natural system problem solving. Students can complete the certificate program in one academic year (fall and spring semesters) by passing four of the courses listed below (total of 12 credit hours), and attending (in-person) all required one-week labs for each course.

The mission of the Department of Biosystems Engineering is to develop and disseminate engineering knowledge to solve problems in agriculture, food, forestry, bioenergy and bioproducts, natural resources, and the environment. This mission is crucial to the overall mandate of Auburn University (the 1862 land-grant university for Alabama) that includes service to the citizens of the state of Alabama through instruction, research and outreach programs and preparing Alabamians to respond successfully to the challenges of a global economy. Increases in water needs and food supplies because of the projected world population of over 9 billion by 2050 will occur at the expense of forest, grassland and aquatic ecosystems. The biosystems engineering department has a 100 year history of developing engineering-based sustainable solutions to address ecosystems engineering issues such as engineering for watershed protection, improvement of water quality by managing and modeling non-point source pollution, design of biological waste treatment and reuse systems, practices for sustainable land development and restoration, etc., all of which are based on a combined knowledge of engineering and biological and ecological principles. Graduates from this program will be competent in restoring ecosystems that have been substantially disturbed by anthropogenic activities, and also be able to develop new sustainable ecosystems that have human and ecological value.

Educational Foundations, Leadership and Technology — Graduate Certificates, MEd, MS, EdS, PhD, Minor

Degree Programs

- Administration of Elementary and Secondary Education — MEd, PhD (p. 1643)
- Administration of Higher Education — MEd, PhD (p. 1645)
- Administration of Supervision and Curriculum — MEd, PhD, EdS (p. 1647)
- Adult Education — MS, MEd, PhD, EdS (p. 1648)
- Educational Psychology — PhD (p. 1651)
- Educational Research, Measurement, and Evaluation — MS (p. 1651)

Graduate Certificates

- Adult Education and English Language Teaching (p. 1649)
- College/University Teaching (p. 1649)
- Educational Leadership (p. 1650)
- Extension Educator (p. 1650)
- Instructional Leadership (p. 1652)
- Instructional Technology for Distance Education (p. 1652)
- Program Evaluation (p. 1653)
- Technology Educator (p. 1653)
- Workforce Education, Training, and Development (p. 1654)

Minors

- Critical Studies in Education (p. 1650)
- Psychology of Learning (p. 1800)
- Sport Management (p. 1699)

The Department of Educational Foundations, Leadership and Technology offers degree programs, graduate certificates, and minors. Degree programs lead to a Master's of Education (non-thesis option), Master's of Science (thesis option), Education Specialist, or Doctor of Philosophy. Graduate degrees are available in the areas of administration of elementary and secondary education; administration of higher education; administration of supervision and curriculum; adult education; educational research, measurement, and evaluation; and educational psychology. The graduate certification program in administration of elementary and secondary education (instructional leadership) is approved by the Alabama State Board of Education (ALSBE). The College of Education is accredited by the Council for the Accreditation of Education Preparation (CAEP).

Applicants to the department's graduate programs must satisfy the Graduate School's admission requirements. Departmental admission requirements include a degree from an accredited college or university, a GPA of at least a 2.75 on undergraduate coursework, a statement of intent, three recommendations, and any remaining admission requirements as identified by the program or department.

Master's Degree Programs (MEd/MS)

Master's degree programs are offered in administration of elementary and secondary education; administration of higher education; administration of supervision and curriculum; adult education; and educational research, measurement, and evaluation. All programs require a minimum of 30 semester hours, an internship and/or practicum, and a comprehensive examination.

The M.Ed. in administration of elementary and secondary education leads to Alabama Class A certification. Admission requirements established by the Alabama State Board of Education, including those pertaining to a clear background check, prior certification, and teaching experience, must be satisfied prior to admission to this program. Degree requirements are in compliance with State regulations. Graduation requirements include a passing score on the appropriate Praxis II subject assessment.

In accordance with State regulations, a minimum GPA of 3.25 is required on all courses used to meet master's-level certification program requirements.

Specialist in Education Degree Programs (EdS)

Degree requirements are in compliance with State regulations. Graduation requirements include a passing score on the appropriate Praxis II subject assessment. The Ed.S. program in administration of elementary and secondary education leads to Alabama Class AA certification. Admission requirements established by the Alabama State Board of Education, including those pertaining to a clear background check, prior certification, and teaching experience, must be satisfied prior to admission to one of these programs. Degree requirements are in compliance with State regulations.

In accordance with State regulations, a minimum GPA of 3.50 is required on all courses used to meet specialist-level certification program requirements.

Master's and Specialist-Level Certification

Individuals completing State-approved Master's-level certification programs are eligible to apply for Alabama Class A certification; individuals completing State-approved specialist-level certification programs are eligible to apply for Alabama Class AA certification.

Individuals seeking certification in states other than Alabama are responsible for contacting those state certification offices to obtain their application form and requirements. The State of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of program graduates when they apply for certification in other states. *Note: Some state may not accept Instructional Leadership certificates from other states. Students should check with the state in which they are seeking certification to determine if pursuing an approved program at Auburn will result in reciprocity for instructional leadership*.

Doctor of Philosophy Degree Programs (PhD)

PhD programs require a minimum of 60 semester hours beyond the bachelor's degree. Research methods, statistics, and foundations of education are components of all doctoral programs. The department offers a doctorate in the areas of administration of elementary and secondary education, administration of higher education, administration of supervision and curriculum, adult education, and educational psychology. After satisfactory completion of coursework and a general written and oral examination, the student advances to candidacy. Doctoral students must register for at least 10 hours of dissertation credit while completing a dissertation.

Minor and Graduate Certificates

The Department of Educational Foundations, Leadership and Technology offers graduate minors in psychology of learning, sport management and critical studies in education. Graduate certificates are offered in adult education, college/university teaching, educational leadership, extension educator, instructional leadership, technology educator, instructional technology for distance education, program evaluation, and workforce education, training, and development. In addition, the department in collaboration with the Department of Curriculum and Teaching offers a graduate certificate in adult education and English language teaching.

Additional Information

Detailed admission and program requirements for the department's multiple areas of graduate study are available on the College of Education's website, Academics (https://education.auburn.edu/academic-programs/). The University schedule of courses is available on the Auburn University website.

Administration of Elementary and Secondary Education — MEd, EdS, PhD

Administration of Elementary and Secondary Education — MEd (https://education.auburn.edu/eflt/academic-programs/educational-leadership/med-aes.php), EdS (https://education.auburn.edu/eflt/academic-programs/educational-leadership/eds-aes.php), PhD (https://education.auburn.edu/eflt/academic-programs/educational-leadership/phd-aes.php)

Code	Title	Hours
Class A Program Checklist for Instructional Leadership		
Instructional Leadership Courses: 30 hours		
EDLD 7210	Multiprofessional Leadership for Equity [1]	3
EDLD 7500	Principal Leadership	3
EDLD 7510	Action Research and Data Analysis	3
EDLD 7520	Leadership and the Learning Organization	3
EDLD 7530	Planning and Continuous Improvement	3
EDLD 7540	Instructional and Curricular Leadership	3
EDLD 7550	Educational Finance and Resource Management	3
EDLD 7570	Legal and Ethical Issues	3
EDLD 7580	Supervision and Personnel Issues in Education	3
Survey of Special Education / Diversity Course 1		
Internship: 3 hours		
EDLD 7930	Administrative Internship/Residency	3
Total Hours		**30**

1 EDLD 7210 Multiprofessional Leadership for Equity fulfills the state diversity course requirement. However, if a survey of special education course was not completed for prior level certification, RSED 6000 Advanced Survey of Exceptionality (3 hours) must be completed resulting in 36 total program hours.

* In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
An applicant for certification in instructional Leadership who holds Class A certification in another teaching field or area of instructional support must take all courses indicated above that were not required for certification in another program at the Class A level.
Individuals must be unconditionally admitted to the Class A Instructional Leadership program before enrolling in any instructional leadership courses in the program.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Code	Title	Hours
Administration of Elementary and Secondary Education - EdS (Certification, Online Option Available)		
Class AA Program Checklist For Instructional Support Personnel		
Instructional Support Area: 27 hours [1]		
EDLD 8260	Theory and Development of Organizations	3
EDLD 8270	Leadership in Finance and Management	3
EDLD 8310	Leadership in the Development and Application of Curriculum and Theory Design	3
EDLD 8400	Ethics for Leaders	3
RSED 7410	Program Implementation in Specialization Autism (Leadership) [2]	3
EDLD 8240	Trends and Issues in Educational Administration	3
EDLD 8220	Personal and Professional Development	3
EDLD 8980	Project Analysis	3
Survey of Special Education/Diversity Course		
See RSED 6000 in Additional Courses AND RSED 7410 in Instructional Support Area		
Additional Courses: 6 hours		
Select 6 hours of advisor-approved supporting courses. At least 3 hours must be outside of Educational Leadership (EDLD).		6
RSED 6000	Advanced Survey of Exceptionality [2]	
Other advisor-approved supporting courses [3]		
Total Hours		**30**

1 If EDLD 7910 Practicum (1 hour) must be completed to meet state admission requirements, 28 hours is required in the Instructional Support Area resulting in 34 total program hours.

2 RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with RSED 7410 Program Implementation in Specialization Autism.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

* In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Individuals must be unconditionally admitted to the Class AA instructional leadership program before enrolling in any leadership courses in the program.
Course used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Code	Title	Hours
Administration of Elementary and Secondary Education - PhD		
EDLD 8950	Seminar (I)	3
EDLD 8950	Seminar (II)	3

EDLD 8990	Research and Dissertation	10
Select 48 Credits in @ 6000-8999		48
Total Hours		**64**

Administration of Higher Education — MEd, PhD

Administration of Higher Education — MEd (https://education.auburn.edu/eflt/academic-programs/higher-education-administration/med-higher-education.php), PhD (https://education.auburn.edu/eflt/academic-programs/higher-education-administration/phd-higher-education.php)

The M.Ed. program in Higher Education Administration is designed primarily for working professionals and researchers to provide a strong background in five domains: leadership, ethics, diversity, research, and policy.

Code	Title	Hours
Administration of Higher Education - MEd		
Core Courses (18 credit hours)		**18**
HIED 7210	Leadership in Higher Education	
HIED 7250	College Student Development	
HIED 7270	Overview of Postsecondary Education	
HIED 7920	Internship	
HIED 8200	Assessment and Evaluation in Higher Education	
HIED 7230	Student Services Administration Postsecondary Education	
Elective Courses (12 credit hours)		**12**
HIED 7200	Organizational Issues in Higher Education	
HIED 7220	Higher Education Management	
HIED 7240	Legal Issues in Higher Education	
HIED 7260	Counseling and Advising in Higher Education	
HIED 7400	Sport Marketing and Public Relations [3]	
HIED 7410	Sport Ethics [3]	
HIED 7900	Directed Studies	
HIED 7910	Practicum [2]	
HIED 7970	Special Topics	
HIED 8230	Planning and Budgeting in Higher Education	
HIED 8270	Financial Management in Higher Education	
HIED 8480	Institutional Research in Higher Education	
HIED 8500	The Professoriate [2]	
HIED 8510	Seminar in College Teaching [2]	
HIED 8950	Seminar	
EDMD 7000	Instructional Design and Development [1]	
EDMD 7020	Principles of Graphic Design for Instruction [1]	
EDMD 7200	Applied Instructional Design [1]	
EDMD 7230	Theory and Practice of Distance Education [1]	
EDMD 7300	Research in Instructional Technology [1]	
or EDMD 7970	Special Topics in Instructional Technology	
Research Method Courses (3 credit hours)		**3**
ERMA 7200, ERMA 6000-8999 [3]		
Total Hours		**33**

[1] See Instructional Technology for Distance Education graduate certificate for more information.

[2] See College and University Teaching graduate certificate for more information.
[3] ERMA 7200 or other advisor approved ERMA research methods course.

The Ph.D. program in Higher Education Administration is designed primarily for working professionals and researchers to provide a strong background in five domains: leadership, ethics, diversity, research, and policy.

Code	Title	Hours
Administration of Higher Education - PhD		
Core Course (18 credit hours)		**18**
HIED 8950	Seminar	
HIED 7200	Organizational Issues in Higher Education	
HIED 7210	Leadership in Higher Education	
HIED 7270	Overview of Postsecondary Education	
HIED 7920	Internship	
HIED 8200	Assessment and Evaluation in Higher Education	
Research Method Courses (18 credit hours)		**18**
HIED 7910	Practicum	
ERMA 7210	Theory and Methodology of Qualitative Research	
ERMA 7220	Applied Qualitative Research	
ERMA 7300	Design and Analysis in Education I	
Research & Methods Course 1 [1]		
Research & Methods Course 2 [1]		
Elective Courses (24 credit hours)		**24**
Upon submission of advisor approval to the Graduate School, up to 9 credit hours of elective courses may be satisfied through transfer credit. [3]		
HIED 7220	Higher Education Management	
HIED 7230	Student Services Administration Postsecondary Education	
HIED 7240	Legal Issues in Higher Education	
HIED 7250	College Student Development	
HIED 7260	Counseling and Advising in Higher Education	
HIED 7400	Sport Marketing and Public Relations [5]	
HIED 7410	Sport Ethics [5]	
HIED 7900	Directed Studies	
HIED 7970	Special Topics	
HIED 8230	Planning and Budgeting in Higher Education	
HIED 8270	Financial Management in Higher Education	
HIED 8480	Institutional Research in Higher Education	
HIED 8500	The Professoriate [4]	
HIED 8510	Seminar in College Teaching [4]	
EDMD 7000	Instructional Design and Development [2, 4]	
EDMD 7020	Principles of Graphic Design for Instruction [2, 4]	
EDMD 7200	Applied Instructional Design [2, 4]	
EDMD 7230	Theory and Practice of Distance Education [2, 4]	
EDMD 7300	Research in Instructional Technology [2, 4]	
or EDMD 7970	Special Topics in Instructional Technology	
Research & Dissertation (10 credit hours)		**10**
HIED 8990	Research and Dissertation	
Total Hours		**70**

1 Must be taken at Auburn University.
2 See Instructional Technology for Distance Education graduate certificate for more information.
3 Must have advisor approval on file with Graduate School.
4 See College and University Teaching graduate certificate for more information.
5 See sports management graduate minor for more information.

Administration of Supervision and Curriculum — MEd, PhD

Administration of Supervision and Curriculum — MEd (https://education.auburn.edu/eflt/academic-programs/educational-leadership/med-asc.php), PhD (https://education.auburn.edu/eflt/academic-programs/educational-leadership/phd-asc.php)

Code	Title	Hours
Administration of Supervision and Curriculum - MEd		
EDLD 7210	Multiprofessional Leadership for Equity	3
EDLD 7540	Instructional and Curricular Leadership	3
EDLD 8300	Curriculum Theory and Practice	3
EDLD 7510	Action Research and Data Analysis	3
EDLD 7500	Principal Leadership	3
EDLD 7550	Educational Finance and Resource Management	3
EDMD 7210	Integration of Technology Into Curriculum	3
Select 12 Credits in 6000-8999		12
Total Hours		**33**

Code	Title	Hours
Administration of Supervision and Curriculum - PhD		
EDLD 8200	Assessment and Evaluation in Learning Organizations	3
EDLD 8210	Educational Leadership: Theory and Practice	3
EDLD 8220	Personal and Professional Development	3
EDLD 8250	Organizational Power, Politics and Policy Formation	3
EDLD 8260	Theory and Development of Organizations	3
EDLD 8300	Curriculum Theory and Practice	3
EDLD 8310	Leadership in the Development and Application of Curriculum and Theory Design	3
EDLD 8400	Ethics for Leaders	3
EDLD 8950	Seminar (I)	3
EDLD 8950	Seminar (II)	3
EDLD 8990	Research and Dissertation	10
Select 24 Credits in @ 6000-8999		24
Total Hours		**64**

Adult Education — MEd/MS, EdS, PhD

Adult Education — MEd (https://education.auburn.edu/eflt/academic-programs/adult-education/med-adult-education.php)/MS (https://education.auburn.edu/eflt/academic-programs/adult-education/ms-adult-education.php), EdS (https://education.auburn.edu/eflt/academic-programs/adult-education/eds-adult-education.php), PhD (https://education.auburn.edu/eflt/academic-programs/adult-education/phd-adult-education.php)

Adult Education — MS

Code	Title	Hours
Adult Education - MS (thesis)		
ADED 7920	Internship	3
ADED 7910	Practicum	3
ADED 7990	Research and Thesis	6
Select 24 Credits in @ 6000-8999		24
Total Hours		**36**

Adult Education —MEd

Code	Title	Hours
Adult Education - MEd (Online Option Available)		
ADED 7920	Internship	3
ADED 7910	Practicum	3
Select 24 Credits in @ 6000-8999		24
Total Hours		**30**

Adult Education — EdS

Code	Title	Hours
Adult Education - EdS (Online Option Available)		
ADED 8980	Field Project	6
Select 24 Credits in @ 6000-8999		24
Total Hours		**30**

Adult Education — PhD

Code	Title	Hours
Adult Education - PhD		
ADED 8990	Research and Dissertation	10
Select 80 Credits in @ 6000-8999		80
Total Hours		**90**

Adult Education and English Language Teaching — Graduate Certificate

Adult Education and English Language Teaching — Graduate Certificate (https://education.auburn.edu/eflt/academic-programs/adult-education/certificates-adult-education.php)

Code	Title	Hours
Adult Education and English Language Teaching - GCRT		
ADED 7600	Nature of Adult Education	3
ADED 7650	Teaching Diverse Populations in Adult Education	3
Select 6 Credit of the following:		6
CTES 7420	Applied Linguistics in Second Language Acquisition	
CTES 7460	Teaching English to Speakers of Other Languages in P-12	
CTES 7470	Issues in English for Speakers of Other Languages Education (ESOL)	
CTES 7480	Assessment in English for Speakers of Other Languages (ESOL)	
Total Hours		**12**

College/University Teaching — Graduate Certificate

College/University Teaching — Graduate Certificate (https://education.auburn.edu/eflt/academic-programs/higher-education-administration/certificate-college-university-teaching.php)

This graduate certificate prepares individuals to teach at the college or university level and provides an understanding of the professoriate roles as well as application-oriented experiences in the teaching field.

Code	Title	Hours
College/University Teaching - GCRT		
HIED 7910	Practicum	3
HIED 8500	The Professoriate *	3
HIED 8510	Seminar in College Teaching *	3
Select 3 credits in the following:		3
ADED 7650	Teaching Diverse Populations in Adult Education	
ADED 7970	Special Topics	
ADED 8970	Special Topics	
EDLD 8300	Curriculum Theory and Practice	
EPSY 7400	Ed Psych & Educational Implica	
EPSY 7410	The Individual in the Teaching-Learning Process	
EPSY 7420	Learning Theory and Educational Practice	
FOUN 7020	Social and Cultural Diversity in American Education	
GRAD 8940	Preparing Future Faculty Seminar I	
GRAD 8950	Preparing Future Faculty Seminar II	
Other related course(s) as approved by certificate coordinator		
Total Hours		**12**

* Required unless credit was earned for the EDLD equivalent.

Critical Studies in Education

The purpose of the critical studies minor is to provide students in this program with opportunities to explore and apply critical theories as they relate to schooling, teaching and learning, and educational research. This critical analysis of education is centered on understanding cultural, institutional, and structural dynamics that create and perpetuate injustice, inequity, and oppression in education and schooling. Students will enact educational praxis that opens, and develops, and sustains critical consciousness around inequity, injustice, and oppression and supports those becoming critically conscious.

Code	Title	Hours
For this minor, students will complete 3 graduate credit hours from the following:		3
FOUN 7000	Cultural Foundations of Education	
FOUN 7010	History of American Education	
FOUN 7020	Social and Cultural Diversity in American Education	
FOUN 7030	Philosophy and Education	
FOUN 7040	Philosophy and Educational Research	
FOUN 7050	Global Perspectives on Education	
FOUN 8010	Global Perspectives on Education	
Students will complete 9 hours of coordinator-approved elective credits. A list of approved elective courses is available from the program coordinator each semester before registration begins.		9
Total Hours		**12**

Extension Educator — Graduate Certificate

Extension Educator — Graduate Certificate (https://education.auburn.edu/eflt/academic-programs/adult-education/certificates-adult-education.php)

Code	Title	Hours
Extension Educator - GCRT		
ADED 7600	Nature of Adult Education	3
ADED 7650	Teaching Diverse Populations in Adult Education	3
ADED 7910	Practicum	3
RSOC 6410	Extension Programs and Methods	3
or ADED 7670	Adult Education in Cooperative Extension	
Select 3 Credits in @ 6000-8999 (Elective)		3
Total Hours		**15**

Educational Leadership — Graduate Certificate

Educational Leadership — Graduate Certificate

This graduate certificate academically prepares individuals that are interested in becoming a leader or administrator in a K-12 school setting and requires an Alabama Class A certificate in a teaching field.

Code	Title	Hours
Educational Leadership - GCRT		
EDLD 7210	Multiprofessional Leadership for Equity	3
EDLD 8220	Personal and Professional Development	3
EDLD 8400	Ethics for Leaders	3
EDLD 8940	Directed Field Experience in Educational Leadership	3
Select one of the following:		3
EDLD 8240	Trends and Issues in Educational Administration	

3 Credits in @ 6000-8999	
Total Hours	**15**

Educational Psychology — PhD

Educational Psychology — PhD (https://education.auburn.edu/eflt/academic-programs/educational-psychology/phd-epsy.php)

Code	Title	Hours
Core Required Courses		
EPSY 7400	Ed Psych & Educational Implica	3
EPSY 7410	The Individual in the Teaching-Learning Process	3
EPSY 7420	Learning Theory and Educational Practice	3
EPSY 7430	Motivation and Achievement	3
EPSY 8440	Ed Psych Apprent Seminar	3
EPSY 8540	Educational Psychology Research Apprenticeship Seminar	3
EPSY 8640	Educational Psychology Learning and Instruction Apprenticeship Seminar	3
ERMA 7100	Advanced Study of Educational Measurement and Evaluation	3
or ERMA 8350	Advanced Measurement Theory	
ERMA 7200	Basic Methods in Education Research	3
ERMA 7210	Theory and Methodology of Qualitative Research	3
ERMA 7220	Applied Qualitative Research	3
ERMA 7300	Design and Analysis in Education I	3
ERMA 7310	Design and Analysis in Education II	3
Select 3 credits of ERMA 6000-8999 in advisor-approved advanced methods courses		3
Elective Courses		
Select 12 Credits in ERMA, EPSY, or FOUN 6000-8999; Must include at least 3 Credits in FOUN		12
Cognate Courses		
Select 15 advisor-approved Credits in 6000-8999		15
Dissertation Hours		
Select 10 Credits in the following:		10
EPSY 8990	Research and Dissertation	
ERMA 8990	Research and Dissertation	
FOUN 8990	Research and Dissertation	
Total Hours		**79**

Educational Research, Measurement, and Evaluation — MS

The program will provide diversified research methods, measurement, and evaluation education for those seeking research and evaluation positions in K-12 school systems, institutional research offices at colleges and universities, and as survey researchers and program evaluators. The overarching outcome of the Master of Science (M.S.) degree program in Educational Research Measurement and Evaluation will be for students to develop foundational competencies necessary to engage in applied research and evaluation in educational and community organizations. The program is focused on developing professionals, equipped with skills in research and evaluation methods that can be applied to school and community settings.

The non-thesis Masters' program will require the completion of 36 credit hours.

Code	Title	Hours
Eighteen (18) of these credit hours will consist of required coursework in quantitative and qualitative research methods, survey research methods, and program evaluation. These courses are:		18
ERMA 7200	Basic Methods in Education Research	
ERMA 7210	Theory and Methodology of Qualitative Research	

ERMA 7300	Design and Analysis in Education I	
ERMA 8100	Program Evaluation	
ERMA 8200	Survey Research Methods	
ERMA 7910	Practicum in Educational Research, Measurement, and Evaluation	
Nine (9) credit hours will be completed in advanced research methods and analysis as approved by the advisor. These nine credits hours will be taken from the following list of existing courses:		9
ERMA 7100	Advanced Study of Educational Measurement and Evaluation	
ERMA 7220	Applied Qualitative Research	
ERMA 7230	Writing as Inquiry in Qualitative Research	
ERMA 7240	Thinking with Theory in Qualitative Research	
ERMA 7310	Design and Analysis in Education II	
ERMA 7400	Mixed Methods Research	
ERMA 7410	Research Methods for Social Justice and Equity	
ERMA 8120	Teacher Evaluation	
ERMA 8210	Prep Research for Publication	
ERMA 8320	Design and Analysis in Education III	
ERMA 8330	Non-Parametric Data Analysis in Education Research	
ERMA 8340	A Practical Introduction to Structural Equation Modeling	
ERMA 8350	Advanced Measurement Theory	
Nine (9) credit hours will be completed in an applied area as approved by the advisor, such as higher education, institutional research, educational psychology, educational leadership and administration, instructional technology, or intensive research methods.		9
Total Hours		**36**

Instructional Leadership — Graduate Certificate

This graduate certificate academically prepares individuals that are interested in becoming an instructional leader or administrator in a K-12 school setting and requires an Alabama Class A certificate in a teaching field.

Code	Title	Hours
Instructional Leadership - GCRT		
EDLD 7210	Multiprofessional Leadership for Equity [1]	3
EDLD 7200	Supervision and Personnel Management	3
EDLD 7220	Organizational and School Management	3
EDLD 7510	Action Research and Data Analysis	3
EDLD 7520	Leadership and the Learning Organization	3
EDLD 7530	Planning and Continuous Improvement	3
EDLD 7540	Instructional and Curricular Leadership	3
Total Hours		**21**

[1] If a state-approved diversity course was completed as part of a previous master's-level certification, EDLD 7210 (3 hours) will be waived resulting in a total of 18 hours.

Instructional Technology for Distance Education — Graduate Certificate

This graduate certificate prepares individuals to design and implement student-centered learning environments in an online format. The certificate program will provide a theoretical and practical foundation of skills to create online courses for teachers, curriculum developers, or administrators.

Code	Title	Hours
Instructional Technology for Distance Education - GCRT		
EDMD 7000	Instructional Design and Development	3
EDMD 7020	Principles of Graphic Design for Instruction	3
EDMD 7200	Applied Instructional Design	3
EDMD 7230	Theory and Practice of Distance Education	3
Select 3 credit hours of the following:		3
EPSY 7400	Ed Psych & Educational Implica	
EPSY 7420	Learning Theory and Educational Practice	
EDMD 7300	Research in Instructional Technology	
EDMD 7900	Directed Studies	
EDMD 7910	Practicum	
EDMD 7930	Teaching Apprenticeship	
EDMD 7970	Special Topics in Instructional Technology	
Total Hours		**15**

Program Evaluation — Graduate Certificate

This graduate certificate prepares individuals to advance applied knowledge and skills in the methods used to evaluate programs and services. Students who complete the certificate can serve as an evaluator in schools, health, government, and/or nonprofit agencies.

Code	Title	Hours
Program Evaluation - GCRT		
ERMA 7210	Theory and Methodology of Qualitative Research	3
ERMA 8100	Program Evaluation	3
ERMA 8200	Survey Research Methods	3
Select 9 credit hours of the following:		9
ERMA 7220	Applied Qualitative Research	
ERMA 7310	Design and Analysis in Education II	
ERMA 7320	Applied Quantitative Research	
ERMA 7400	Mixed Methods Research	
ERMA 8120	Teacher Evaluation	
ERMA 8210	Prep Research for Publication	
ERMA 8320	Design and Analysis in Education III	
ERMA 8330	Non-Parametric Data Analysis in Education Research	
ERMA 8340	A Practical Introduction to Structural Equation Modeling	
ERMA 8350	Advanced Measurement Theory	
3 hrs other certificate coordinator approved course (e.g. EDLD 8200, COUN 8300, POLI 8020)		
Total Hours		**18**

Technology Educator — Graduate Certificate

This graduate certificate prepares individuals to integrate technology into curriculum to support student learning. This certificate is designed for teachers in a K-12 school, school librarians, technology coordinators, school administrators, or instructors in business, industry, or educational areas.

Code	Title	Hours
Technology Educator - GCRT		
EDMD 7000	Instructional Design and Development	3
EDMD 7010	Instructional and Information Technologies	3
EDMD 7210	Integration of Technology Into Curriculum	3

Select 3 credit hours of the following:		3
EDMD 7200	Applied Instructional Design	
EDMD 7900	Directed Studies	
EDMD 7910	Practicum	
EDMD 7930	Teaching Apprenticeship	
EDMD 7970	Special Topics in Instructional Technology	
Total Hours		**12**

Certificate in Workforce Education, Training, and Development

Workforce Education, Training, and Development — Graduate Certificate (https://education.auburn.edu/eflt/academic-programs/adult-education/certificates-adult-education.php)

Code	Title	Hours
Required Courses (2):		
ADED 7600	Nature of Adult Education	
ADED 7640	Workforce Education	
Choose three (3) courses from the following:		
ADED 7010	Learning Resources	
ADED 7050	Methods of Teaching in Adult Education	
ADED 7060	Curriculum and Program Planning in Adult Education	
ADED 7620	Concepts, Programs, and Resources in Adult Education	
ADED 7650	Teaching Diverse Populations in Adult Education	
ADED 7670	Adult Education in Cooperative Extension	
ADED 7680	Experiential Learning in Adult Education	
ADED 7690	Meeting Diverse Needs in Adult Education Settings	
Total Credit Hours = 15 (5 courses)		

Electrical Engineering — MS, PhD

Degree Programs

- Electrical Engineering — MS (p. 1655)
- Electrical Engineering — PhD (p. 1655)

Electrical and Computer Engineering (ECE) offers graduate programs of instruction and research leading to master and doctoral degrees. Instruction is offered and research facilities are available to support graduate study in control systems & robotics, digital signal processing and communications, wireless engineering, electromagnetics modeling and analysis, microelectronics & microelectromechanical systems (MEMS), magnetic resonance imaging (MRI), power systems, digital systems, and computer engineering. Additionally, individualized programs that cross the traditional boundaries of engineering, mathematics and the sciences can be accommodated.

For admission at the master's level, the applicant must hold a bachelor's degree or its equivalent from an institution of recognized standing. Master's degree programs are available to graduates of engineering curricula and, in cases of exceptional academic credentials, to graduates of mathematics and science curricula.

An applicant for admission to the PhD program should hold a master's degree, or have taken a minimum of one academic year of graduate study, from an institution of recognized standing in an area of study related to the proposed doctoral work. An applicant who holds a bachelor's degree in electrical or computer engineering and has exceptional academic credentials may apply for direct admission to the PhD program.

All applicants must submit Graduate Record Examination scores for the General Test, three recommendation letters, a statement of purpose, and a resume. International applicants must also submit scores for either the TOEFL or IELTS exam.

Applications for admission are reviewed by the departmental graduate faculty. Decisions are based upon the applicant's potential for success in advanced-level study as indicated by letters of reference, GRE scores and previous academic achievement.

The MS (thesis option) program requires a minimum of 30 semester hours of work, including 4 to 6 semester hours of research and thesis. MS (thesis option) students must pass an oral examination on the thesis. The MS (non-thesis option) program requires 33 semester hours of coursework, including at least 18 semester hours of ECE courses. Both masters programs must include courses in at least three of the major research areas in ECE and no more than 3 semester hours of independent study.

Students admitted to the doctoral program will take a written qualifying examination soon after entering, covering fundamental undergraduate material in ECE. Additional examinations are given throughout the program. The program generally consists of a minimum of 60 semester hours of course work beyond the bachelor's level, including at least 10 hours of research and dissertation. A minor of at least 9 semester hours in a closely related field outside of the major area of study, either within or outside of ECE, is required.

Electrical Engineering — MS

The following are the requirements for the thesis options (on-campus and distance). Note: Courses in the major area are determined by the advisor.

Code	Title	Hours
Electrical and Computer Engineering (MS Thesis)		**minimum of 30**
ELEC 7990	Research and Thesis	4-6
Select 15-17 Credits at 6000-8999 in the Major Area		15-17
Select 9 Credits at 6000-8999 (Electives)		9

Code	Title	Hours
Electrical and Computer Engineering - Distance (MS Thesis)		**minimum of 30**
ELEC 7990	Research and Thesis	4-6
Select 15-17 Credits at 6000-8999 in the Major Area		15-17
Select 9 Credits at 6000-8999 (Electives)		9

The following are the requirements for the non-thesis options (on-campus and distance). Note: Courses in the major area are determined by the advisor.

Code	Title	Hours
Electrical and Computer Engineering (MS Non-Thesis)		**minimum of 30**
Select 21 Credits at 6000-8999 in the Major Area		21
Select 9 Credits at 6000-8999 (Electives)		9

Code	Title	Hours
Electrical and Computer Engineering - Distance (MS Non-Thesis)		**minimum of 30**
Select 21 Credits at 6000-8999 in the Major Area		21
Select 9 Credits at 6000-8999 (Electives)		9

Electrical Engineering — PhD

Code	Title	Hours
Electrical and Computer Engineering (PhD)		
ELEC 8990	Research and Dissertation	10
Select 30 Credits (Graded) at 6000-8999		30

Select 20 Credits (Graded or Ungraded) at 6000-8999	20
Total Hours	**60**

English — Graduate Certificate, MA, MTPC, PhD

Degree Programs

- English — MA
- English — PhD (p. 1659)
- Technical and Professional Communication — MTPC (p. 1659)

Graduate Certificates

- Technical Communication (p. 1659)

The Department of English offers programs leading to the Master of Arts (MA), the Master of Technical and Professional Communication (MTPC), and the PhD. These graduate programs prepare students for careers in teaching and research, writing, editing, business, and other professions seeking broadly educated individuals skilled in analysis and communication. In addition, individuals holding a teaching certificate may, with an additional graduate course in Communication, earn Alabama Class A or AA certification under a state-approved Strengthened Subject Matter Option program in English/Language Arts. The Department of English also offers the Graduate Certificate in Technical Communication (GCTC).

- More information about the MA in English is available at https://www.cla.auburn.edu/english/programs/graduate-degrees/master-of-arts-in-english/.
- More information about the MTPC is available at https://cla.auburn.edu/english/programs/graduate-degrees/master-of-technical-and-professional-communication/.
- More information about the PhD in English is available at https://www.cla.auburn.edu/english/programs/graduate-degrees/phd-in-english/.
- More information about the Graduate Certificate in Technical Communication is available at https://cla.auburn.edu/english/programs/graduate-degrees/graduate-certificate-in-technical-communication/.

Master of Arts

Admission Requirements

For admission to the MA program, the student must normally have a bachelor's degree from an accredited institution with the equivalent of 24 semester hours of credit in upper-division English courses and satisfactory scores on the General Test of the GRE. Applicants lacking the required undergraduate courses must typically make up these deficiencies before they can be admitted to the degree program.

Applicants should ensure that the following materials are submitted to the Graduate School web application:

- Official transcripts from every undergraduate institution attended
- Official scores from the General Test of the GRE

They should submit the following to the Department of English:

- Writing sample
- Statement of purpose
- Three confidential letters of recommendation that speak to the applicant's potential for successful graduate study

Application materials are due by January 15.

Options and Course Requirements

For the MA, students may select one of the following three tracks: literature, composition and rhetoric, or creative writing. Each track requires a minimum of 30 credit hours of coursework.

The literature track requires the following:

- Three major area courses (one pre-1800 literature, one post-1800 literature, one literary theory)
- One comparative literature, genre, or author-based course
- One technology and culture, globalism, sustainability, or diversity course
- One course in technical and professional communication, rhetoric and composition, linguistics, or creative writing
- Two elective courses in English
- ENGL 7940 Teaching College English
- Two courses in a coordinated minor, chosen from courses in English or another discipline relevant to the student's professional and academic goals

The creative writing track requires the following:

- Three major area courses (ENGL 7130 Fiction Writing and ENGL 7140 Poetry Writing, with one repeated for a total of three creative writing courses)
- One pre-1800 literature course
- One technical and professional communication, rhetoric and composition, or linguistics course
- One technology and culture, globalism, sustainability, or diversity course
- Two courses in a coordinated minor, chosen from courses in English or another discipline relevant to the student's professional and academic goals
- Two elective courses in English
- ENGL 7940 Teaching College English

The composition and rhetoric track requires the following:

- Three major area courses (ENGL 7040 Engl Compn issues And App , ENGL 7050 Studies In Composition, and ENGL 7300 Rhetoric: Theory And Practice)
- One course in technical and professional communication or linguistics
- One literature or creative writing course
- One technology and culture, globalism, sustainability, or diversity course
- Two courses in a coordinated minor, chosen from courses in English or another discipline relevant to the student's professional and academic goals
- Two elective courses in English
- ENGL 7940 Teaching College English

Other Graduation Requirements

In addition to completing the required course work, students must successfully complete a portfolio and pass an oral examination based on the portfolio. They also must demonstrate reading knowledge of one foreign language.

Master of Technical and Professional Communication

Admission Requirements

For admission to the MTPC program, students must have a bachelor's degree from an accredited institution, satisfactory scores on the General Test of the GRE, and excellent writing skills. Undergraduate course work in English is not required.

Applicants should ensure that the following materials are submitted to the Graduate School web application:

- Official transcripts from every undergraduate institution attended, including high school transcripts in the case of AP classes
- Official scores from the General Test of the GRE

They should submit the following to the Department of English:

- A sample of professional or scholarly writing (e.g., a technical manual, a business report, a research essay)
- A statement of purpose explaining their interest in the program
- Three letters of recommendation. At least two of the letters should come from professors or instructors; the other letter may come from an academic adviser, an employer, or some other person who can speak to their potential for success in the MTPC program.

Application materials should be received by January 15.

Course Requirements

- Four required courses (ENGL 7000 Tech and Professional Editing, ENGL 7010 T Pc Issues And Approaches, ENGL 7060 Web Development, ENGL 7080 Document Design
- Three elective courses in English approved by the student's advisory committee
- Three courses in a coordinated minor or three additional courses in English approved by the student's advisory committee
- ENGL 7940 Teaching College English

Other Graduation Requirements

Students must compile a portfolio of work accepted by the student’s advisory committee, make a formal presentation about the portfolio, and pass an oral examination.

Doctor of Philosophy

Admission Requirements

For admission to the PhD program, the student must normally have a master’s degree in English and satisfactory scores on the General Test of the GRE.

Applicants should ensure that the following materials are submitted to the Graduate School web application:

- Official transcripts from every undergraduate and graduate institution attended
- Official scores from the General Test of the GRE

They should submit the following to the Department of English:

- Writing sample
- Statement of purpose
- Three confidential letters of recommendation that speak to the applicant’s potential for successful graduate study

Concentrations and Course Requirements

The PhD requires a minimum of 60 credit hours beyond the BA, including 10 hours of dissertation credit. Students entering our program with an MA in English from Auburn or from another institution transfer in their course work; in consultation with their graduate advisory committee, students then select additional courses. Students may choose to pursue either a concentration in literature or a concentration in composition and rhetoric.

Other Graduation Requirements

After completing course work, students must take general doctoral examinations, both written and oral, over three related areas. These areas might include a literary period, a genre, an issue in composition or rhetorical studies, language and linguistics, or literary and cultural theory. After passing these examinations, students advance to doctoral candidacy. Within three months after advancing to doctoral candidacy, students must submit an approved dissertation prospectus to the director of graduate studies. Students must write and defend a dissertation.

Doctoral students must demonstrate a reading knowledge of two foreign languages or advanced proficiency in one foreign language.

Graduate Certificate in Technical Communication

Admission Requirements

For admission to the Graduate Certificate in Technical Communication, students must have a bachelor’s degree from an accredited institution and excellent writing skills.

Applicants should ensure that the following materials are submitted to the Graduate School web application:

- Official transcripts from every undergraduate institution attended

They should submit the following to the Department of English:

- A sample of professional or scholarly writing (e.g., a technical manual, a business report, a research essay)
- A statement of purpose explaining their interest in the program
- Three letters of recommendation from professors, academic advisers, employers, or others who can speak to their potential for success in the GCTC program

Financial Aid

The department offers financial aid in two forms: fellowships and assistantships. Graduate teaching assistantships or graduate assistantships are often available for the most qualified students, except those enrolled in the GCTC. Assistantships are renewable, provided that students perform satisfactorily and make adequate progress toward the degree. A few outstanding applicants also receive first-year or second-year fellowships. Review of applications for financial aid will begin on January 15 for the MA, PhD, and MTPC.

English — MA

Code	Title	Hours
MA English Non-Thesis		
ENGL 7940	Practicum in Teaching College English	1
ENGL 7940	Practicum in Teaching College English	1
Select 24 Credits in ENGL 6000-8999		24
Select 6 Credits in @ 6000-8999		6
Total Hours		**32**

English — PhD

Code	Title	Hours
PhD English		
ENGL 8990	Research and Dissertation	10
Select 50 Credits in @ 6000-8999		50
Total Hours		**60**

Master of Technical and Professional Communication — MTPC

Code	Title	Hours
MTPC Master of Technical and Professional Communication		
ENGL 7000	Technical and Professional Editing	3
ENGL 7010	Technical and Professional Communication: Issues and Approaches	3
ENGL 7060	Web Development	3
ENGL 7080	Document Design	3
ENGL 7940	Practicum in Teaching College English	1
ENGL 7940	Practicum in Teaching College English	1
Select 9 Credits in ENGL 6000-8999		9
Select 9 Credits in @ 6000-8999		9
Total Hours		**32**

Technical Communication — Graduate Certificate

This graduate certificate provides the knowledge and skills needed to communicate and market effectively, communicate through digital audience strategies, and to use business communication methods to persuade, inform, and educate others. This certificate is designed for individuals in business, education, or industry and who want to improve their technical communication skills.

Code	Title	Hours
ENGL 7000	Technical and Professional Editing	3
ENGL 7010	Technical and Professional Communication: Issues and Approaches	3
ENGL 7080	Document Design	3
Select 3 credits in ENGL 7020, 7030, 7060, 7070, 7090, or 7910		3

Entomology — MS, MAg, PhD

Degree Programs

- Entomology — MS (p. 1660)
- Entomology — MAg (p. 1660)
- Entomology — PhD (p. 1661)

The Department of Entomology and Plant Pathology offers three entomology-themed graduate degrees: a Master of Science (MS), a Master of Agriculture (MAg), and a Doctor of Philosophy (PhD). The graduate program emphasizes basic and applied aspects of the science of Entomology, and prepares students for careers in teaching, research and extension, in academic, government, private, and industry settings. The MS degree provides fundamental knowledge of Entomology and introduces students to independent research through a thesis project. The MAg provides that same level of instruction but without a research focus. The PhD builds on the MS or other similar experiences by expanding upon the student's fundamental knowledge. It also fosters a student's ability to conduct original research at the frontiers of entomology through dissertation research.

Admission to the program is based on a combination of a candidate's GPA (usually 3.0 or higher), letter of intent, and Graduate Record Examination (GRE) scores. TOEFL scores are required from international students. TOEFL exemptions are made on a case-by-case basis, depending on your official government language and medium of instruction. Applicants who have received a degree from an accredited U.S. institution may also be considered for this exemption. For a major in entomology at the MS level, the student should have an appropriate degree from a recognized institution with some pre-requisite training in plant sciences, biology, zoology, botany, and chemistry. Qualified students lacking an introductory entomology course may be admitted but will be required by the student's advisory committee to make up this deficiency.

Master's degrees are primarily sought by students holding baccalaureate degrees in agriculture or the biological sciences.

The Master of Science (MS) program in entomology is available to qualified individuals who wish to pursue a master's level program that requires a thesis. Importance is placed on both classroom and research training. The MS requires a minimum of 30 graduate level credit hours (6000 and above).

Code	Title	Hours
MS		
ENTM 6220	Insect Ecology	4
ENTM 6300	Insect Diversity	4
ENTM 7200	Insect Physiology	4
ENTM 7950	Seminar	1
ENTM 7990	Research and Thesis	6
Graduate-level statistics		3
Select 8 Credits in @ 6000-9999 (Elective)		8
Total Hours		**30**

A minimum of 21 graduate level credit hours must be taken in entomology, and 9 credit hours in subjects determined by the committee. The MS student will conduct research and prepare a thesis. After completion of the thesis, the student must successfully defend their thesis work during a final oral examination.

The Master of Agriculture (MAg) program with a specialization in entomology is available to qualified applicants who wish to pursue a master's level program that does not require a thesis. This degree carries the same entrance requirements as the MS, and requires a minimum of 32 graduate level credit hours (6000 and above), 21 of which must be in entomology, including:

Code	Title	Hours
MAg		
ENTM 6220	Insect Ecology	4
ENTM 6300	Insect Diversity	4
ENTM 6920	Internship (strongly recommended)	3

ENTM 7200	Insect Physiology	4
Select 17 Credits in @ 6000-9999 [1]		17
Course in Statistics (strongly recommended)		
Total Hours		**32**

[1]The remaining graduate level courses can be taken from a variety of subject areas determined in consultation with the student's advisory committee. A comprehensive examination is required after all courses are completed.

The Doctor of Philosophy (PhD) program in entomology requires 60 graduate level credit hours of course work. Of the 60 semester hours, 30 must be graded graduate courses (6000 and above) while registered in the PhD program. Thirty hours may be transferred in from a previous graduate degree pending approval of the graduate advisory committee. PhD students must complete all courses in the core curriculum. In addition, PhD students should complete a minimum of eight credits that must be from ENTM classes.

Code	Title	Hours
PhD		
ENTM 6220	Insect Ecology	4
ENTM 6300	Insect Diversity	4
ENTM 7200	Insect Physiology	4
ENTM 8910	Teaching Practicum	1
ENTM 8950	Seminar	1
ENTM 8990	Research and Dissertation	10
Graduate-level statistics		3
Select 33 Credits in @ 6000-8990 [1]		33
Dissertation based on the student's original research		
Total Hours		**60**

[1] Eight credits must be from ENTM classes.

Upon completion of the course work, PhD students must take a general written examination. Students must pass all parts of the written examination before scheduling the preliminary oral examinations (prelim). The PhD student will conduct independent research and prepare a dissertation. After completion of the dissertation, the student must successfully defend their dissertation work during a final oral examination.

Entomology — MAg

Code	Title	Hours
MAg		
ENTM 6220	Insect Ecology	4
ENTM 6300	Insect Diversity	4
ENTM 6920	Internship (strongly recommended)	3
ENTM 7200	Insect Physiology	4
Select 17 Credits in @ 6000-9999 [1]		17
Course in Statistics (strongly recommended)		
Total Hours		**32**

[1]The remaining graduate level courses can be taken from a variety of subject areas determined in consultation with the student's advisory committee. A comprehensive examination is required after all courses are completed.

Entomology — MS

Code	Title	Hours
MS		
ENTM 6220	Insect Ecology	4
ENTM 6300	Insect Diversity	4

ENTM 7200	Insect Physiology	4
ENTM 7950	Seminar	1
ENTM 7990	Research and Thesis	6
Graduate-level statistics		3
Select 8 Credits in @ 6000-9999 (Elective)		8
Total Hours		**30**

Entomology — PhD

Code	Title	Hours
PhD		
ENTM 6220	Insect Ecology	4
ENTM 6300	Insect Diversity	4
ENTM 7200	Insect Physiology	4
ENTM 8910	Teaching Practicum	1
ENTM 8950	Seminar	1
ENTM 8990	Research and Dissertation	10
Graduate-level statistics		3
Select 33 Credits in @ 6000-8990 [1]		33
Dissertation based on the student's original research		
Total Hours		**60**

[1] Eight credits must be from ENTM classes.

Finance — MS, PhD

Degree Programs

- Finance (Thesis, Non-Thesis, On-Campus, and Online Options) — MS (p. 1663)
- Business (Finance Concentration) — PhD (p. 1663)

The MS program offers specialized training to graduate students desiring a more intense background in the field relative to the general preparation provided by an MBA. The objective of the program is to prepare students for careers in their chosen profession or for further graduate work. The program has a thesis and non-thesis option (the non-thesis option requires additional course work). The program of study is determined by the student and the student's advisory committee based on the student's background and areas of interest. The program also offers a joint program leading to both the MS Finance and MBA degrees.

The MBA/MS Finance is a 54-hour program administered jointly by the Finance faculty and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work experience are required to do an additional 3-credit hour internship. Students must apply separately to each program (MS Finance and MBA), but only have to pay one application fee. Students can also opt to apply for the second-degree program during their first year in the other program.

The Ph.D. in Business with Concentration in Finance is a research-oriented degree that prepares students for careers in research and teaching. It provides the depth of knowledge and skills required to conduct first-rate research in the field and present those findings in world-class scholarly publications. Our faculty is supportive of our students and works closely with them. Students will typically work on a joint research project with one or more of their professors early in their program. Thus, students are quickly immersed in doing substantial research.

Ph.D. candidates must be full-time, year around students. The doctoral program requires the development of a sense of scientific curiosity that permeates the extensive coursework and inquiry that is required. The core coursework is an intensive study of the theory and empirical analysis of finance, focused on investments, corporate finance, and financial institutions and markets. Most of the coursework can be completed in the first two years. Students without master's degrees or otherwise lacking an appropriate background may be required to take additional courses.

The preliminary exam is taken after the required coursework is completed. This will usually be at the beginning of the third year. After satisfactory completion of the exam, the last phase of the program is devoted to research, including the publication of articles and completion of the Ph.D. dissertation and its defense. The length of this phase of the program is expected to take two or more years.

Information concerning specific program requirements may be obtained by visiting the Raymond J. Harbert College of Business website.

MS Finance

Code	Title	Hours
MS Finance Thesis		
BUSI 7110	Financial Analysis	3
BUSI 7230	Cost Analysis and Systems	3
FINC 7650	Applied Financial Management	3
FINC 7990	Research and Thesis	4
Select 12 Credits in FINC 6000-8990 (Electives)		12
Select 5 Credits in any approved @ 6000-8990 (Electives)		5
Total Hours		**30**

Code	Title	Hours
MS Finance Non-Thesis		
BUSI 7110	Financial Analysis	3
BUSI 7230	Cost Analysis and Systems	3
FINC 7650	Applied Financial Management	3
Select 12 Credits in FINC 6000-8990 (Electives)		12
Select 9 Credits in any approved @ 6000-8990 (Electives)		9
Total Hours		**30**

Code	Title	Hours
MS Finance Thesis (Online)		
BUSI 7110	Financial Analysis	3
BUSI 7230	Cost Analysis and Systems	3
FINC 7650	Applied Financial Management	3
FINC 7990	Research and Thesis	4
Select 12 Credits in FINC 6000-8990 (Electives)		12
Select 5 Credits in any approved @ 6000-8990 (Electives)		5
Total Hours		**30**

Code	Title	Hours
MS Finance Non-Thesis (Online)		
BUSI 7110	Financial Analysis	3
BUSI 7230	Cost Analysis and Systems	3
FINC 7650	Applied Financial Management	3
Select 12 Credits in FINC 6000-8990 (Electives)		12
Select 9 Credits in any approved @ 6000-8990 (Electives)		9
Total Hours		**30**

Business (Finance Concentration) — PhD

Code	Title	Hours
Business - Finance Concentration (PhD)		
FINC 8990	Research and Dissertation	10

Select 50 Credits in @ 6000-8999	50
Total Hours	**60**

The PhD in Business requires 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990, and must include at least 10 hours of 8990. Up to 30 hours (if less than half of the total number of hours) of applicable master's level course work may be used to satisfy part of these requirements with advisor approval.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of FINC 8990. Enrollment in FINC 8990 may take pace at any time the student and the advisory committee deem appropriate . During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which uni versity resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in he process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.

Fisheries, Aquaculture, and Aquatic Sciences — MAq, MS, PhD

Degree Programs

- Fisheries, Aquaculture, and Aquatic Sciences — MAq (p. 1665)
- Fisheries, Aquaculture, and Aquatic Sciences — MS (p. 1665)
- Fisheries, Aquaculture, and Aquatic Sciences — PhD (p. 1666)

The FAAS graduate program prepares students for productive careers in academia and the private and public sectors in aquaculture, aquatic resource management and ecology, and fisheries biology and management. The School offers graduate programs leading to the Master of Science (MS — thesis and non-thesis), Master of Aquaculture (MAq — non-thesis), and Doctor of Philosophy (PhD) degrees.

Students desiring admission for graduate study should have a degree from a recognized academic institution, adequate course work in biology, zoology, botany, chemistry, physics, and mathematics and submit GRE scores (can be waived by faculty). Otherwise qualified students lacking an adequate background in these areas may be admitted but may be required to correct deficiencies after they enroll at Auburn. Applicants must also meet minimum requirements of the Graduate School including English language requirements. Evaluation of applicants includes academic records, GPA, GRE scores (can be waived by faculty), letters of recommendation, and past professional history.

The thesis-based Master of Science degree prepares the student for aquatic resource or aquaculture related careers as well as further studies toward a PhD degree. A minimum of 30 semester hours of 6000-level or above are required. A minimum of 21 semester hours (which includes FISH 7990) of 6000-level and above courses must be taken within the major area of concentration and at least an additional 9 hours taken in a separate but closely related area of concentration. A minimum of 4 semester hours of FISH 7990 (Research and Thesis) is required but no more than 6 semester hours may be counted toward the degree. In addition to the required course work, the student must complete research and a written thesis and pass a comprehensive examination on research and course work as defined by the student's advisory committee.

The non-thesis Master of Science degree prepares the student for a variety of less research focused aquatic resource or aquaculture related careers. A minimum of 34 semester hours, including at least 3 hours from one of these courses, FISH 7460, FISH 7900, FISH 7920, or FISH 7960, are required. In addition to the required course work, the student must pass a comprehensive examination on their relevant experiences and course work as defined by the student's advisory committee.

The MAq is a non-thesis degree that prepares a student for a career in aquaculture management or extension. The degree requires successful completion of a minimum of 42 semester hours beyond the bachelors' degree including graduate business-related courses

(6-12 hrs) and several FISH course (6210 (Principles of Aquaculture), 6220 (Water Science), 6240 (Hatchery Management), 6250 (Aquaculture Production), 6410 (Introduction to Fish Heath), 7640 (Fish Nutrition) 7950 (exit seminar)) and includes a 3- to 5-month internship (FISH 7920). In addition, students must pass a comprehensive oral examination after completion of all course work and internship.

Admission to the Doctor of Philosophy degree program usually requires that the student has a master's degree from a recognized graduate program. The doctoral program emphasizes original scholarly research and includes significant advanced coursework. The PhD degree requires a minimum of 60 semester credit hours beyond the bachelor's degree, of which a minimum of 31 hours must be taken through Auburn University, and a dissertation describing original research. A minimum of 30 hours must be graded graduate courses. The minimum and maximum number of hours of dissertation research (FISH 8990) is 10. Students must pass a general examination, often called the "preliminary examination," typically taken after all graded course work is completed, to become a PhD candidate. The exam includes a written exam followed by an oral exam. The student becomes a **candidate** for the degree on successful completion of the general examination. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

All graduate students are expected to be engaged in service to the school's research and education programs as deemed appropriate by the academic adviser and School Director. All students receiving assistantships must be registered for at least one course (any course of at least 1 credit hour carrying an Auburn University course number) during each academic term of the assistantship. International students must meet visa requirements for coursework load. All graduate students must present an exit seminar in the School for which credit will be given as either FISH 7950 for master's or FISH 8950 for PhD's.

Fisheries, Aquaculture, and Aquatic Sciences — MAq

Code	Title	Hours
MAq		
FISH 6210	Principles of Aquaculture	3
FISH 6220	Water Science	3
FISH 6240	Hatchery Management	4
FISH 6250	Aquaculture Production	4
FISH 6410	Introduction to Fish Health	3
FISH 7640	Fish Nutrition	3
FISH 7920	Internship in Fisheries and Aquaculture	6-10
FISH 7950	Graduate Research Seminar	1
Select 9-13 Credits in @ 6000-8999		9-13
Business-related courses		6-12
Total Hours		**40**

Fisheries, Aquaculture, and Aquatic Sciences — MS

Code	Title	Hours
MS Thesis Option		
FISH 7950	Graduate Research Seminar	1
FISH 7990	Research and Thesis	4-6
Select 23-25 Credits in @ 6000-8999 (Electives)		23-25
See your advisor in order to determine the course that will be required for the area of concentration.		
Total Hours (thesis option)		**30**
MS Non-Thesis Option		
Select 30 Credits in @ 6000-8999 (Electives)		30
A minimum of 3 semester hours of hands-on experience in one of the following courses is required: FISH 7920, FISH 7460, FISH 7900, or FISH 7960. Select at least one of the following:		
FISH 7920	Internship in Fisheries and Aquaculture	
FISH 7460	Clinical Fish Disease Diagnosis	
FISH 7900	Directed Studies in Fisheries I	

FISH 7960	Special Problems in Fisheries, Aquaculture, and Aquatic Sciences	
FISH 7950	Graduate Research Seminar	1
Pass a comprehensive examination on course work as determined by the student's advisory committee.		
Total Hours (non-thesis option)		**34**

Fisheries, Aquaculture, and Aquatic Sciences — PhD

Code	Title	Hours
PhD		
FISH 8950	Graduate Research Seminar	1
FISH 8990	Research and Dissertation	10
Select 49 Credits in @ 6000-8999 (Electives)		49
Total Hours		**60**

Admission to the Doctor of Philosophy degree program usually requires that the student has a master's degree from a recognized graduate program. The doctoral program emphasizes original scholarly research and includes significant advanced coursework. The PhD degree requires a minimum of 60 semester credit hours beyond the bachelor's degree, of which a minimum of 31 hours must be taken through Auburn University, and a dissertation describing original research. A minimum of 30 hours must be graded graduate courses. The minimum and maximum number of hours of dissertation research (FISH 8990) is 10. Students must pass a general examination, often called the "preliminary examination," typically taken after all graded course work is completed, to become a PhD candidate. The exam includes a written exam followed by an oral exam. The student becomes a **candidate** for the degree on successful completion of the general examination. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

Food Science — MAg, MS, PhD

Degree Programs

- Food Science — MAg (p. 1667)
- Food Science — MS (p. 1667)
- Food Science — PhD (p. 1668)

Food Science graduate degrees, although technically offered as an option affiliated with poultry science, are managed by the Food Science Program. Students pursuing graduate studies in Food Science can earn Master of Agriculture, Master of Science, and Doctor of Philosophy degrees. These degrees are designed to prepare outstanding students for careers in the food industry, government, and academia. Research training and experience can be acquired in the specialized areas of food safety/microbiology, food quality, food chemistry, sensory evaluation, or processing and product technology.

Applicants apply through the ApplyYourself online platform and must indicate their desire to pursue graduate studies in Food Science. All applications are reviewed by the Food Science Graduate Committee. Application materials include: official copies of all college transcripts, TOEFL scores (for international students), 3 letters of recommendation, a resume, and a statement of purpose. Transcripts and test scores are sent directly to the Graduate School. The letters of recommendation may either be submitted online (preferred) or mailed to the graduate program officer. The resume and statement of purpose are sent to the graduate program officer at the departmental address or via email attachment. The GRE is not required. To pursue MS or MAg degrees in food science, applicants must have a bachelor's degree in food science, nutrition, chemistry, biology, food engineering, or allied sciences from a recognized institution with a minimum GPA of 3.0 out of 4.0. A MS degree with thesis in a relevant field is required to be considered for admission into the PhD program. The course of study, developed by the student and the advisory committee, may include additional courses to address specific needs or course work deficiencies.

Additional information about requirements, policies, and availability of financial support can be obtained from the food science graduate program officer, Dr. Amit Morey (azm0011@auburn.edu).

MS/MAg Degree Requirements

1. The Master of Science (MS degree) requires a research project with a formal written thesis while the Master of Agriculture (MAg) requires a research project with written report. The MS degree requires a minimum of 30 semester credit hours. The MAg degree requires 33 semester credit hours. Both MS and MAg degrees require a comprehensive final oral examination.

2. The Food Science Core Curriculum:

Code	Title	Hours
POUL 6160	Adv Princ Food Safety	3
FDSC 7430	Flavor Chemistry	3
FDSC 7950	Graduate Seminar (Taken 2 times for 1 credit each time.)	1
FDSC 7980	Nonthesis Research	4
or FDSC 7990	Research And Thesis	

3. Food Science Electives – MS students must take 4 food science electives chosen in consultation with the major professor and advisory committee. MAg students must take 5 food science electives. Free electives may be used to acquire the required 30 semester hours (MS) or 33 semester hours (MAg).

PhD Degree Requirements

1. For the PhD degree, a minimum of 30 semester hours of graduate coursework beyond the MS (60 hours beyond the bachelor's degree) is required.
2. The Food Science Core Curriculum:

Code	Title	Hours
POUL 6160	Adv Princ Food Safety	3
FDSC 7430	Flavor Chemistry	3
FDSC 7950	Graduate Seminar (Taken three times for 3 total credits)	1
FDSC 8990	Research and Dissertation	10

3. Food Science Electives – PhD students must take 5 food science electives chosen in consultation with the major professor and advisory committee. Free electives may be used to acquire the required 60 semester hours.
4. Examinations – Upon completion of course work, students must pass general written examinations administered by the advisory committee, followed by a comprehensive preliminary oral examination. After satisfactory completion of these exams, the student advances to candidacy. A dissertation based on an independent research project is required to earn a PhD degree. After completion of the dissertation, the student must pass a final doctoral oral examination defending the dissertation.

Food Science — MAg

Code	Title	Hours
MAg		
POUL 6160	Advanced Principles of Food Safety	3
FDSC 7430	Flavor Chemistry	3
FDSC 7950	Graduate Seminar [1]	2
FDSC 7980	Nonthesis Research	4
Select 21 credits @ 6000-8999 (must include at least 1 statistics course)		21
Total Hours		**33**

[1] Taken 2 times for 1 credit each time.

Food Science — MS

Code	Title	Hours
MS		
POUL 6160	Advanced Principles of Food Safety	3
FDSC 7430	Flavor Chemistry	3
FDSC 7950	Graduate Seminar [1]	2
FDSC 7990	Research And Thesis	4

Select 18 credits @ 6000-8999 (must include at least 1 statistics course)	18
Total Hours	**30**

[1] Taken 2 times for 1 credit each time.

Food Science — PhD

Code	Title	Hours
PhD		
POUL 6160	Advanced Principles of Food Safety	3
FDSC 7430	Flavor Chemistry	3
FDSC 7950	Graduate Seminar [1]	3
POUL 8990	Research and Dissertation	10
Select 41 credits @ 6000-8999 (must include at least 2 statistics courses)		41
Total Hours		**60**

[1] Taken 3 times for 1 credit each time.

Forestry — MNR, MS, PhD

Degree Programs

- Applied Economics (Forestry) — PhD (p. 1669) (p. 1635)
- Forestry — MS (p. 1671)
- Forestry — PhD (p. 1672)
- Professional Forester Option — MNR (p. 1712)

Graduate study in forestry leads to the Master of Natural Resources (MNR), Master of Science (MS), or Doctor of Philosophy (PhD) degrees. In addition to meeting Graduate School admission requirements, applicants are evaluated and recommended for admission by the graduate faculty of the College of Forestry, Wildlife and Environment based on an examination of scores on the TOEFL tests for international students, previous academic records, experience, and recommendations. While exceptions may be made, the faculty generally expect a minimum GPA of 3.0 in previous academic course work. Course deficiencies are identified by the student's advisory committee and approved by the GPO with due consideration for the student's previous training and experience.

Degrees Offered

- **Master of Natural Resources** (MNR) —The MNR is a non-thesis degree.
  - ***Professional Forester*** option is for individuals with baccalaureate degrees in fields other than forestry and who are interested in becoming Registered Foresters in Alabama. This track is a two-year program which begins with a 10-week summer Field Practicum and requires a minimum of 64 semester hours (34 hours of specified undergraduate course work plus 30 hours of graduate course work).
- **Master of Science** (**MS**) A research proposal and thesis based on original research are required components for the MS degree. The program normally requires 2 – 3 years for completion and can be tailored for students with interests in forest management, ecology and environmental sciences, economics, engineering, or business. The MS degree program requires a minimum of 30 hours beyond the bachelor's degree at the graduate level, 21 hours of which must be in the major. A minimum of 4 but not more than 6 hours in Research and Thesis (FORY 7990) is required. All MS students are required to take Research Methods (FORY 7510) and Seminar (FOWS 7950).
- **Doctor of Philosophy** (**PhD**) may be tailored for any of the topical areas listed under the M.S. A research proposal and dissertation based on original research are required components for the PhD degree program. The degree requires 60 semester hours beyond the bachelor's degree. There must be a minimum of 30 semester hours in graded coursework at the 7000-level or above. Of the remaining 30 semester hours, 10 hours must be Research and Dissertation (FORY 8990) and 20 hours of 6000-level or above. While some of these 60 hours can be from previous graduate work, such as a MS degree, the majority of hours of graded coursework at the 6000-level or above must be completed at Auburn. All PhD students are required to take Research Methods (FORY 7510) and Seminar (FOWS 7950). Oral and written preliminary exams are required for advancement to candidacy; The

preliminary exams must be completed no less than two academic terms prior to graduation. The written and oral preliminary examinations for PhD students will normally consist of questions from each committee member regarding technical competency and other related issues.

An urban forestry minor, administered in cooperation with the Department of Horticulture, is available for **MNR**, **MS**, and **PhD** degrees.

Applied Economics (Forestry) — PhD

PhD in Applied Economics is administered jointly by the Department of Economics, the Department of Agricultural Economics and Rural Sociology, and the College of Forestry, Wildlife and Environment (CFWE). Forestry students in this program will take core courses in microeconomics, macroeconomics, and econometrics in the Department of Economics and pass written preliminary exams given there. An additional oral examination is required in the CFWE for admission to candidacy. The minimum number of hours in this doctoral program is 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (7000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990 and must include at least 10 hours of 8990. As with all other PhD students in the CFWE, students are required to take Research Methods (FORY 7510) and Seminar (FOWS 7950). Dissertation work under this degree program generally involves in-depth economic analysis of a forestry/natural resources/environment issue or problem.

Code	Title	Hours
Applied Economics Forestry (PhD)		
FORY 7510	Research Methods	2
FOWS 7950	Graduate Seminar	1
FORY 8990	Research and Dissertation	10
Select 37 Credits in @ 6000-8999 (Electives)		37
Select 10 Credits in FORY 6000-8999		10
Total Hours		**60**

Forest Business & Investment — MS

Forest Business and Investment — MS Online Program

Curriculum – 31 credit hours

The Forest Business and Investment program requires 31 credit hours of graduate coursework, of which a minimum of 16 hours must be from the ***Core***. If students do not have a sound forestry background, they must take FORY 7320. The remaining 12–15 credits for the degree can be chosen based on student interest.

Degree Program Core: All are 3 credits except Forest Business and Investment Seminar. All core and elective courses are fully online except FORY 7300 **(16–19 credits required).**

- FORY 7320 – Forest Growth, Silviculture, and Management (*only if they don't have a forestry background; If they don't, they will need to take this course their first semester.*) (3 credits)
- FORY 7400 – Forest Valuation and Economics (3 credits)
- FORY 7650 – Forest Operations and Wood Supply Chain Management (3 credits)
- FORY 7620 – Forest Finance, Accounting and Taxation (3 credits)
- BUSI 7110 – Financial Analysis (3 credits)
- FORY 7350 – Applied Statistics for Forest Business (3 credits)
- FORY 7300 – Forest Business & Investment Seminar (1 credit required)

Supporting Electives: All are 3 credits **(12–15 credits needed) or (any 4–5 courses below)**.

Finance:

- FINC 6250 – Real Estate Finance — must be taken after BUSI 7110.
- FINC 6260 – Real Estate Investment — must be taken after BUSI 7110.
- FINC 7640 – Advanced Investments — must be taken after BUSI 7110.

Business Admin:

- BUSI 7120 – Quantitative Analysis for Business Decisions
- BUSI 7130 – Strategic Analysis and Competitive Environment
- BUSI 7140 – Organizational Leadership, Ethics, and Change
- BUSI 7150 – Operational Excellence through Supply Chain & Quality Management
- BUSI 7230 – Cost Analysis and Systems
- BUSI 7250 – International Business Operations

Supply Chain Management: (*If a student added BUSI 7150 to any of the three courses in each below, students could earn a graduate certificate.*)

Supply Chain Management Innovation Grad Certificate

- SCMN 7600 – Supply Management and Manufacturing (Spring/Summer)
- SCMN 7700 – Demand Management and Fulfillment (Fall)
- SCMN 7800 – Supply Chain Strategy (Fall)

Supply Chain Planning Grad Certificate

- SCMN 6600 – Supply Chain Planning
- ISMN 6370 – Project Management
- BUSI 7120 – Quantitative Analysis for Business Decisions

Supply Chain Operations Grad Certificate

- SCMN 6500 – Inventory and Warehouse Management
- SCMN 6720 – Quality and Process Improvement
- SCMN 6390 – Integrating Business Processes with ERP
- SCMN 7770 – Supply Chain Management (Spring/Fall)

Accounting:

- ACCT 6700 – Advanced Business Accounting Law (Spring/Summer/Fall)

Proposed Plan of Study: ***for graduate students who need FORY 7320***

Fall – semester 1 (9 credits)

- FORY 7320 – Forest growth, silviculture, and management (if not a strong forestry background)
- FORY 7650 – Forest Operations and Wood Supply Chain Management
- FORY 7620 – Forest Finance, Accounting, and Taxation

*If student needs to take FORY 7320, then they would take either FORY 7650 or FORY 7620, not both, their first semester. All students would take Seminar their last fall semester.

Spring – semester 2 (6 credits)

- FORY 7400 – Forest Valuation and Economics
- FORY 7350 – Applied Statistics for Forest Business

Summer – semester 3 (3 credits)

- Elective(s)

Fall – semester 4 (7 credits)

- BUSI 7110 – Financial Analysis
- FORY 7650 – Forest Operations and Wood Supply Chain Management
- FORY 7300 – Forest Business and Investments Seminar

Spring – semester 5 (6 credits)

- Elective(s)

Proposed Plan of Study: ***for graduate students who do not need FORY 7320***

Fall – semester 1 (6 credits)

- FORY 7650 – Forest Operations and Wood Supply Chain Management
- FORY 7620 – Forest Finance, Accounting, and Taxation

* All students would take Seminar their first fall semester.

Spring – semester 2 (6 credits)

- FORY 7400 – Forest Valuation and Economics
- FORY 7350 – Applied Statistics for Forest Business

Summer – semester 3 (3–6 credits)

- Elective(s)

Fall – semester 4 (7–10 credits)

- BUSI 7110 – Financial Analysis
- Elective(s)
- FORY 7300 – Forest Business and Investments Seminar

Spring – semester 5 (6 credits)

- Elective(s)

Forest Finance & Investment — Graduate Certificate

Graduate Certificate in Forest Finance & Investment Requirements

This Graduate Certificate will prepare students to be more knowledgeable in operating their forest business and forest finance and investment decision-making. The program will stress critical thinking and problem-solving skills that are required by employers today and running a forest-based business. The Forest Finance and Investment Certificate is designed to (1) provide graduate-level education for those seeking advanced positions in forest business, and (2) to place students in a position so that they can continue their graduate education.

The certificate requires 15 credits of course work completed of the list of the courses below. Students with a Forestry Background will need to take FORY 7400, FORY 7650, FORY 7620, FINC 7640 and BUSI 7110. Students without a forestry background will be required to take FORY 7320 Forest Growth, Silviculture and Management and any 4 of the other courses for their 15 credits.

Code	Title	Hours
FORY 7320	Forest Growth, Silviculture, and Management	3
FORY 7400	Forest Valuation and Economics	3
FORY 7650	Forest Operations and Wood Supply Chain Management	3
FORY 7620	Forest Finance, Accounting and Taxation	3
FINC 7640	Advanced Investments	3
BUSI 7110	Financial Analysis	3

FORY 7320 Forest Growth, Silviculture, and Management will be required of students that do not have a Forestry Background.

Forestry — MS

Code	Title	Hours
Forestry (MS)		
FORY 7510	Research Methods	2
FOWS 7950	Graduate Seminar	1
FORY 7990	Research and Thesis	4-6
Select 21-23 Credits in @ 6000-8999 (Electives)		23-21
Total Hours		**30**

Forestry — PhD

Code	Title	Hours
Forestry (PhD)		
FORY 7510	Research Methods	2
FOWS 7950	Graduate Seminar	1
FORY 8990	Research and Dissertation	10
Select 47 Credits in @ 6000-8999 (Electives)		47
Total Hours		**60**

Natural Resources — MNR

Code	Title	Hours
Natural Resources (MNR)		
Select 30 Credits in @ 6000-8999 (Electives)		30
Total Hours		**30**

Restoration Ecology — Graduate Certificate

This graduate certificate is designed to advance the level of knowledge and skills for individuals interested or working in the areas of natural resource management, forest and wildlife management, environmental sciences, natural resource management consulting, or environmental education. This graduate certificate is designed to help students better understand natural processes in terrestrial ecosystems; provide information on processes and practices that are relevant to the restoration of these ecosystems; and enhance critical thinking and communication skills.

Code	Title	Hours
Restoration Ecology - Graduate Certificate		
FOWS 6210	Restoration Ecology	
Select 4 Electives from the following:		12
FOWS 6230	Forest Stand Dynamics	
FOWS 6240	Fire Ecology	
FOWS 6250	Longleaf Pine Ecology, Management, and Restoration	
FOWS 6260	Forest Wetlands Restoration Ecology	
or FOWS 7260	Forest Wetlands Restoration Ecology	
FOWS 7220	Forest History of Alabama and the Southeastern United States	
WILD 6410	Human-Wildlife Conflicts	
Total Hours		**12**

Geographic Information Science — Graduate Certificate

This graduate certificate provides students with an understanding of the components of geospatial science and solving geographic problems, scale and map projects, maintaining geospatial datasets, and selecting GIS applications. This certificate prepares students for employment in geographic information aspects of industry, government, or academic fields.

Professional Year

Fall	Hours	Spring	Hours
GEOG 6830 Geographic Information Systems	4	GEOG 6880 Advanced Geographic Information Systems	3
GEOG 6820 Aerial Photography and Remote Sensing	4	GEOG 6700 Quant Meth & Spatial Analysis	3

	Elective	2-3
	8	**8-9**

Total Hours: 16-17

Geography and Environmental Studies — MS

Graduate study in geography is directed toward the master of science degree. The MS degree provides an advanced understanding of key geographical concepts of space, scale, and distance in human and physical processes along with training in advanced geospatial analysis in preparation for employment in industry and government or further academic pursuits. The curriculum is oriented toward a broad applied geographic training with opportunity for specialization through electives, directed studies, and thesis or capstone research.

Admission into the master's program requires a bachelor's degree in geography or related discipline from an accredited institution, an acceptable undergraduate GPA, satisfactory scores on the Graduate Record Examination general test, and three letters of recommendation. Undergraduate course deficiencies may be required and can be made up during the student's first year in the degree program.

The thesis option MS degree requires a minimum of 30 semester hours and the successful completion of a thesis. The 30 hours include:

Code	Title	Hours
GEOG 6800	Geographic Thought	3
GEOG 6700	Quant Meth & Spatial Analysis	3
Graduate-level Geography Courses		6
Graduate Level Electives [1]		18
Total Hours		**30**

[1] 12 hours must come from geography.

The non-thesis option requires a minimum of 39 semester hours and the successful completion of a comprehensive written and oral examination by the faculty committee. The 39 hours include:

Code	Title	Hours
GEOG 6800	Geographic Thought	3
GEOG 6700	Quant Meth & Spatial Analysis	3
Graduate Level Electives [1]		33
Total Hours		**39**

[1] 18 hours must come from geography.

Geology — MS

Graduate study in geology leads to the master of science. The graduate program is oriented toward providing a sound practical background in preparation for employment in industry or government service or further academic pursuits. The curriculum provides broad training in geology with the opportunity for specialization through electives, directed studies, and thesis or capstone research.

Admission into the master's program requires a bachelor's degree in geology (or related Earth science discipline) from an accredited institution with 40 semester hours in geology, an acceptable undergraduate GPA, satisfactory scores on the Graduate Record Examination General Test, and three letters of recommendation. Undergraduate course deficiencies may be made up during the student's first year in the degree program.

The thesis option MS degree in geology requires a minimum of 30 semester hours and completion of a thesis. The 30 hours include:

Code	Title	Hours
GEOL 7100	Geocommunication	3
GEOL 7990	Research and Thesis	4-6
Graduate-level Geology Courses		18
Approved 6000- or 7000-level Geology or Supportive Electives [1]		5-3
Total Hours		**30**

[1] No more than 3 hours of which can be GEOL 7930-Directed Study

Students electing the non-thesis option must complete a minimum of 40 semester hours and a capstone project. The 40 hours include:

Code	Title	Hours
GEOL 7100	Geocommunication	3
Graduate-level Geology Courses		33
Approved 6000- or 7000-level Geology or Approved Electives [1]		4
Total Hours		**40**

[1] All or a portion of which may be GEOL 7930-Directed Study or GEOL 7980- Capstone Project.

Both degree options require (1) satisfactory completion of a summer field course or comparable field experience prior to beginning the second year of residence and (2) demonstrated working knowledge of a computer language or computer-based geographic information system (G.I.S.) before graduation.

Geotechnical Engineering — Graduate Certificate

The overall objective of the program is to provide interdisciplinary graduate#level education for those seeking advanced professional knowledge and skills in geotechnical engineering, who are not enrolled in a graduate degree program.

This Graduate Certificate Program is built on top of the successful Engineering Online Program at Samuel Ginn College of Engineering, which was ranked highly in U.S. News and World Reports for Best Online Engineering Programs. It is an on#campus equivalent education program that combines traditional instruction with modern delivery methods to offer graduate studies beyond Auburn's campus.

The program is structured to advance the working engineer's knowledge and skills in the field of geotechnical engineering. Geotechnical engineers design and analyze engineering systems that are made from or supported by earth materials. These include foundations, earth-retaining structures, excavations, slopes, dams, and landfills. Geotechnical engineers often work closely with other branches of civil engineering on a variety of projects, including solid waste management, groundwater protection, highway and pavement engineering, and foundation design.

At a Glance

- The program requires students to take four related graduate courses (12 credit hours).
- Students attending courses online have the same professors as their on#campus peers.
- Students can access lectures online through a live feed or at their convenience via streaming video.
- The online schedule allows for flexibility to maintain a career while completing the program.

Faculty

Geotechnical Engineering courses are taught by Auburn's outstanding civil engineering faculty.

Health Equity Science — Graduate Certificate

The Graduate Certificate in Health Equity Science (CHES) is administered through the Department of Human Development and Family Science, College of Human Sciences (CHS) under the purview of the Health Disparities Research Initiative (HDRI). The graduate

CHES is part of the training mission of HDRI, which is aimed at cultivating scholarship on health ecology and equity, and developing leaders committed to address health inequities. This is achieved by helping students acquire a strong foundation of knowledge on health ecology and equity issues. In addition, the graduate CHES exposes students to a breadth of advanced topics in health ecology and equity and facilitates gaining depth of knowledge on specialized topics. Graduate students completing this certificate will have a strong understanding of the role of social context in generating disease risks and disparities in health between groups; and also learn how this corpus of knowledge can be translated into health-promoting policies and community-level interventions. They also have the opportunity to gain skills in research on a specific health equity topic through thesis or dissertation research.

Code	Title	Hours
HUSC 6930	Society and Health	3
HUSC 6950	Seminar on Health Ecology and Equity	3
Three (3) additional semester hours through elective courses:		3
HDFS 6300	HDFS and Social Policy	
HUSC 6950	Seminar on Health Ecology and Equity (can be repeated once)	
Total Hours		**9**

[1] Elective courses relevant to the certificate vary from year to year. Courses with substantial content focused on health equity science or social inequality are likely to qualify. Please email course syllabus to Dr. Thomas Fuller-Rowell (tfr1@auburn.edu) to obtain approval.

Steps to Obtain the Certificate:

1. Submit an application for the certificate program through ApplyYourself (https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=auburn-g) and then email Tom Fuller-Rowell (tfr1@auburn.edu) and Stephen Erath (sae0001@auburn.edu) to let them know that you have applied. Note that Auburn University employees and current graduate students are exempted from the application fee requirement.
2. Complete the course requirements that are specified in the certificate description and obtain a grade of B or better in all courses. Note that it is okay to complete some of the course requirements before applying for the certificate.
3. After final grades have been posted for all relevant courses, email Tom Fuller-Rowell (tef0005@auburn.edu) and Stephen Erath (sae0001@auburn.edu) to alert them that your requirements for the certificate have been completed.
4. Your certificate will then be reviewed for approval. After being approved, the certificate will appear on your transcript.

History — Graduate Certificate, MA, PhD

Degree Programs

- History — MA (p. 1678)
- History — PhD (p. 1679)

Graduate Certificate

- Public History (p. 1679)

The Department of History offers two graduate programs: the Master of Arts in History and the PhD in History. Additionally, the department offers a Graduate Certificate in Public History. The graduate programs prepare students for careers in teaching, public history, government, and research. More information is available at https://cla.auburn.edu/history/current-students/graduate/.

MA in History

Admission Requirements

For admission to the MA program, the student must have a bachelor's degree from an accredited institution. For more information about the Department of History's expectations for admission, see https://cla.auburn.edu/history/future-students/graduate/how-to-apply/. Applications must be approved by the department's graduate committee. Applicants lacking course requirements must make up deficiencies before or after admission to the degree program. The committee's decisions are based on a review of all application materials.

Applicants will submit the following materials for consideration:

- Official transcripts from all undergraduate and graduate institutions
- A writing sample
- A statement of purpose
- An application for an assistantship (for those who wish to be considered for funding—note earlier application deadline for assistantships)
- Three confidential letters of recommendation

January 15 is the due date for those applicants who also wish to apply for a graduate assistantship. March 15 is the deadline for all other applications.

MA Requirements

The MA requires a minimum of 31 hours and a culminating project. Of the 31 hours, 13 are in required courses, 15 hours are in elective courses, and 3 hours are in thesis research. In addition to possible concentrations in United States history, European history, and the history of technology, the MA program offers a specialization in public history, including practical training (a 3-hour required internship). The Department does not admit students to pursue non-thesis MA degrees, but a MA degree (non-thesis) can be awarded to students in the doctoral program who have not previously earned the master's upon passing the general examination for admission to candidacy for the PhD.

There is no language requirement for the MA degree.

PhD in History

Admission Requirements

For admission to the PhD program, the student must have a bachelor's degree from an accredited institution. For more information about the Department of History's expectations for admission, see https://cla.auburn.edu/history/future-students/graduate/how-to-apply/. Applications must be approved by the department's graduate committee. The committee's decisions on admission are based on a review of all application materials.

Applicants will submit the following materials for consideration:

- Official transcripts from all undergraduate and graduate institutions
- A writing sample
- A statement of purpose
- An application for an assistantship (for those who wish to be considered for funding—note earlier application deadline for assistantships)
- Three confidential letters of recommendation

January 15 is the due date for those applicants who also wish to apply for a graduate assistantship. March 15 is the deadline for all other applications.

PhD Requirements

The program requires a minimum of 66 semester hours beyond the bachelor's degree, written comprehensive examinations, an oral defense of a written dissertation prospectus, and the dissertation, in addition to demonstrated reading knowledge of at least one foreign language. Of the 66 hours, 26 hours are in required courses, 30 hours are in elective courses, and 10 hours are in Research and Dissertation credit.

Ten courses are required. Seven courses are required for all students regardless of concentration. They are:

- HIST 8720 Introduction to Graduate Studies
- HIST 7700 Seminar In Historical Methods
- HIST 7710 Graduate Research Seminar
- HIST 8700 Historiography and Theory of History
- HIST 8710 Introduction to the Teaching of History
- HIST 7860 Research Project Design
- HIST 8730 Introduction to the Historical Profession

Students focusing on U.S. history are required to take:

- HIST 7240 Debates in Early American History
- HIST 7250 Debates in Modern American History
- HIST 7480 Debates in European History

Students focusing on European history are required to take:

- HIST 7480 Debates in European History (repeat for 6 credits)

And choose one of:

- HIST 7240 Debates in Early American History OR
- HIST 7250 Debates in Modern American History

Students must also take at least one history seminar in a non-U.S. or non-European geographic area.

Fields of Study

Students choose a primary field of study which is typically reflected in their elective coursework, as well as choosing two other fields. Together, these comprise the student's three fields for the comprehensive examinations. Each exam field has a different advisor, one of whom is the student's primary advisor. Exam fields include (but are not limited to):

- African American History
- Colonial/Indigenous North America
- Early American History
- Early Modern Europe
- History of Technology
- History of Medicine
- History of Women/Gender/Sexuality
- Labor History
- Military History
- Modern American History
- Modern Europe
- Public History
- Race, Rights, and Inequalities
- Southern History
- War and Society
- World History
- Other fields as approved by the Graduate Committee

To advance to candidacy, students must demonstrate competence in three fields through written examinations and successfully defend a written dissertation prospectus in an oral defense. Examinations begin in the last semester of coursework (Fall) and conclude the following Spring semester.

The prospectus is defended in an oral examination no more than four months after passage of the last comprehensive examination.

Following a successful defense of the prospectus, doctoral candidates have four years to present the written dissertation and defend it in an oral examination before their major professor and advisory committee. If the oral examination is judged unsatisfactory or not submitted in a timely manner, the general rules of the Graduate School on retests and extension will apply.

The PhD requires a reading knowledge of at least one foreign language as determined by the student's doctoral committee. Language competency should be demonstrated before the student begins the comprehensive examinations process.

Graduate Certificate in Public History

In most circumstances, only students enrolled in a degree program in history or those who have completed an MA in History may enter the graduate certificate non-degree program in history. However, applicants who have completed a master's degree in an allied field may be eligible for admission to the Graduate Certificate in Public History.

Admission Requirements

If applicants are not simultaneously seeking to matriculate into the MA or PhD program, they must have a MA in History or a related field. Applications must be approved by the Public History program officer and by the department's graduate committee.

Applicants will submit the following materials for consideration:

- Official transcripts from all undergraduate and graduate institutions
- A writing sample
- A statement of purpose
- Three confidential letters of recommendation

If applicants are not also seeking admission into the MA or PhD program, materials for admission to the Public History Graduate Certificate program may be submitted at any point during the academic year. The program officer and the department's graduate committee will determine the academic term of admission.

If applicants are also seeking admission to the MA or PhD program, applications for the graduate certificate should be received by March 15.

Graduate Certificate in Public History

Students are required to complete 12 credit hours in public history, including HIST 6810 Fundamentals of Public History, HIST 7910 Public History Internship, and at least two other graduate Public History courses to receive the Graduate Certificate in Public History.

History — MA

Code	Title	Hours
MA History Thesis		
HIST 8720	Introduction to Graduate Studies	1
HIST 7700	Seminar in Historical Methods	3
HIST 7710	Graduate Research and Writing Seminar [1]	3
HIST 8700	Historiography and Theory of History	3
HIST 7990	Research and Thesis	4
Historical Debates Course (choose one)		3
HIST 7240	Debates in Early American History	
HIST 7250	Debates in Modern American History	
HIST 7480	Debates in European History	
Select 6 Credits in HIST 6000-8999		6
Select 9 Credits in HIST 7000–8999		9
Total Hours		**32**

[1] Or equivalent course as approved by advisor.

Code	Title	Hours
MA History Non-Thesis (only available for direct-track PhD students)		
HIST 8720	Introduction to Graduate Studies	1
HIST 7700	Seminar in Historical Methods	3
HIST 7710	Graduate Research and Writing Seminar [1]	3
HIST 8700	Historiography and Theory of History	3
HIST 8710	Introduction to the Teaching of History	3
Historical Debates Course (choose one)		3
HIST 7240	Debates in Early American History	
HIST 7250	Debates in Modern American History	
HIST 7480	Debates in European History	
Select 6 Credits in HIST 6000-8999		6

Select 33 Credits in HIST 7000-8999	33
Total Hours	**55**

[1] or equivalent course approved by advisor.

History — PhD

Code	Title	Hours
PhD History		
HIST 7700	Seminar in Historical Methods	3
HIST 7710	Graduate Research and Writing Seminar	3
HIST 7860	Research Project Design	3
HIST 8700	Historiography and Theory of History	3
HIST 8710	Introduction to the Teaching of History	3
HIST 8720	Introduction to Graduate Studies	1
HIST 8730	Introduction to the Historical Profession	1
Historical Debates Seminar Requirement [1]		9
HIST 7240	Debates in Early American History	
HIST 7250	Debates in Modern American History	
HIST 7480	Debates in European History	
Readings Course Requirement [2]		9
Select 6 Credits in @ 6000-8999 [3]		6
Select 15 Credits in @ 7000-8999 [3]		15
HIST 8990	Research and Dissertation	10
Total Hours		**66**

[1] Students concentrating in U.S. history are required to take all three seminars. Students concentrating on European history should take HIST 7480 two times and either HIST 7240 or HIST 7250.

[2] Students will complete up to 9 hours of graduate readings courses (e.g., HIST 8000, HIST 8010, etc.) in preparation for preliminary examinations. If a student uses less than 9 hours, the remaining hours shift to other graduate history electives.

[3] Of these history graduate elective hours, at least 2 courses must be outside of the student's exam fields. Up to 2 courses may be non-HIST graduate courses.

Public History — Graduate Certificate

This graduate certificate is designed to provide students a grounding in the fundamentals of the field, including the skills necessary to plan and carry out comprehensive programs of research, identifying and locating relevant secondary literature, archives and/or with other substantial collections of primary sources. This certificate will prepare individuals for employment in public history organizations, ranging from museums and public heritage groups to historic sites, archives, and state agencies, including the National Park Service.

Code	Title	Hours
Public History - Graduate Certificate		
HIST 6810	Fundamentals of Public History	3
HIST 7700	Seminar in Historical Methods	3
HIST 7910	Public History Internship	3
Select 9 Credits in the Following:		9
HIST 6710	Fundamentals of Archival Theory and Practice	
HIST 6820	Historic Preservation and Cultural Resource Management	
HIST 7720	Seminar in Archival Theory and Practice	
HIST 7730	Seminar in the History of Records and Archives	

HIST 7970	Special Topics in History	
Total Hours		**18**

Horticulture — Graduate Certificate, MS, MAg, PhD

Degree Programs

- Horticulture — MS (p. 1681)
- Horticulture — MAg (p. 1680)
- Horticulture — PhD (p. 1681)

Graduate Certificates

- Public Horticulture (p. 1681)

Graduate study in horticulture emphasizes the Master of Science and Doctor of Philosophy degrees. Graduates are prepared for careers in teaching, research, business, public horticulture or Cooperative Extension. Master-level programs are available to students with undergraduate degrees in horticulture and to those from other areas seeking opportunities in horticulture-related careers. For the MS program, students must have a bachelor's degree in horticulture or a related area from an accredited university and meet specific departmental academic standards. Applicants from related areas will be required to correct any undergraduate course deficiencies. GRE test scores, GPA, letters of intent and reference, as well as other support material, will be considered in evaluating applicants. A GRE Analytical Writing Score of 3.0 or above is recommended. For applicants scoring less than 3.0 on the essay portion of the GRE, ENGL 3040 Technical Writing will be considered a deficiency course. An absolute requirement for admission is a faculty member willing to serve as the applicant's advisor. The MS requires a minimum of 30 credit hours of graduate work, including at least 21 credit hours in the major field of study and six of which may be research & thesis hours (HORT 7990). The student's plan of study is individually tailored by the student, the major professor and the advisory committee to meet the student's career goals. A thesis based on research by the student is required. Students in the MS program in Horticulture who are on departmental funding cannot change to the Master of Agriculture program.

Admission requirements for the MAg program, a non-thesis degree, are the same as for the MS degree. The MAg requires successful completion of 32 credit hours, 21 of which must be in agricultural sciences. Credit for HORT 7990, Research and Thesis, cannot be counted toward graduation requirements for the MAg. Additional courses may be required for individual students as determined by the major professor and the advisory committee. There is no specific schedule of courses for MS or MAg students or a foreign language requirement for any graduate students in Horticulture. Students in this option must complete a research or special project and pass a comprehensive oral exam covering course work and the project.

Admission to the Doctor of Philosophy program requires the completion of a thesis-based degree and meeting the same requirements as for master-level programs. Doctoral candidates must follow all Graduate School and departmental requirements concerning course work. For the PhD, the Graduate School requires a minimum of 30 semester hours of graded (e.g., A, B, C) graduate course work (6000-level and above) beyond the bachelor's degree, and at least 30 semester hours of additional graduate course work that may include un-graded courses, including 7990 and 8990. The advisory committee may require additional course work. Upon completion of all course work, PhD students may be required to take a general written examination by his/her committee. Students must pass all parts of the written examination before scheduling the required preliminary oral examination (referred to as the PhD prelim exam). After satisfactory completion of the prelim exam the student advances to candidacy. The PhD student will conduct independent research and prepare a dissertation through the guidance and direction of an advisory committee. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

Several minors are available for horticulture graduate students. Auburn University's Department of Horticulture and College of Forestry and Wildlife Sciences offer a minor in Urban Forestry. An interdisciplinary minor in Environmental Studies administered by the Crop, Soil and Environmental Sciences Department is also an option, as are minors in Ecology and Biochemistry and Cell/Molecular Biology. The department also offers a Graduate Certificate in Public Horticulture.

Horticulture — MAg

Code	Title	Hours
MAg Horticulture (On-campus or Online)		
HORT 7950	Seminar	1

Select a minimum of 13 Credits in Horticulture @ 6000-8999	13
Select 14 Credits in @ 6000-8999	14
HORT 7980 Nonthesis research	2
Total Hours	**30**

Horticulture — MS

Code	Title	Hours
MS Horticulture		
HORT 7950	Seminar (I)	1
HORT 7950	Seminar (II)	1
HORT 7990	Research and Thesis	6
Select a minimum of 6 Credits in Horticulture @ 6000-8999		6
Select 16 Credits in @ 6000-8999		16
Total Hours		**30**

Horticulture — PhD

Code	Title	Hours
PhD Horticulture		
HORT 7950	Seminar (I)	1
HORT 7950	Seminar (II)	1
HORT 7950	Seminar (III)	1
HORT 8990	Research and Dissertation	10
Select a minimum of 7 Credits in Horticulture @ 6000-8999		7
Select 40 Credits in @ 6000-8999		40
Total Hours		**60**

Public Horticulture — Graduate Certificate

This Graduate Certificate Program is designed to provide opportunities for those wishing to gain the theoretical knowledge and practical skills to connect traditional horticulture and public outreach. Career fields include working in public gardens, arboreta, university extension services, hospitality industry (resorts), zoos, and community gardens. Career practices include public garden administration, teaching, horticultural therapy, garden design and event planning. The curriculum includes courses that give students practical experience with horticultural skills and garden management as well as exposure to top public gardens around the world through travel and internship experiences.

Code	Title	Hours
Horticulture (Graduate Certificate)		
HORT 6150	Retail Garden Center Management	3
HORT 6240	Public Garden Management	3
HORT 6910	Horticulture Practicum	4
HORT 7050	Nutritional Requirements of Horticultural Plants	3
HORT 7840	Graduate Study/Travel in Horticulture	1
HORT 7920	Graduate Internship	1
Total Hours		**15**

Hospitality Management — MS, PhD

The School of Hospitality Management offers the MS and PhD in hospitality management. The Master of Science (MS) degree is designed to provide advanced education for the rapidly evolving hospitality field. Students will have a choice of two study options: the on-campus thesis or non-thesis program (non-thesis also offered in distance education format). The MS degree requires a minimum of 30 semester hours for the thesis track and 33 for non-thesis. The principal difference between the two programs is the emphasis

on primary research. The thesis track aims to develop the necessary skills to perform high level, timely and relevant research aimed to rejuvenate existing hospitality thinking and practice. The non-thesis track is designed mainly for individuals interested in combining current work life with the need for educational advancement. Non-thesis requirements include completion of a research project relevant to the student's business environment. Both master's tracks offer an interesting blend of theoretical and applied courses created to keep students abreast of current management thinking and practice. Particular emphasis is placed on the concepts of workplace diversity, informed decision-making and management in a global context.

- Hospitality Management — MS (p. 1682)

The Doctor of Philosophy (PhD) program is offered to students interested in developing research skills beyond the master's level and is focused on an academically oriented career. The PhD program places a strong emphasis on methodology and the scientific process and equips students with the skill set necessary to make significant contributions in the chosen research field.

PhD students are required to complete a minimum of 60 credit hours of coursework beyond the bachelor’s degree, at least 10 of which must be for a dissertation. The coursework structure is presented below:

- Hospitality Management — PhD (p. 1682)

Hospitality Management — MS

Code	Title	Hours
The following presents the coursework for both degree options:		
Thesis Option:		
HOSP 7090	Consumer Behavior in Hospitality and Tourism	3
HOSP 7500	Global Hospitality Strategy	3
HOSP 7050	Advanced Hospitality Operations	3
PSYC 7270	Experimental Design in Psychology	4
PSYC 7730	Research Methods in Industrial/Organizational Psychology *	3
HOSP 8910	Supervised Teaching	1
HOSP 7990	Research and Thesis	4
Electives (minimum of 9 graduate-level credit hours, 6 of which must be HOSP courses)		
*Can be substituted with CADS 7050, HDFS 7050, or MNGT 8030		
Non-Thesis Option:		
HOSP 7090	Consumer Behavior in Hospitality and Tourism	3
HOSP 7500	Global Hospitality Strategy	3
HOSP 7050	Advanced Hospitality Operations	3
HOSP 7980	Non-Thesis Research	4
Electives (minimum of 20 graduate-level credit hours, 6 of which must be HOSP courses)		

Hospitality Management — PhD

Code	Title	Hours
H&T Core:		**21**
HOSP 7090	Consumer Behavior in Hospitality and Tourism	3
HOSP 7500	Global Hospitality Strategy	3
HOSP 7050	Advanced Hospitality Operations	3
HOSP 8880	Theoretical Developments for Hospitality	3
HOSP 8870	Advanced Hospitality Management Research and Applications	3
HOSP 8970	Grantsmanship for Hospitality and Tourism Research	3
HOSP 8020	New Faculty Development in Hospitality	2
HOSP 8910	Supervised Teaching	1
Research Support (Students can choose either a quantitative or qualitative track):		**20-21**
Quantitative Track		

PSYC 7270	Experimental Design in Psychology [1]	4
PSYC 7280	Experimental Design in Psychology II [2]	4
PSYC 8250	Multivariate Methods [3]	4
PSYC 8970	Special Topics [4]	3
One qualitative course (3 hours)		
One advanced statistics course		
Qualitative Track		
ERMA 7210	Theory and Methodology of Qualitative Research	3
ERMA 7220	Applied Qualitative Research	3
ERMA 7400	Mixed Methods Research	3
PSYC 7270	Experimental Design in Psychology [1]	4
PSYC 7280	Experimental Design in Psychology II [2]	4
One advanced qualitative methods course		
Electives		**8-9**
HOSP 8990	**Research and Dissertation**	**10**

Code	**Title**	**Hours**
Total Hours:		**60**

1 *Can be substituted with STAT 7000*
2 *Can be substituted with STAT 7010*
3 *Can be substituted with STAT 7840, HDFS 8060, or HDFS 8070*
4 *Can be substituted with HDFS 8050*

Human Development and Family Science — Graduate Certificate, MS, PhD

Degree Programs

- Child Life — MS (p. 1684)
- Human Development and Family Science — MS (p. 1684)
- Human Development and Family Science — Marriage and Family Therapy Option — MS (Thesis/Non-Thesis) (p. 1685)
- Human Development and Family Science — PhD (p. 1686)

Graduate Certificates

- Advanced Research Methods for Human Sciences
- Health Equity Science

The Department of Human Development and Family Science offers graduate instruction leading to the Master of Science in Child Life, the Master of Science in Human Development and Family Science, with an additional option in Marriage and Family Therapy, and the Doctor of Philosophy in Human Development and Family Science. The Department emphasizes the integration of knowledge from various fields to prepare students for careers in research, teaching, and human service provision as well as education, policy, and industry. To promote training and research, the Department operates the Auburn University Early Learning Center, Harris Early Learning Center of Birmingham, and the Center for Marriage and Family Therapy. The Marriage and Family Therapy Option is accredited by the American Association for Marriage and Family Therapy Commission on Accreditation for Marriage and Family Therapy Education. Both the Auburn University Early Learning Center and Harris Early Learning Center of Birmingham are accredited by the National Academy of Early Childhood Programs, a division of the National Association for the Education of Young Children.

For admission, a background in the social and behavioral sciences is highly desirable and should include course work in human development, family relations, psychology and/or sociology, and statistics. There is no language requirement for the MS or PhD degrees.

The department offers two MS concentrations (a) human development and family science and (b) marriage and family therapy. The human development and family science concentration requires a minimum of 30 semester hours and the concentration in marriage and family therapy requires 52 semester hours. Both require a thesis, and other fundamental work.

The PhD program requires a minimum of 60 credit hours beyond the BS. This program requires course work with a theoretical and substantive emphasis in human development and relationships, a research and statistics component, and an empirical dissertation.

Graduate research may focus on human development and relationships or the application of research to improve quality of life at any stage of the life cycle. Competitive graduate assistantships are available to students.

Child Life — MS

Traditional Child Life Program

The Master of Science degree in Child Life requires a minimum of 34 semester hours. Students who successfully complete this program will be eligible to sit for the child life certification examination. The program will include academic work and field work (practicum/internship/internship student supervision) to prepare future certified child life specialists.

Advanced Standing Child Life Program

The Master of Science degree in Child Life (Advanced Standing Program) requires a minimum of 34 semester hours. Students who have completed a 600+ hour child life internship or who are currently Certified Child Life Specialists may qualify for admission into the online Advanced Standing Child Life Program. The program will utilize the certified Child Life experience within the academic coursework to expand on their current scope of practice.

CodeTitleHours

Required Courses:

Code	Title	Hours
HDFS 7010	Child and Adolescent Development in Context	3
HDFS 7040	Family Processes	3
HDFS 7070	Research Literacy in Human Development and Family Science	3
HDFS 7100	Psychosocial Care of Medically and Emotionally Vulnerable Children	3
HDFS 7110	Play and Therapeutic Interventions in Child Life	3
HDFS 7130	Child Life Program Development and Evaluation	3
HDFS 7140	Death, Dying and Bereavement for Child Life Specialists	3
HDFS 7950	Internship in Child Life	12
HDFS 7850	Graduate Child Life Practicum Advanced Standing students will take HDFS 7120 instead of HDFS 7850	3
or HDFS 7120	Introduction to Capstone for Advanced Standing Child Life Students	

Human Development and Family Science — MS

Code	Title	Hours
MS Human Development & Family Science		
Select 6 credit hours from the following:		6
HDFS 6200	Applied Research and Evaluation Methods	
HDFS 6300	HDFS and Social Policy	
HDFS 6400	Program Design for Communities, Schools, and Families	
HDFS 6930	Society and Health	3
HDFS 7010	Child and Adolescent Development in Context	3
HDFS 7020	Adult Development in Context	3
HDFS 7040	Family Processes	3
HDFS 7050	Research Methods for Human Development and Family Science	3
Select 3 credit hours from the following:		3
HDFS 7060	Research Methods for Human Development and Family Science II	

HDFS 7070	Research Literacy in Human Development and Family Science	
HDFS 8090	Qualitative Methods in the Social Sciences	
HDFS 7930	Seminar in Human Development and Family Science	1
HDFS 7990	Research and Thesis	4
4 Credit hours in HDFS 6000-8999 (approved electives)		4
Total Hours		**33**

Human Development & Family Science, Marriage & Family Therapy Option — MS (Thesis & Non-Thesis)

Code	Title	Hours
MS Marriage and Family Therapy Thesis Option		
HDFS 7030	Lifespan Development in Context	3
HDFS 7600	Marriage and Family Therapy Theory I	3
HDFS 7601	Marriage and Family Therapy Theory Laboratory I	1
HDFS 7050	Research Methods for Human Development and Family Science	3
HDFS 7620	Marriage and Family Therapy Clinical Issues I: Family Systems	3
HDFS 7621	Marriage and Family Therapy Laboratory II	1
HDFS 7680	Systemic Assessment, Diagnosis, & Treatment of Psychopathology	3
HDFS 7670	Individual, Couple, and Family Dynamics of Addiction, Recovery, and Treatment	3
HDFS 7630	Marriage and Family Therapy Clinical Issues II: Individuals	3
HDFS 7631	Marriage and Family Therapy Laboratory III	1
HDFS 7610	Marriage and Family Therapy Theory II	3
HDFS 7640	Marriage and Family Therapy Clinical Issues III: Couples	3
HDFS 7650	Marriage and Family Therapy Professional Issues	3
HDFS 7920	Marriage and Family Therapy Internship (I)	3
HDFS 7920	Marriage and Family Therapy Internship (II)	3
HDFS 7920	Marriage and Family Therapy Internship (III)	3
HDFS 7930	Seminar in Human Development and Family Science	1
HDFS 7660	Systemic Impact of Illness, MedFT, & Psychopharmacology	3
HDFS 7990	Research and Thesis	4
Total Hours		**50**

Code	Title	Hours
MSNT Marriage and Family Non-Thesis Option		
HDFS 7030	Lifespan Development in Context	3
HDFS 7600	Marriage and Family Therapy Theory I	3
HDFS 7601	Marriage and Family Therapy Theory Laboratory I	1
HDFS 7050	Research Methods for Human Development and Family Science	3
HDFS 7620	Marriage and Family Therapy Clinical Issues I: Family Systems	3
HDFS 7621	Marriage and Family Therapy Laboratory II	1
HDFS 7680	Systemic Assessment, Diagnosis, & Treatment of Psychopathology	3
HDFS 7670	Individual, Couple, and Family Dynamics of Addiction, Recovery, and Treatment	3
HDFS 7630	Marriage and Family Therapy Clinical Issues II: Individuals	3
HDFS 7631	Marriage and Family Therapy Laboratory III	1
HDFS 7610	Marriage and Family Therapy Theory II	3
HDFS 7640	Marriage and Family Therapy Clinical Issues III: Couples	3
HDFS 7650	Marriage and Family Therapy Professional Issues	3
HDFS 7920	Marriage and Family Therapy Internship (I)	3

HDFS 7920	Marriage and Family Therapy Internship (II)	3
HDFS 7920	Marriage and Family Therapy Internship (III)	3
HDFS 7930	Seminar in Human Development and Family Science	1
HDFS 7660	Systemic Impact of Illness, MedFT, & Psychopharmacology	3
HDFS 7070	Research Literacy in Human Development and Family Science	3
HDFS 7970	Special Topics in HDFS	1
Total Hours		**50**

Human Development and Family Science — PhD

Code	Title	Hours
PhD		
Select 3 credit hours from the following:		3
HDFS 6200	Applied Research and Evaluation Methods	
HDFS 6300	HDFS and Social Policy	
HDFS 6400	Program Design for Communities, Schools, and Families	
HDFS 6930	Society and Health	3
HDFS 7010	Child and Adolescent Development in Context	3
HDFS 7020	Adult Development in Context	3
HDFS 7040	Family Processes	3
HDFS 7050	Research Methods for Human Development and Family Science	3
HDFS 7060	Research Methods for Human Development and Family Science II	3
HDFS 7930	Seminar in Human Development and Family Science	1
Select 3 credit hours from the following:		3
HDFS 8010	Relationship Development and Process in Childhood and Adolescence	
HDFS 8020	Relationship Development and Process in Adulthood	
HDFS 8050	Advanced Research Methods: Covariance Structure Analysis	3
HDFS 8060	Multilevel Modeling	3
HDFS 8990	Research and Dissertation	10
25 Credit hours in @ 6000-8999 (approved electives)		25
Total Hours		**66**

Advanced Research Methods for Human Sciences — Graduate Certificate

This graduate certificate is designed to provide a well-rounded background in methodology and statistics in social sciences, with an emphasis on application to developmental and family sciences. It will advance the knowledge of the dynamics of human development and family interactions.

Code	Title	Hours
Advanced Research Methods for Human Sciences - GCRT		
HDFS 7050	Research Methods for Human Development and Family Science	3
HDFS 7060	Research Methods for Human Development and Family Science II	3
HDFS 8040	Longitudinal Data Analysis	3
HDFS 8050	Advanced Research Methods: Covariance Structure Analysis	3
HDFS 8060	Multilevel Modeling	3
Select two of the following electives courses:		6
HDFS 8070	Mediation and Moderation Analysis	
HDFS 8080	Mixture Modeling	
HDFS 8090	Qualitative Methods in the Social Sciences	

PSYC 8280	Meta-Analysis	
PSYC 7230	Psychometric Theory	
GRAD 8200	Principles of Responsible Conduct of Research and Scientific Integrity	
Total Hours		**21**

Health Equity Science — Graduate Certificate

The Graduate Certificate in Health Equity Science (CHES) is administered through the Department of Human Development and Family Science, College of Human Sciences (CHS) under the purview of the Health Disparities Research Initiative (HDRI). The graduate CHES is part of the training mission of HDRI, which is aimed at cultivating scholarship on health ecology and equity, and developing leaders committed to address health inequities. This is achieved by helping students acquire a strong foundation of knowledge on health ecology and equity issues. In addition, the graduate CHES exposes students to a breadth of advanced topics in health ecology and equity and facilitates gaining depth of knowledge on specialized topics. Graduate students completing this certificate will have a strong understanding of the role of social context in generating disease risks and disparities in health between groups; and also learn how this corpus of knowledge can be translated into health-promoting policies and community-level interventions. They also have the opportunity to gain skills in research on a specific health equity topic through thesis or dissertation research.

Code	Title	Hours
HUSC 6930	Society and Health	3
HUSC 6950	Seminar on Health Ecology and Equity	3
Three (3) additional semester hours through elective courses:		3
HDFS 6300	HDFS and Social Policy	
HUSC 6950	Seminar on Health Ecology and Equity (can be repeated once)	
Total Hours		**9**

[1] Elective courses relevant to the certificate vary from year to year. Courses with substantial content focused on health equity science or social inequality are likely to qualify. Please email course syllabus to Dr. Thomas Fuller-Rowell (tfr1@auburn.edu) to obtain approval.

Steps to Obtain the Certificate:

1. Submit an application for the certificate program through ApplyYourself (https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=auburn-g) and then email Tom Fuller-Rowell (tfr1@auburn.edu) and Stephen Erath (sae0001@auburn.edu) to let them know that you have applied. Note that Auburn University employees and current graduate students are exempted from the application fee requirement.
2. Complete the course requirements that are specified in the certificate description and obtain a grade of B or better in all courses. Note that it is okay to complete some of the course requirements before applying for the certificate.
3. After final grades have been posted for all relevant courses, email Tom Fuller-Rowell (tef0005@auburn.edu) and Stephen Erath (sae0001@auburn.edu) to alert them that your requirements for the certificate have been completed.
4. Your certificate will then be reviewed for approval. After being approved, the certificate will appear on your transcript.

Industrial Design — MID

The school offers the Master of Industrial Design (MID) degree accredited by the National Association of Schools of Art and Design (NASAD). Applicants must have a bachelor's degree in industrial design or equivalent from an institution of recognized standing. Applicants with a bachelor's degree in an industrial-design-related discipline, such as architecture, graphic design, interior design, and fashion design, etc. are eligible to apply through the regular application process. Acceptance to the MID program is heavily based on portfolio review. Unsuccessful applicants with an industrial-design-related degree, or applicants with a non-design degree, may choose to apply to the graduate program under the condition that a minimum of 43 post baccalaureate credit hours in industrial design be completed at the undergraduate level with a 3.0 GPA. These applicants are admitted during the summer semester and awarded a bachelor of science in industrial design studies (NASAD accredited) upon completion of the three semester post baccalaureate program. Upon admission to the master’s program successful completion of 35 graduate level credit hours, including a thesis is required. A 40-credit hour non-thesis option is available. Minimum (4) credit hours of INDD 7990 Design Thesis is required but may not exceed six hours. Course content beyond the 17-credit hour core curriculum will be structured to accommodate the student’s area of interest. Completion of an industry collaboration studio (INDD 7910 Industry Practicum) is required. There is no language requirement. An external terminal document draft review and a 3.0 overall graduate GPA are required. Participation in school sponsored international

travel programs may be used as credit towards graduation. Students are admitted only in the fall semester. Applications to the graduate program must be complete by February 1.

All courses are (3) credits except Special Problems INDD 6960 (1-5) credits, Thesis Design INDD 7990 (1-5) credits and Industry Practicum INDD 7910 (5) credits. Thesis requires (35) credits minimum, *four semesters*, with no more than (6) credits taken in INDD 7990. Non-Thesis requires (40) credits minimum, *four semesters* with (3) credits taken in INDD 7980. It is required that MID students take no more than 12 graduate credits per semester (9 is full-time) and enter the program during fall semester. All thesis, non-thesis documentation drafts for the MID must be completed and submitted for final graduation review by the respective graduate committee **the semester prior to** the intended semester of graduation. A 3.0 GPA or above is required to qualify for graduation. Select INDD 6960 classes may be offered during the summer semester. Graduate students transferring from other INDD graduate programs will be reviewed for admission on a case-by-case basis but must complete all AU/MID Required Core Courses. **The recommended enrollment in graduate classes is eight students.** No more than 15 credits in INDD 6960 may be used toward graduation.

Master of Industrial Design Thesis

Code	Title	Hours
Master of Industrial Design Thesis (MIND)		
INDD 6010	History of Industrial Design II	3
INDD 6120	Portfolio	3
INDD 7010	Design Orientation	3
INDD 7020	Computer/Industrial Design	3
INDD 7910	Industry Practicum	5
Select 4-6 Credits in INDD 7990		4-6
Select 12-14 Credits in @ 6000-8999		14-12
Total Hours		**35**

Master of Industrial Design Non-Thesis

Code	Title	Hours
Master of Industrial Design Non-Thesis (MINN)		
INDD 6010	History of Industrial Design II	3
INDD 6120	Portfolio	3
INDD 7010	Design Orientation	3
INDD 7020	Computer/Industrial Design	3
INDD 7910	Industry Practicum	5
INDD 7980	Non-Thesis Design	3
Select 20 Credits in @ 6000-8999		20
Total Hours		**40**

Industrial and Systems Engineering — Graduate Certificate, MS/MBA, MS, MEM, PhD

Degree Programs:

- Industrial and Systems Engineering — MS (p. 1691)
- Engineering Management — MEM (p. 1689)
- Industrial and Systems Engineering — PhD (p. 1691)

Graduate Certificates:

- Automotive Manufacturing Systems (p. 1689)
- Occupational Safety & Ergonomics (p. 1692)
- Manufacturing Systems (p. 1691)

- Modeling and Data Analytics for Operations (p. 1692)

The department offers the master of science (thesis and non-thesis), a master of engineering management with four options, a joint program leading to both MS and MBA degrees, and the doctor of philosophy. These programs are for students with undergraduate degrees in industrial engineering, other engineering disciplines, mathematics, and sciences.

All masters applicants who have an engineering degree from an ABET-accredited program with a GPA of 2.75 or higher do not have to take the GRE. Otherwise, applicants must submit Graduate Record Examination scores for the General Test except MS/MBA applicants who may instead submit Graduate Management Admission Test scores. All PhD applicants are required to take the GRE.

The MS programs require a total of 31 hours of course work, which includes a one semester hour seminar class. The MS non-thesis is oriented toward professional practice. These students must take 9 semester hours of core courses, 12 hours of INSY electives and 9 hours of INSY or INSY-related electives. The MS thesis has the same course requirements and hours except that 4-6 hours of thesis may be substituted for the same hours of elective courses.

The MEM program requires 30 hours of course work. There are four options: Manufacturing, Systems, Occupational Safety and Ergonomics, and Product Innovation.

The MBA/MS in Industrial & Systems Engineering is a 55-credit hour concurrent degree program administered jointly by the Industrial and Systems Engineering faculty and the MBA program. Students must apply separately to each program (MS Industrial & Systems Engineering and MBA). The concurrent degree path consists of 27 credit hours of MBA core (BUSI) classes, 9 credit hours of INSY core classes, 12 credit hours of INSY electives, a one credit hour INSY seminar course and 6 hours of approved electives. The program saves the student fifteen hours of coursework over completing both degrees separately.

Research involvement is the dominant element in the doctoral program. It provides a quality educational experience for selected individuals whose records indicate excellent potential not only for superior performance in course work, but also for the research and ensuing dissertation which is an original and scholarly contribution to the field. The PhD program requires at least 60 semester hours of coursework beyond the bachelors, including 9 semester hours of core courses. A minimum of one hour of graduate seminar is also required. An additional 12 hours of INSY electives must be taken as well as an additional 9 hours of INSY or INSY-related electives. The student must demonstrate a high level of proficiency in a specific area of industrial and systems engineering as well as a competence in the entire field. A minimum of 10 hours in Research and Dissertation credit is required.

Automotive Manufacturing Systems — Graduate Certificate

Both Fully Online or Fully On Campus

This graduate certificate is for students looking to acquire more knowledge in manufacturing. Students completing this certificate will explore the design, analysis, and operation of manufacturing systems as a combination of humans, machinery, equipment, tooling, controls, building, and transportation that are bound by a common material and information flow through application-based courses in state-of-the-art labs and classroom environments.

Code	Title	Hours
Automotive Manufacturing Systems (Graduate Certificate)		
Select 12 hours from the following:		
INSY 6330	Six Sigma	3
INSY 6800	Lean Systems	3
INSY 6830	Vehicle Technology and Trends	3
INSY 6840	Control of the Manufacturing Floor and Processes	3
INSY 6860	Innovations in Manufacturing Systems	3

Engineering Management — MEM

This degree allows those who are currently working in an engineering-related field to expand their career potential and earn a degree that will pay dividends toward their future. The degree is applicable to individuals working in the aerospace, biosystems, chemical, civil, computer science and software, electrical and computer, industrial and systems, materials, mechanical and wireless industries.

Master of Engineering Management - Manufacturing Option

Code	Title	Hours
INSY 6600	Engineering Economic Systems	3
INSY 6800	Lean Systems	3
INSY 7970	Industrial and Systems Engineering Special Topics	3
or INSY 6250	Project Management	
INSY 6080	Human Factors Engineering	3
INSY 6330	Six Sigma	3
INSY 6840	Control of the Manufacturing Floor and Processes	3
INSY 7760	Engineering & Technology Management	3
or BUSI 7140	Organizational Leadership, Ethics and Change	
Select 9 Credits in INSY 6000-8999 or INSY-related @6000-8999 (Electives)		9
Total Hours		**30**

Master of Engineering Management - Occupational Safety and Ergonomics Option

Code	Title	Hours
INSY 6600	Engineering Economic Systems	3
INSY 6800	Lean Systems	3
INSY 7970	Industrial and Systems Engineering Special Topics	3
or INSY 6250	Project Management	
INSY 6080	Human Factors Engineering	3
INSY 6010	Occupational Safety Engineering	3
INSY 7060	Fundamentals of Ergonomics	3
INSY 7760	Engineering & Technology Management	3
or BUSI 7140	Organizational Leadership, Ethics and Change	
Select 9 Credits in INSY 6000-8999 or INSY-related @6000-8999 (Electives)		9
Total Hours		**30**

Master of Engineering Management - Product Innovation Option

Code	Title	Hours
INSY 6600	Engineering Economic Systems	3
INSY 6800	Lean Systems	3
INSY 7970	Industrial and Systems Engineering Special Topics	3
or INSY 6250	Project Management	
INSY 6080	Human Factors Engineering	3
INSY 7730	Product Design, Development, and Test	3
INSY 7740	Product Launch, Manufacturing, and Delivery	3
INSY 7760	Engineering & Technology Management	3
or BUSI 7140	Organizational Leadership, Ethics and Change	
Select 9 credits in INSY 6000-8999 or INSY-related @6000-8999 (Electives)		9
Total Hours		**30**

Master of Engineering Management - Systems Option

Code	Title	Hours
INSY 6600	Engineering Economic Systems	3
INSY 6800	Lean Systems	3
INSY 7970	Industrial and Systems Engineering Special Topics	3
or INSY 6250	Project Management	
INSY 6080	Human Factors Engineering	3

INSY 6100	Systems Engineering I (or INSY 7720)	3
INSY 7710	System Lifecycle Requirements	3
INSY 7760	Engineering & Technology Management	3
or BUSI 7140	Organizational Leadership, Ethics and Change	
Select 9 Credits in INSY 6000-8999 or INSY-related @6000-8999 (Electives)		9
Total Hours		**30**

Industrial and Systems Engineering — MS

Code	Title	Hours
Industrial and Systems Engineering (MS Thesis Option)		
INSY 6600	Engineering Economic Systems	3
INSY 7300	Advanced Engineering Statistics I	3
INSY 7420	Linear Programming and Network Flows	3
INSY 7950	Seminar	1
INSY 7990	Research and Thesis	6
6 Credits in INSY 6000-8999		6
9 Credits in INSY 6000-8999 or Approved INSY-related 6000-8999 Courses		9

Code	Title	Hours
Industrial and Systems Engineering (MS Non Thesis Option)		
INSY 6600	Engineering Economic Systems	3
INSY 7300	Advanced Engineering Statistics I	3
INSY 7420	Linear Programming and Network Flows	3
INSY 7950	Seminar	1
12 Credits in INSY 6000-8999		12
9 Credits in INSY 6000-8999 or Approved INSY-related 6000-8999 Courses		9

Industrial and Systems Engineering — PhD

Code	Title	Hours
Industrial and Systems Engineering - PhD		
INSY 6600	Engineering Economic Systems	3
INSY 7300	Advanced Engineering Statistics I	3
INSY 7420	Linear Programming and Network Flows	3
INSY 7950	Seminar	1
INSY 8990	Research and Dissertation	10
12 credits in INSY 6000:8999		12
9 credits in INSY 6000:8999 or Approved INSY-related Courses		9
19 Credits in Approved INSY-related 6000:8999 or INSY-related @ 6000-8999(electives)		19
Total Hours		**60**

Certificate in Manufacturing Systems

Online and On-Campus Options Available

The Manufacturing Systems Certificate is for students looking to acquire more knowledge in manufacturing. Students completing this certificate will explore the design, analysis, and operation of manufacturing systems as a combination of humans, machinery, equipment, tooling, controls, building, transportation, etc. that are bound by a common material and information flow through application-based courses in state-of-the-art labs and classroom environments.

12 hours total

Required Courses

Code	Title	Hours
INSY 6330	Six Sigma	3
INSY 6800	Lean Systems	3
Total Hours		**6**

Choose 2 of the following:

Code	Title	Hours
INSY 6240	Production and Inventory Control Systems	3
INSY 6450	Simulation-based Planning and Scheduling	3
INSY 6830	Vehicle Technology and Trends	3
INSY 6840	Control of the Manufacturing Floor and Processes	3
INSY 6850	Electronics Manufacturing Systems	3
INSY 6860	Innovations in Manufacturing Systems	3
INSY 7400	Applied Discrete-event Simulation Modeling	3
INSY 7940	Industrial and Systems Engineering Problems	1-5
INSY 7970	Industrial and Systems Engineering Special Topics	1-5
INSY 8970	Industrial and Systems Engineering Special Topics	1-5

Special Topics/Problems courses require Department Approval and only will count as credit towards the certificate based on the topic of the course. Students cannot take 5xxx and the corresponding 6xxx course and receive credit for both.

Lean Six Sigma Green Belt Certification

GR students who complete INSY 6800 and INSY 6330 with a B average receive the certification.

Modeling and Data Analytics for Operations — Graduate Certificate

This graduate certificate provides basic knowledge in computer modeling and data analytics for operations, including manufacturing and service systems which would be appropriate in all types of business, industries, government, and in public and private organizations.

Code	Title	Hours
Choose 3 out of 4 courses		9
INSY 6500	Modern Tools for Data Analytics and Modeling	3
INSY 6550	Decision Support Systems for Operations	3
INSY 7120	Data Analytics for Operations	3
INSY 7130	Data Mining Techniques and Applications for Operations	3

Occupational Safety & Ergonomics — Graduate Certificate

This graduate certificate prepares individuals who are seeking advanced knowledge in occupational safety and ergonomics fields. Students who complete the certificate will have a strong foundation in topics such as safety engineering, risk quantification, ergonomics, human factors engineering, and occupational biomechanics.

Code	Title	Hours
Occupational Safety & Ergonomics (Graduate Certificate)		
Select 15 hours from the following:		15
INSY 6010	Occupational Safety Engineering	
INSY 7020	System Safety Engineering	
INSY 7060	Fundamentals of Ergonomics	
INSY 7070	Occupational Biomechanics	
INSY 8060	Contemporary Ergonomics	

INSY 7040	Cognitive Engineering and System Design
INSY 6050	Industrial Hygiene and Environmental Hazards
INSY 6080	Human Factors Engineering
PSYC 7760	Occupational Health Psychology
PSYC 7700	Foundations in Industrial and Organizational Psychology
INSY 7940	Industrial and Systems Engineering Problems
INSY 7970	Industrial and Systems Engineering Special Topics
INSY 8010	Advanced Safety Engineering
INSY 8020	Research Methods in Occupational Safety, Ergonomics, and Injury Prevention
Total Hours	**15**

Kinesiology — Graduate Certificate, MS, DPT, PhD, Minor

Degree Programs

- Exercise, Performance and Health Optimization — MS (p. 1695)
- Exercise Science — MS (p. 1695)
- Kinesiology — PhD (p. 1696)
- Physical Education/Teacher Education — MS (p. 1696)
- Physical Therapy — DPT (p. 1698)

Graduate Certificate

- Movement Skill Analysis (p. 1696)

Graduate Minor

- Sport Management (p. 1699)

The School of Kinesiology offers graduate degree programs leading to a master of science (non-thesis and thesis options) and doctor of philosophy. Offerings also include a graduate certificate and a graduate minor. The school’s advanced programs prepare students for careers in sport performance, health optimization, fitness program management for community and corporate settings, the allied health, fitness and sport-related industry, as well as teaching and research in educational settings.

Master’s Degree Programs (MS)

Master’s programs are offered in exercise, performance, and health optimization; exercise science; and physical education/teacher education. Specialized areas of study include biomechanics, exercise physiology, motor neuroscience, physical activity and health, pedagogy and post-certification athletic training.

Applicants to MS programs must satisfy the Graduate School’s admission requirements. School of Kinesiology admission requirements include a bachelor’s degree from an accredited college or university, academic good standing at the institution last attended, an undergraduate minimum GPA of 2.75, competitive GRE scores, letters of recommendation, and School approval. For admission to the MS in physical education/teacher education, the undergraduate GPA must be documented on the official transcript of the degree-granting institution and must be the GPA that was used as the basis for granting the degree (not a GPA that includes post-degree courses); alternatively, a minimum GPA of 3.0 in a master's of higher degree program may be used for admission.

MS programs in physical education/teacher education include alternative certification and traditional certification programs. The alternative MS certification program offers qualified students who hold non-teaching baccalaureate degrees a route to initial teacher certification while simultaneously earning a master’s degree; the traditional MS certification program offers advanced study for individuals who hold a valid bachelor’s-level professional educator certificate in physical education/teacher education. Applicants to the alternative MS certification program in physical education/teacher education must submit a clear background check and satisfy the State’s teaching field admission requirements; applicants to the traditional MS certification program in physical education/teacher education must submit a clear background check and hold a valid bachelor’s-level professional educator certificate in physical education. Both certification programs are approved by the Alabama State Department of Education (ALSDE). The College of Education is accredited by the Council for Accreditation of Educator Preparation (CAEP).

Degree requirements for all non-thesis master’s programs include a minimum of 33 hours and 36 hours for thesis master's programs. All non-thesis master's degrees require a written comprehensive exam. Additional degree requirements for the alternative MS certification program in physical education/teacher education are in compliance with regulations established by the Alabama State Department of Education. These requirements include a semester long, full-time internship and satisfactory completion of the State's testing program and official submission of the edTPA assessment for scoring. Additionally, in order to be recommended for teacher certification candidates must receive passing scores on the edTPA assessment. In accordance with State regulations, effective for students unconditionally admitted prior to July 1, 2017, a minimum GPA of 3.00 is required on all courses used to meet master's-level program requirements. Effective for students unconditionally admitted July 1, 2017, and after, a minimum GPA of 3.25 will be required on all courses used to meet master's-level certification program requirements.

Doctor of Physical Therapy Degree Program (DPT)

Auburn University's Doctor of Physical Therapy (DPT) program offers an entry-level degree. The program will admit 38 students annually into every cohort. Students who successfully complete the program will receive a Doctor of Physical Therapy Degree and will be eligible to take the national licensure exam for physical therapists. Auburn's charter cohort of students will start in May 2025. Admission to the DPT program will occur once a year, with applications opening in the fall of each year. The application deadlines can be found on our Prospective Students page. Each new cohort of students will begin their course work in May of the year they are admitted.

The Auburn University Physical Therapy program at the School of Kinesiology creates a learning environment that promotes health and equity of our community. Surrounded by experienced faculty engaged across the aim of education, research, and clinical practice, our students will work collaboratively with expert clinicians immersed in the contemporary clinical environment, researchers who incorporate new discovery in the classroom, and master educators who integrate new knowledge through the best practices in the learning sciences. We take a learner-centered approach to education that will provide active, flexible, and individualized learning opportunities supported through coaching and mentoring and an assessment philosophy that is focused on continuous growth and improvement.

The three-year, nine-semester program engages students in enriching learning experiences that will involve' patients in the academic and clinical settings. Classes feature case studies, grand rounds, and training at off-site clinical locations. Students will encounter increasingly complex cases as they move through the curriculum. Part time integrated clinical experiences and full-time clinical education begin early and are distributed throughout the curriculum to provide real-world experience and deeper experiential learning.

Before graduates from accredited physical therapy programs can practice physical therapy, they must pass a licensure board examination. Once the license examination has been passed, graduates are entitled to practice physical therapy in that state. All 50 states, Puerto Rico, the US Virgin Islands, and the District of Columbia recognize the Federation of State Boards of Physical Therapy (FSBPT) National Physical Therapy Examination (NPTE) as the standard for determining licensure eligibility.

Doctor of Philosophy Degree Program (PhD)

Applicants to the School of Kinesiology’s PhD program must satisfy the Graduate School’s admission requirements. School of Kinesiology admission requirements include competitive GRE scores, current resume, statement of purpose (including research focus), letters of recommendation, and approval by the school.

The PhD program requires a minimum of 60 semester hours beyond the master’s degree. Research methods and statistics are components of all doctoral programs. The remaining hours are divided between the area of specialization and approved support courses. After satisfactory completion of coursework and a general written and oral examination, the student advances to candidacy. Doctoral students must register for at least 10 semester hours of doctoral research while completing a dissertation.

Specialized areas of doctoral study include biomechanics, exercise physiology, motor neuroscience, motor development, sport and exercise psychology, motor learning and control, physical activity and health, and teaching and research in physical education.

Master’s- and Specialist-Level Certification

Individuals completing the State-approved MS certification programs in physical education/teacher education are eligible to apply for Alabama Class A certification. Effective September 1, 2018, the Alabama State Board for Education will require an acceptable score on the edTPA for initial certification in a teaching field. This state certification requirement applies to individuals completing alternative master’s programs.

Individuals seeking certification in states other than Alabama are responsible for contacting those state certification offices to obtain their application form and requirements. These individuals should first meet the requirements for certification in the State of Alabama.

The State of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of program graduates when they apply for certification in other states.

Graduate Minor and Graduate Certificate

The School of Kinesiology in collaboration with the Department of Educational Foundations, Leadership and Technology offers a graduate minor in sport management. In addition, the School of Kinesiology offers a graduate certificate in movement skill analysis.

Additional Information

Detailed admission requirements for the school's multiple areas of graduate study are available on the College of Education's website, Academics (https://education.auburn.edu/academic-programs/).

The University schedule of courses is available on the University website.

Information about undergraduate programs for the School of Kinesiology is available at: School of Kinesiology: Undergraduate (p. 521).

Exercise, Performance & Health Optimization — MS

Code	Title	Hours
Exercise, Performance & Health Optimization - MS (thesis option)		
KINE 6400	Exercise Assessment, Prescription, & Programming	3
KINE 7010	Research Methods in Physical Activity	3
KINE 7630	Strength & Conditioning Preparation	3
KINE 7680	Advanced Physiology of Exercise I	3
KINE 7990	Research and Thesis (required for thesis option)	6
Select Advisor Approved 10-14 Credits in @ 6000-8999		15
Total Hours		**33**

Code	Title	Hours
Exercise, Performance & Health Optimization - MS (non-thesis option)		
KINE 6400	Exercise Assessment, Prescription, & Programming	3
KINE 7010	Research Methods in Physical Activity	3
KINE 7630	Strength & Conditioning Preparation	3
KINE 7680	Advanced Physiology of Exercise I	3
Select Advisor Approved 16-20 Credits in @ 6000-8999		21
Total Hours		**33**

Exercise Science — MS

Code	Title	Hours
Exercise Science - MS (non-thesis and thesis option)		
KINE 7010	Research Methods in Physical Activity	3
KINE 7620	Principles of Biomechanics in Human Movement	3
KINE 7680	Advanced Physiology of Exercise I	3
KINE 7990	Research and Thesis (required for thesis option)	6
Select one of the following:		3
KINE 7650	Advanced Motor Learning and Performance	
KINE 7730	Neuromotor Control	
KINE 7740	Advanced Motor Development	
KINE 7750	Advanced Sport Psychology	
KINE 7780	Exercise Motivation and Adherence	
15 Advisor Approved Credits in @ 6000-8999		15
Total Hours		**33**

Kinesiology — PhD

Kinesiology — PhD (https://education.auburn.edu/kinesiology/academic-programs/phd-kinesiology/)

Code	Title	Hours
Kinesiology - PhD		
Select Advisor Approved 50 Credits in @ 6000-8999		50
KINE 8990	Research and Dissertation	10
Total Hours		**60**

Movement Skill Analysis — Graduate Certificate

Movement Skill Analysis — Graduate Certificate

This graduate certificate prepares individuals to learn to use Dartfish software and analyze physical movement and skills. This certificate would be of value to coaches, teachers, instructors, choreographers, or marching band directors.

Code	Title	Hours
Movement Skill Analysis - GCRT		
KINE 7620	Principles of Biomechanics in Human Movement	3
KINE 7400	Advanced Anatomical Principles	3
KINE 7420	Biomechanics of Skill Analysis: Dartfish I	3
KINE 7430	Biomechanics of Skill Analysis: Dartfish II	3
Total Hours		**12**

Physical Education/Teacher Education — MS

Physical Education/Teacher Education — MS (https://education.auburn.edu/kinesiology/academic-programs/physical-education/ms-physicial-education.php)

Code	Title	Hours
Physical Education/Teacher Education – MS (Alternative Certification)		
Alternative Class A Education Program Checklist [5]		
Teaching Field: 14 hours		
At least 1/3 of the program shall be in teaching field courses.		
KINE 6350	Assessment in Physical Education [1,3]	3
KINE 7010	Research Methods in Physical Activity	3
KINE 7910	Practicum [2]	2
Advisor-approved KINE 6000 or 7000 electives		3
Professional Studies: 22 hours		
KINE 7260	Individuals with Disabilities in Physical Education [4]	3
or RSED 6000	Advanced Survey of Exceptionality	
CTRD 6000	Language and Literacy in the Content Areas [3]	3
KINE 7200	Curriculum and Teaching in Physical Education	3
KINE 7350	Organization and Analysis of Instruction in Physical Education [2]	3
KINE 7920	Internship [1,3]	10
Total Hours		**33**

1 Take KINE 6350 Assessment in Physical Education and KINE 7920 Internship concurrently.

2 Take KINE 7910 Practicum and KINE 7350 Analysis of Instruction concurrently.

3 Clearance for Internship includes completion of all other coursework except KINE 7920 Internship and KINE 6350 Assessment in Physical Education. Exceptions require approval using the Student Petition Form.

[4] KINE 7260 OR RSED 6000 must be completed if survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Internship.

[5] The following courses: KINE 3300, KINE 4200, and KINE 4300 must be completed in addition to all other program requirements unless they were previously completed.

Code	Title	Hours
Physical Education/Teacher Education – MS (Certification)		
Class A Program Checklist for Teaching Field		
Teaching Field: 12 hours		
At least 1/3 of the program shall be teaching field courses.		
Required: 3 hours		
KINE 7350	Organization and Analysis of Instruction in Physical Education	3
Select 9 Credits of the following:		9
KINE 6350	Assessment in Physical Education	
KINE 7200	Curriculum and Teaching in Physical Education	
KINE 7250	Evaluation of Programs in Physical Education	
KINE 7300	Content and Pedagogy in Physical Education	
KINE 7380	Integrating Classroom Concepts	
KINE 7740	Advanced Motor Development	
Other advisor-approved KINE courses		
Survey of Special Education/Diversity Course		
See KINE 7260, RSED 6000 and CTRD 6000 in Additional Courses. [1]		
Additional Courses: 18 Hours		
Required: 6 hours		
CTRD 6000	Language and Literacy in the Content Areas [1]	3
KINE 7010	Research Methods in Physical Activity	3
Select 12 hours of the following:		12
KINE 7260	Individuals with Disabilities in Physical Education [1]	
or RSED 6000	Advanced Survey of Exceptionality	
KINE 6200	Research Project in Physical Education	
KINE 6250	Instructional Supervision for Physical Education	
KINE 6300	Advocacy in Physical Education	
KINE 7280	Naturalistic Inquiry in Physical Activity Settings	
KINE 7750	Advanced Sport Psychology	
KINE 7780	Exercise Motivation and Adherence	
KINE 7790	Motor Behavior of Individuals with Disabilities	
KINE 7910	Practicum [2]	
KINE 7990	Research and Thesis (required for MS degree thesis option)	
Other advisor-approved supporting courses 6000 level and above [3]		
Total Hours		**30**

1 KINE 7260 Individuals with Disabilities in Physical Education OR RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with CTRD 6000 Language and Literacy.

2 A minimum of 1 hour of practicum is required as a co-requisite with KINE 7350 if candidate is not teaching in area of certification at an approved school site.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Physical Therapy — DPT

Auburn University Physical Therapy provides academic and clinical training commensurate with the Doctor of Physical Therapy (DPT) degree. Graduates from the entry-level program are eligible to take the National Physical Therapy Examination (NPTE) and apply for licensure to practice as physical therapists in all states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.

Graduation from a physical therapist education program accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 3030 Potomac Ave., Suite 100, Alexandria, Virginia 22305-3085; Phone: 703-706-3245; Email: accreditation@apta.org, is necessary for eligibility to sit for the licensure examination, which is required in all states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.

Candidacy is considered to be an accredited status, as such the credits and degree earned from a program with Candidacy status are considered, by CAPTE, to be from an accredited program. Therefore, students in the charter (first) class should be eligible to take the licensure exam even if CAPTE withholds accreditation at the end of the candidacy period. That said, it is up to each state licensing agency, not CAPTE, to determine who is eligible for licensure. Information on licensing requirements should be directed to the Federation of State Boards of Physical Therapy (FSBPT; www.fsbpt.org (https://www.fsbpt.org/)) or specific state boards (a list of state boards and contact information is available on FSBPT's website.)

Auburn University is seeking accreditation of a new physical therapist education program from CAPTE. The program has submitted an Application for Candidacy, which is the formal application required in the pre-accreditation stage, on May 1st, 2024. Submission of this document does not assure that the program will be granted Candidate for Accreditation status. Achievement of Candidate for Accreditation status is required prior to implementation of the professional/technical phase of the program; therefore, no students may be enrolled in professional/technical courses until Candidate for Accreditation status has been achieved. Further, though achievement of Candidate for Accreditation status signifies satisfactory CAPTE Rules of Practice and· Procedure (22.3.12) 53 progress toward accreditation, it does not assure that the program will be granted accreditation. Full accreditation is anticipated in Spring of 2028, prior to the graduation of the charter cohort. Implementation of this program is Pending approval by the Southern Association of Colleges and Schools Commission on Colleges.

The Doctor of Physical Therapy program is housed in the School of Kinesiology, College of Education at Auburn University. The program has modern, well-equipped laboratories for research, teaching, and hands-on clinical training. Also located on-site is the human anatomy simulation laboratory wherein experiential learning opportunities are provided to complement classroom instruction.

First Year

Summer	Hours	Fall	Hours	Spring	Hours
KNPT 9000 Anatomy for Physical Therapy I	4	KNPT 9010 Anatomy for Physical Therapy II	4	KNPT 9040 Physical Therapy Neuroscience	4
KNPT 9020 Physical Therapy Biomechanics I	3	KNPT 9030 Physical Therapy Biomechanics II	3	KNPT 9310 Therapeutic Modalities	3
KNPT 9050 Physical Therapy Foundations, Therapeutic Exercise I	3	KNPT 9060 Physical Therapy Foundations, Therapeutic Exercise II	3	KNPT 9320 Differential Diagnosis	3

		KNPT 9100 Physiology, Pathophysiology, & Pharmacology	3	KNPT 9600 Evidence Based Practice for Physical Therapy I	4
	10		**13**		**14**

Second Year

Summer	Hours	Fall	Hours	Spring	Hours
KNPT 9200 Lifespan Physical Therapy I- Geriatrics	3	KNPT 9110 Musculoskeletal Physical Therapy I	3	KNPT 9120 Musculoskeletal Physical Therapy II	3
KNPT 9500 Professional Development in Physical Therapy	2	KNPT 9140 Neurological Physical Therapy I	3	KNPT 9150 Neurological Physical Therapy II	3
KNPT 9800 Clinical Placement I	4	KNPT 9160 Cardiopulmonary Physical Therapy	4	KNPT 9170 Acute Care Physical Therapy	3
		KNPT 9210 Lifespan Physical Therapy II - Pediatrics	3	KNPT 9220 Psychosocial Aspects in Physical Therapy	3
		KNPT 9610 Evidence Based Practice for Physical Therapy II	3	KNPT 9620 Evidence Based Practice for Physical Therapy III	3
		KNPT 9900 Grand Rounds I	1	KNPT 9900 Grand Rounds I	1
	9		**17**		**16**

Third Year

Summer	Hours	Fall	Hours	Spring	Hours
KNPT 9130 Musculoskeletal Physical Therapy III	2	KNPT 9810 Clinical Placement II	14	KNPT 9820 Clinical Placement III	14
KNPT 9340 Orthotics & Prosthetics	3	KNPT 9910 Grand Rounds II	1	KNPT 9910 Grand Rounds II	1
KNPT 9510 Physical Therapy Administration, Supervision & Management	3				
KNPT 9910 Grand Rounds II	1				
	9		**15**		**15**

Total Hours: 118

Sport Management — Graduate Minor

Sport Management — Graduate Minor (https://education.auburn.edu/kinesiology/academic-programs/graduate-minor-sport-management/)

The purpose of the sport management minor is to provide master's degree students with the specialized knowledge of the sport industry and to prepare those students to work in sport organizations as administrators and managers. The minor is administered by the Graduate School. Participating units include the School of Kinesiology and the Department of Educational Foundations, Leadership and Technology. Students selecting the minor must satisfy the degree requirements for a master's degree program in one of these units. For additional information, please contact the school director or department head of the participating units.

The Sport Management graduate minor requires completion of 15 hours of courses as follows:

Code	Title	Hours
KINE 6820	Sport Management	3
KINE 7750	Advanced Sport Psychology	3
or KINE 7970	Special Topics	
HIED 7400	Sport Marketing and Public Relations	3
HIED 7410	Sport Ethics	3

HIED 7910	Practicum	3
Total Hours		**15**

Degree seeking students who intend to add the graduate minor to their current degree program must notify the coordinator before completion of their degree program.

Landscape Architecture — MLA

The School of Architecture, Planning and Landscape Architecture offers the Master of Landscape Architecture (MLA). This is a first professional degree program accredited by the American Society of Landscape Architects. The MLA consists of 96 credit hours delivered over six and a half semesters. Students with undergraduate degrees in disciplines other than landscape architecture enter in the Summer Mini-Semester II and graduate three years later. Students are encouraged to pursue internships during the remaining Summer Semesters. The program accepts and encourages applicants from a wide range of disciplines in the humanities, the sciences and the arts. Students who have an undergraduate degree in landscape architecture can complete the Master of Landscape Architecture in two years, by application, through Advanced Placement. Advanced Placement is not automatic, but based on portfolio and academic merit. Successful applicants for Advanced Placement enter in the Fall semester. Students who are currently in the Auburn University pre-landscape architecture programs [Bachelor of Horticulture and Bachelor of Environmental Design] complete their undergraduate degrees as the first year of the MLA. These applicants should contact the Program Chair or the Program Administrator for more information. Pre-landscape architecture students enter in the Summer Mini-Semester II.

Prospective students apply for admission online to the Graduate School. The Graduate Record Examination is not a requirement; however, the Admissions Committee will require the undergraduate record, three letters of recommendation, a 500 word statement of intent and, in the case of applicants for Advanced Placement, a portfolio of work.

The program is a studio design-based course of study that incorporates learning from across the disciplines of art, architecture, urban design, ecology, information technology and the natural sciences. The program studies regional and urban landscape systems through the relationships between human dwelling and natural systems. Graduates will be prepared to take action in rebuilding urban landscapes, reconnecting fractured ecosystems, and regenerating human and nonhuman habitats.

Each semester consists of 15 credit hours, including six credit hours of studio and fieldwork. In their final year of study students engage a comprehensive design studio that explores research by design. Students must also be prepared to undertake numerous field studies in a variety of locations that can involve interstate visits and several days away from Auburn University. All field trips and Study Abroad incur extra costs.

The Master of Landscape Architecture offers a limited number of Graduate Assistantships each year. GA positions are highly competitive, and applications exceed availability. The assistantships are awarded on the basis of merit. Students who wish to apply for an assistantship must do so when they send their materials to the Program Chair. When assessing the merit of applications for research assistantships, faculty review the following:

- Academic transcript
- GPA
- Portfolio
- Statement of intent

Applicants who can attend the Master of Landscape Architecture only if they receive an assistantship should make this clear to the Program Chair on application. As a rule Graduate Assistantships involve working with faculty on research projects. A wide range of tasks is expected to be performed to a high standard. Punctuality, timeliness and cordiality are strict requirements. Graduate Assistantships provide a partial tuition waiver and a monthly stipend. The tuition waiver applies to in-state and out-of-state students alike, and covers a portion of the tuition fee for each semester that the student is a GRA. Students who are appointed as GAs are required to pay the Professional Fee. Assistantships are awarded on a semester basis (and they are not available in the first summer) and there is no guarantee that recipients will receive a continuance of their assistantship. Reappointment will be made on the basis of students having:

- Maintained a high work standard
- Completed all their coursework and assignments satisfactorily
- Performed well for the faculty member to which they have been assigned.

Any questions about assistantships should be directed to the Program Chair. The Master of Landscape Architecture does not currently offer scholarships.

All students who enter the MLA must ensure that they have a their own laptop computer that conforms to the requirements set out on the Landscape Architecture page of the College of Architecture Design and Planning website.

Code	Title	Hours
MLAG		
LAND 6030	Landscape Design Methods	3
LAND 6040	Landscape Issues & Practices	3
LAND 6130	Studio I: Foundation Studio	5
LAND 6131	Fieldwork I	1
LAND 6140	History, Theory, and Practice I: Landscape Architecture and Contemporary Urbanism	3
LAND 6150	Construction I: Landform & Hydrology	3
LAND 6160	Graphic Studies I	3
LAND 6230	Studio II	5
LAND 6231	Fieldwork II	1
LAND 6240	History, Theory, and Practice II: Landscape Architecture and Contemporary Culture	3
LAND 6250	Construction II: Materials & Detailing	3
LAND 6290	Graphic Studies II	3
LAND 6330	Studio III	5
LAND 6331	Field Studies III	1
LAND 6340	History, Theory, and Practice III: Pre-Modern Landscapes	3
LAND 6360	Dynamic Systems I: Urban Ecologies	3
LAND 6380	Plants I	3
LAND 7130	Studio IV	5
LAND 7131	Fieldwork IV	1
LAND 7170	Plants II	3
LAND 7190	Research by Design: Frameworks, Methods, and Strategies	3
LAND 7280	Dynamic Systems II: Regional Ecologies	3
LAND 7230	Studio V: Comprehensive Studio	5
LAND 7231	Fieldwork V	1
LAND 7270	Construction III: Regenerative Technologies	3
LAND 7290	Graphic Studies III	3
LAND 7330	Studio VI: Comprehensive Studio	5
LAND 7331	Fieldwork VI	1
LAND 7340	Professional Practice	3
Select 9 Credits in the following:		9
LAND 6410	Seminar on Real Estate Development	
LAND 7410	Seminar on History and Theory	
LAND 7420	Seminar on Community Outreach	
LAND 7430	Seminar on Hydrology	
LAND 7440	Seminar on Landscape Communication	
LAND 7450	Seminar on Landscape Research	
LAND 7470	Landscape Architecture Internship	
LAND 7900	Directed Studies	
LAND 7960	Special Problems in Landscape Architecture	

Management Information Systems — Graduate Certificate

This graduate certificate is designed to develop an individual's skills in database development and administration, security and information assurance, systems analysis and design, and business analysis. This certificate is targeted for current students and working professionals to specialize in management information systems knowledge and skills.

This certificate program has one required course. Students may select either ISMN 7660 (Information Systems Analysis and Design) or ISMN 7830 (Database Design and Development) to satisfy this requirement. The remaining 9 hours may be chosen from any ISMN courses at the 6000 level or above. Current Auburn University graduate students may substitute one of their program courses for 3 of the 9 hours of electives with approval from the certificate granting department advisor.

Master of Accountancy — MAcc, Graduate Certificate

Degree Programs

- MAcc (p. 1702)

Graduate Certificates

- Accountancy (p. 1703)

Master of Accountancy (Campus or Online Options)

The Master of Accountancy (MAcc) is a professional non-thesis degree program requiring a minimum of 30 semester hours and a maximum of 42 semester hours and a two- and one-half day campus residency. The program provides students additional technical skills, research and communication skills, as well as focused preparation on passing the CPA Exam. During spring semester, campus students enroll in six hours of coursework and the Auburn Becker CPA Exam Review. Before graduation, campus students sit for all four parts of the CPA Exam.

The degree may be earned as a traditional, campus student or through the online option. Campus classes are recorded and streamed to online students. Therefore, online students receive the same lectures and AACSB accredited degree as their campus peers. The online option is identical to the campus option regarding rigor, standards, and student accountability.

Graduate Certificate in Accountancy (Campus or Online Options)

The online Graduate Certificate in Accountancy (GCA) is a 12-semester hour non-degree seeking program offering graduate level accounting coursework. The certificate is a great option for students who just need a few more hours of coursework for CPA licensure, need credentials to teach at the collegiate level, or would like to add a certificate to another graduate business degree.

For more information, please visit https://harbert.auburn.edu/. Questions should be directed to Mrs. Andee Hodo, Director of Graduate & Online Programs in the School of Accountancy, at andee.hodo@auburn.edu or (334) 844-6207.

Master of Accountancy — MAcc

The following are the requirements for the Campus and Online Options of the Master of Accountancy program.

The Campus MAcc program is non-thesis 30-semester hour program. There are four required courses (12 hours) and students must choose 9 hours in ACCT courses and 9 hours in either ACCT or Business (BUAL, FINC, or ISMN) courses to complete the degree requirements.

Code	Title	Hours
MAcc Program (Campus Option)		
ACCT 7110	Research in Accounting	3
ACCT 7300	Advanced Auditing and Assurance Services	3
ACCT 7410	Federal Tax Research	3
ACCT 7510	Integrated Accounting Applications	3
ACCT 7710	Professional Development (Fall and Spring)	0
Select 9 Credit Hours of ACCT Electives 6000-7000		9

Select 9 Credit Hours of ACCT or Business Electives 6000-7000	9
Total Hours	**30**

The Online MAcc program is a non-thesis 42-semester hour program unless students have already completed at least 21-semester hours in undergraduate accounting coursework. If applicants have completed the equivalent of an undergraduate accounting degree, they can complete the Master of Accountancy degree with only 30-semester hours.

Code	Title	Hours
MAcc Program (Online Option)		
ACCT 6110	Intermediate Accounting I	3
ACCT 6120	Intermediate Accounting II	3
ACCT 6130	Advanced Accounting Topics	3
ACCT 6300	Auditing & Assurance Services	3
ACCT 6410	Income Tax I	3
ACCT 6420	Income Tax II	3
ACCT 6510	Accounting Information Systems	3
ACCT 6520	Accounting Analytics	3
ACCT 7110	Research in Accounting	3
ACCT 7300	Advanced Auditing and Assurance Services	3
ACCT 7410	Federal Tax Research	3
ACCT 7510	Integrated Accounting Applications	3
ACCT 7710	Professional Development (Spring only)	0
Select 6 Credit Hours of ACCT or Business Electives 6000-7000		6
Students who have completed prior equivalent accounting coursework will receive course waivers and will complete the degree with fewer hours. A minimum of 30 hours is required to earn the degree.		
Total Hours		**42**

For a list of ACCT and Business electives, please visit http://harbert.auburn.edu/.

Accountancy — Graduate Certificate

Code	Title	Hours
Graduate Certificate in Accountancy - Requires 12 Semester Hours		
ACCT 6110	Intermediate Accounting I	3
ACCT 6120	Intermediate Accounting II	3
ACCT 6130	Advanced Accounting Topics	3
ACCT 6300	Auditing & Assurance Services	3
ACCT 7300	Advanced Auditing and Assurance Services	3
ACCT 6410	Income Tax I	3
ACCT 6420	Income Tax II	3
ACCT 6510	Accounting Information Systems	3
ACCT 6520	Accounting Analytics	3
ACCT 6610	Governmental and Not-for-Profit Accounting	3
ACCT 6700	Advanced Business Law	3
ACCT 6810	Corporate Governance & Accounting Ethics	3
ACCT 7110	Research in Accounting	3
ACCT 7130	Financial Analysis & Valuation	3
ACCT 7320	Fraud Examination	3
ACCT 7410	Federal Tax Research	3
ACCT 7420	Corporate and Partnership Taxation	3

ACCT 7510	Integrated Accounting Applications	3
ACCT 7970	Advanced Special Topics in Accounting	3

Master of Engineering

This is an interdisciplinary degree which allows each student the opportunity to design an individual curriculum that is aligned with specific career or personal objectives. This degree requires a coordinated program of 30 credit hours of graduate level coursework. In coordination with an engineering faculty advisory committee, each student in the program will design a plan of study to meet his or her specific needs and interests. The plan must identify multiple outcomes, each of which should be supported by multiple courses in the plan of study. The plan must contain at least 21 hours of 6000#level and above engineering courses. Students must also take ENGR 7940 Master of Engineering Program Assessment , in which they provide an evaluation of the extent to which the program helped them to meet their objectives. There is no thesis requirement, and research and thesis credits cannot be used to meet the requirements of this degree.

Materials Engineering — MS, PhD

Degree Programs

- Materials Engineering — MS (p. 1704)
- Materials Engineering — PhD (p. 1705)

Materials Engineering offers graduate programs of instruction and research leading to the degrees of master of science (MS) and doctor of philosophy (PhD). All applicants must submit GRE scores for the General Test. Students completing all degree programs are expected to have knowledge in the following areas: mechanical properties; materials structure; materials thermodynamics; kinetics; and electrical, optical and magnetic properties of materials. There are no foreign language or minor requirements for materials engineering graduate degrees. All students must submit an approved plan of study within one year of matriculating in the program.

The MS (non-thesis) is intended for those who expect to enter the engineering profession at an advanced level or are practicing engineers wishing to gain additional fundamental knowledge in the field of materials. Those students lacking the necessary background may be required to take additional course work. The requirements for the degree are 30 credit hours including a final engineering report. The topic of the report will be agreed upon by the student and the advisory committee. Applicants must have a baccalaureate degree in engineering or science from an institution of recognized standing. Students must pass a qualifying examination prior to taking the final general comprehensive examination required by the Graduate School.

The MS is intended for those who seek advanced knowledge in materials science or engineering for a career in research or other professional practice. The applicant must have a baccalaureate degree or its equivalent in an engineering or scientific discipline from an institution of recognized standing. Those lacking the necessary background will be required to take additional course work to ensure the continuity of their educational and professional experience. The MS program consists of 30 credit hours selected from areas of study appropriate to the objectives of the applicant and includes a thesis. Students must pass a qualifying examination prior to taking the final comprehensive examination required by the Graduate School. The PhD program requires that students pass qualifying examinations (oral and written) with a greater proficiency than master’s students prior to taking the comprehensive examinations. The program is arranged on an individual basis with the student’s advisory committee and in accordance with Graduate School guidelines. Students admitted to the doctoral program are required to take the general comprehensive examination based on a research proposal developed by the student within two years after entering the program. The student should be prepared to be examined in all areas of materials engineering.

Materials Engineering — MS

Code	Title	Hours
Materials Engineering (MS)		
MATL 6100	Thermodynamics of Materials Systems	3
MATL 6200	Materials Characterization	2
MATL 6300	Phase Transformations in Material Processing	3
MATL 6400	Physics of Solids	3
MATL 7050	Deformation and Failure of Engineering Materials	3
MATL 7990	Research and Thesis	4
Select 7 Credits in MATL 6000-8999		7

Select 5 Credits in @ 6000-8999 (Electives)	5
Total Hours	**30**

Code	Title	Hours
Materials Engineering (MS, non-thesis)		
MATL 6100	Thermodynamics of Materials Systems	3
MATL 6200	Materials Characterization	2
MATL 6300	Phase Transformations in Material Processing	3
MATL 6400	Physics of Solids	3
MATL 7050	Deformation and Failure of Engineering Materials	3
MATL 7980	Master Materials Engineering Project	1-3
Select 7 - 9 Credits in MATL 6000-8999		7-9
Select 6 Credits in @ 6000-8999 (Electives)		6
Total hours 30		

Materials Engineering — PhD

Code	Title	Hours
Materials Engineering (PhD)		
MATL 6100	Thermodynamics of Materials Systems	3
MATL 6200	Materials Characterization	2
MATL 6300	Phase Transformations in Material Processing	3
MATL 6400	Physics of Solids	3
MATL 7050	Deformation and Failure of Engineering Materials	3
MATL 8990	Research and Dissertation	10
Select 21 Credits in MATL 6000-8999		7
Select 29 Credits in @ 6000-8999 (Electives)		29
Total Hours		**60**

Mathematics — MAM, MS, PhD

Degree Programs

- Applied Mathematics Non-Thesis — MAM (p. 1706)
- Mathematics Option Thesis — MS (p. 1707)
- Mathematics — PhD (p. 1707)

Graduate Certificate

- Data Science (p. 1706)

The Department of Mathematics and Statistics offers programs leading to the master of science and doctor of philosophy in both pure and applied mathematics and non-thesis master's degrees in both applied mathematics and statistics. In addition, the department regularly offers actuarial science courses that are approved by both the Society of Actuaries and the Casualty Actuarial Society; they are designed to provide the background and material covered in the first three actuarial exams.

The master of applied mathematics gives students a strong foundation in one of several fundamental areas of applied mathematics. It is a flexible degree with courses being chosen in conjunction with the advisory committee, some of which may be relevant courses offered by other departments. The master of science degree in mathematics develops both content knowledge of the student through coursework, and provides the opportunity to delve deeper into an area of mathematics through the writing of a thesis. The Ph.D. is designed to give students a thorough understanding of a broad body of knowledge related to their field of study, as well as to develop their research capabilities. Ph.D. students are required to pass one oral and three written preliminary examinations. A statistics concentration is available for the Ph.D. degree (see Statistics).

The internationally known faculty of around 50 professors work in areas of algebra, analysis, applied mathematics, discrete mathematics, geometry, linear algebra, logic, numerical analysis, partial differential equations, probability, set theory, statistics and topology. Some professors maintain applied research programs associated with several government and industrial laboratories, and one holds the Associate of the Society of Actuaries designation.

Admission to the program is based on a student's undergraduate record, three letters of recommendation from former teachers, GRE scores and graduate GPA (for doctoral students). The GRE subject test is not required. A bachelor's degree in mathematics is not required, but students without such a background may be expected to take additional courses to make up for deficiencies. The department follows the guidelines for graduate degrees set forth in this *Bulletin*. Doctoral students must satisfy the departmental preliminary examination requirement to continue their teaching assistantship. Course work in mathematics may be transferred from other institutions, subject to university limitations (See math.auburn.edu (https://www.auburn.edu/cosam/departments/math/)).

Most students in the program are supported financially during their studies through Graduate Teaching Assistantships and through tuition waivers given to all teaching assistants (with some restrictions). The Baskervill, Fitzpatrick, and Haynesworth Fellowships (around $5,000 each) are awarded annually to qualified students in the Department of Mathematics and Statistics. The department occasionally has Graduate Research Assistantships available in conjunction with departmental contractual research programs. The department requires that all international GTAs who have responsibility for teaching a class be proficient in English, passing the test of spoken English.

Code	Title	Hours
MS_MATH		
MATH 7990	Research And Thesis	4
20 Credits in MATH 6000-8999		20
6 Credits in @ 6000-8999 (Approved Electives)		6
Total Hours		**30**

Code	Title	Hours
PhD_MATH		
MATH 8990	Research And Dissertation	10
11 Credits in MATH 6000-8999		11
39 Credits in @ 6000-8999 (Approved Electives)		39
Total Hours		**60**

Applied Mathematics Non-Thesis — MAM

Code	Title	Hours
Applied Mathematics Non-Thesis - MAM		
MATH 7980	Research and Special Project in Applied Mathematics	3
21 Credits in MATH 6000-8999		21
6 Credits in @ 6000-8999		6
Total Hours		**30**

Certificate in Data Science

Online or On-Campus Options Available

Code	Title	Hours
Required Courses - 9 Hours		
STAT 6000	Intermediate Statistical Methods for Data Science	3
STAT 6600	Probability and Statistics for Data Science	3
STAT 6650	Statistical Learning	3
Elective Course - 3 Hours (Select one course from the following three electives)		
COMP 6120	Database Systems I	3
COMP 6130	Data Mining	3

COMP 6630	Machine Learning	3
Total Hours: 12		

Mathematics Option Thesis — MS

Code	Title	Hours
Mathematics Option Thesis- MS		
MATH 7990	Research and Thesis	4
20 Credits in MATH 6000-8999		20
6 Credits in @ 6000-8999		6
Total Hours		**30**

Mathematics — PhD

Code	Title	Hours
Mathematics - PhD		
MATH 8990	Research and Dissertation	10
11 Credits in MATH 6000-8999		11
39 Credits in @ 6000-8999		39
Total Hours		**60**

Statistics (Non-Thesis) — MS

Code	Title	Hours
Probability and Statistics		
STAT 7980	Special Project	3
STAT 6610	Fundamentals of Statistical Inference I	3
STAT 6620	Fundamentals of Statistical Inference II	3
15 Credits in STAT 6000-8999 (at most 6 Credits in STAT 6000-6999)		15
6 Credits in @ 6000-8999		6
Total Hours		**30**

Mechanical Engineering — MS, PhD

Degree Programs

- Mechanical Engineering — MS (p. 1708)
- Mechanical Engineering — PhD (p. 1708)

The Mechanical Engineering Department offers graduate programs of instruction and research leading to the degrees of master of science (thesis and non-thesis options), and doctor of philosophy. Educational and research facilities are available to support graduate study in solid mechanics, experimental mechanics, electronic packaging and reliability, fracture and failure mechanics, robotics, vibrations, controls, dynamical systems, engineering design, additive manufacturing, friction-lubrication-wear, computer-aided design, fluid dynamics, transportation systems, conventional and renewable energy systems, thermal/fluid sciences, HVAC systems and nanotechnology applications. The applicant must hold a bachelor's degree or its equivalent from an institution of recognized standing. If the applicant's undergraduate degree is not closely related to mechanical engineering, an individualized plan of study will be developed to impart the critical skills inherent in the bachelor's mechanical engineering program. This typically includes completing a prescribed number of core undergraduate mechanical engineering courses in addition to the graduate requirements. All applicants must submit Graduate Record Examination scores for the General Test and will be evaluated on an individual basis by the Mechanical Engineering Graduate Committee.

MS (Non-Thesis Option): This degree is intended for those applicants who expect to enter the engineering profession at an advanced level or those who are employed and seeking professional development. Requirements for the degree consist of completing 30 credit hours of 6000-7000 level courses. A minimum of 21 credit hours of graded course work should be in mechanical engineering. Substitution of courses from other engineering/science disciplines is permitted with prior approval when appropriate courses are

unavailable in mechanical engineering. A committee of three faculty members including a major professor will supervise the plan of study of each student. There is no faculty supervised project requirement.

MS (Thesis Option): This degree is intended for those applicants who expect to enter the engineering profession at an advanced level with some creative research experience. The MS applicant must have a baccalaureate or its equivalent in an engineering or scientific discipline from an institute of recognized standing. The degree requires 30 credit hours of 6000-7000 level courses including 6 credit hours of MECH 7990 and 9 credits of graduate engineering/science technical elective courses. A minimum of 15 credit hours of graded course work should be in mechanical engineering courses. Substitution of courses from other engineering/science disciplines is permitted with prior approval when appropriate courses are unavailable in mechanical engineering. All candidates must pass an oral defense of their written thesis including a comprehensive examination covering the major courses. A committee of at least three faculty members including the major professor will take part in evaluating the thesis.

Doctor of Philosophy (PhD): This degree provides for advanced coursework and emphasizes original, creative research. A dissertation embodying the results of this research represents a major portion of the requirements for this degree. The PhD program will consist of a minimum of 60 credit hours, including dissertation, beyond the BS degree. PhD students will select their major courses from those at the 7000-8000-level unless there are special requirements for more basic courses. A minimum of 21 credit hours of graded course work should be in mechanical engineering courses. This amount could include up to 4 credit hours of MECH 7990 or equivalent. Substitution of courses from other engineering/science disciplines is permitted when appropriate courses are unavailable in mechanical engineering. The PhD also requires a coordinated minor of at least 9 credit hours of graded coursework in a closely related field such as mathematics, physics, chemistry, or other engineering disciplines. A minimum of 10 credit hours of MECH 8990 Research & Dissertation is also required. There is no language requirement for the PhD.

The General Doctoral Examination (Preliminary Examination) must be taken by those seeking a PhD. This examination, administered by the major professor in coordination with members of a committee of at least four faculty (including the major professor) consists of two parts: (1) a written Qualifying Examination based upon knowledge acquired from coursework, taken four semesters from the date of entry, and (2) an oral examination which includes questions on knowledge acquired from coursework as well as a presentation and defense by the student of his/her proposed dissertation research. All PhD candidates must also pass a Final Examination consisting of an oral defense of their written dissertation. A maximum of two attempts each is allowed for passing the General Doctoral Examination and the Final Examination.

Mechanical Engineering — MS

Code	Title	Hours
Mechanical Engineering (MS - Thesis Option)		
Select 15 Credits in MECH 6000-8999		15
Select 6 Credits in MECH 7990		6
Select 9 Credits 6000-8999 (Science/Engineering)		9
Total Hours		**30**
Mechanical Engineering (MS - Non Thesis Option)		
Select 21 Credits in MECH 6000-8999		21
Select 9 Credits 6000-8999 (Science/Engineering)		9
Total Hours		**30**

Mechanical Engineering — PhD

Code	Title	Hours
PhD		
MECH 8990	Research & Dissertation	10
Select 21 Credits in MECH 7000-8999		21
Select 9 Credits in @ 6000-8990		9
Select 20 Credits in @ 6000-8999		20
Total Hours		**60**

Medicinal Chemistry — Graduate Certificate

This graduate certificate enables students to obtain training and to become credentialed in the field of medicinal chemistry. This field encompasses the study of drug mechanisms of action and biodisposition (absorption, distribution, metabolism and elimination), the design and synthesis of bioactive molecules, the detection and quantification of bioactive molecules, and the chemistry of natural products. Thus, the knowledge base and credentialing available through this program will enhance the ability of students to obtain employment, particularly, but not exclusively, in the pharmaceutical industry.

Code	Title	Hours
CHEM 7200	Physical Organic Chemistry	3
CHEM 7220	Organic Reactions	3
DRDD 7230	Advanced Medicinal Chemistry I	3
DRDD 7240	Advanced Medicinal Chemistry II	3
Elective Courses		3
BCHE 7230	Biochemistry of Macromolecules	
CHEM 7260	Special Topics in Organic Chemistry	
CHEM 7530	Advances in Bioanalytical Chemistry	
CHEM 7750	Formal Presentations in Modern Chemistry	
DRDD 7250	Drug Action and Design	
DRDD 7260	Separation Science	
DRDD 7270	Mass Spectrometry of Organic Compounds	
DRDD 7600	Heterocyclic Medicinal Chemistry	
Total Hours		**15**

Pharmaceutical Sciences: Medicinal Chemistry Option — MS

The Auburn University Harrison College of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The MS degree is offered under the thesis option. Students must earn a minimum of 30 semester hours of graduate courses (6000–8999). Thesis students register for Research and Thesis in semester(s) when working on the thesis, when submitting, defending or awaiting final approval of the thesis, and when taking final examinations. Candidates for the MS degree are required to prepare a thesis proposal and complete a proposal defense.

For the MS Program, students must complete a Core Curriculum outlined below.

Code	Title	Hours
DRDD 7090	Pharmaceutical Science I: Targets	4
DRDD 7100	Pharmaceutical Science II: ADME	4
DRDD 7230	Advanced Medicinal Chemistry I	3
DRDD 7240	Advanced Medicinal Chemistry II	3
DRDD 7260	Separation Science	4
DRDD 7950	Seminar (May be repeated multiple times for credit.)	1
DRDD 7990	Research and Thesis (Total of 4 CR required)	1-6

In addition to the specific core course requirements listed above, students must complete committee approved graduate electives (6000–8999) to reach the 30 hour degree requirement.

Pharmaceutical Sciences: Medicinal Chemistry Option (Non-Thesis) — MS

Pharmaceutical Sciences Non-Thesis Masters Degree Program — Medicinal Chemistry Option

A. Program Administration

Admission to the program will be accompanied by assignment to a specific Medicinal Chemistry faculty member, who will serve as the research mentor for the student. Thus, admission to the program will be offered only upon approval of that faculty member. Upon acceptance of admission, the student will work with the faculty member to formulate an advisory committee. This advisory committee will consist of no fewer than three members and a majority of members must come from the Medicinal Chemistry option. This committee will assist the faculty mentor in the selection of coursework and in oversight of the student's research activity. In particular, the committee will assist the faculty member in evaluating the student's performance in the non-thesis research course (DRDD 7980). Because of the demands of this program, students will not be permitted to engage in outside employment while enrolled in the program.

B. Program Curriculum

1. Curricular Overview

The required courses of this curriculum are aligned with the three core competencies of the graduate program: Scientific Communications, Data Analyses and Interpretation, and Experimental Design. The Scientific Communications requirement (3 credits) is to be fulfilled by DRDD 7950 (1 credit per semester). The Data Analyses and Interpretation requirement (3 credits) is to be fulfilled by DRDD 7230 (3 credits). The Experimental Design requirement (3 credits) is to be fulfilled by DRDD 7980 (1–3 credits per semester).

Additional required courses for this option are listed below. DRDD 7950 (1 credit per semester) is required for each Fall and Spring semester enrolled in the program. Four credits of DRDD 7980 (1–3 credits per semester) are required for graduation; furthermore, DRDD 7980 is required for each semester enrolled in the program.

Code	Title	Hours
DRDD 7090	Pharmaceutical Science I: Targets	4
DRDD 7100	Pharmaceutical Science II: ADME	4
DRDD 7230	Advanced Medicinal Chemistry I	3
DRDD 7260	Separation Science	4
DRDD 7950	Seminar (May be repeated multiple times for credit.)	1
DRDD 7980	Non-Thesis Research (Total of 4 CR required)	1–6

In addition to the specific core and option course requirements listed above, students must complete committee approved graduate electives (6000–8999) to reach the 30 hour degree requirement.

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1 Students must take DRDD 7950 each fall and spring semester. A total of at least 3 credit hours are required.
2 Students must take 1–3 hours of DRDD 7980 each semester. A total of at least 6 credit hours are required.
3 At least 2 credit hours of restricted electives are required from the following list: CHEM 7220, DRDD 7600.

Pharmaceutical Sciences: Medicinal Chemistry Option — PhD

The Auburn University Harrison College of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes and are affiliated with the Department of Drug Discovery and Development. Areas of interest include

neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The PhD program requires a minimum of 60 semester hours earned through instruction beyond the bachelor's degree including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000–8999); and 2) a minimum of 30 semester hours of additional graduate course work (6000–8999) that may include ungraded courses, and must include at least 10 hours of research and dissertation. A general examination, often called the preliminary examination, is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing. The student becomes a candidate for the degree upon successful completion of the general examination. Students working on the dissertation, submitting their dissertation or awaiting approval of their final examination must register for Research and Dissertation in the semester(s) when these steps occur. Candidates for the PhD degree must complete a dissertation proposal and successfully defend their proposal during the final examination.

For the PhD program, students must complete a core curriculum outlined below.

Code	Title	Hours
DRDD 7090	Pharmaceutical Science I: Targets	4
DRDD 7100	Pharmaceutical Science II: ADME	4
DRDD 7230	Advanced Medicinal Chemistry I	3
DRDD 7240	Advanced Medicinal Chemistry II	3
DRDD 7250	Drug Action and Design	3
DRDD 7260	Separation Science	4
DRDD 7270	Mass Spectrometry of Organic Compounds	4
DRDD 7600	Heterocyclic Medicinal Chemistry	3
DRDD 8950	Seminar (May be repeated multiple times for credit.)	1
DRDD 8990	Research And Dissertation (Total of 10 CR required)	1-10

In addition to the specific core and option course requirements listed above, students must complete committee approved graduate electives (6000–8999) to reach the 60 hour degree requirement.

Natural Resources — MNR, MS

Degree Programs

- Natural Resources — MNR (On-campus or Online) (p. 1712)
- Natural Resources — MS (On campus only) (p. 1712)
- Professional Forester Option — MNR (On campus only) (p. 1712)

Graduate study in natural resources leads to the Master of Natural Resources (MNR), Master of Science (MS), or MNR — Professional Forester degrees. In addition to meeting Graduate School admission requirements, applicants are evaluated and recommended for admission by the graduate faculty of the College of Forestry, Wildlife and Environment based on an examination of scores on the TOEFL tests for international students, previous academic records, experience, and recommendations. While exceptions may be made, the faculty generally expect a minimum GPA of 3.0 in previous academic course work. Course deficiencies are identified by the student's advisory committee and approved by the GPO with due consideration for the student's previous training and experience.

Degrees Offered

- **Master of Natural Resources (MNR)** — The **MNR** is a non-thesis degree.

  Natural Resource Management is available for individuals with a baccalaureate degree who are interested in careers in the natural resources arena. This degree can be completed in 3–4 semesters depending upon coursework selected and requires a minimum of 30 semester hours of on-campus or online distance education graduate courses.

- **Master of Science** (**MS**) A research proposal and thesis based on original research are required components of the MS degree. The program normally requires 2 – 3 years for completion. The MS degree program requires a minimum of 30 hours beyond the bachelor's degree at the graduate level, 21 hours of which must be in the major. A minimum of 4 but not more than 6 hours in Research and Thesis (FORY 7990) is required. All MS students are required to take Research Methods (FORY 7510), Seminar (FOWS 7950), and Research and Thesis (FORY 7990).
- **MNR - Professional Forester Option** is for individuals with baccalaureate degrees in fields other than forestry and those who are interested in becoming Registered Foresters in Alabama. This track is a two-year program which begins with a 10-week summer Field Practicum and requires a minimum of 64 semester hours. This includes 34 hours of specified undergraduate course work plus 30 hours of graduate course work. The MNR Professional Forester option degree program is accredited by the Society of American Foresters (SAF). SAF is the accrediting body recognized by the Council on Higher Education Accreditation as the accrediting agency for forestry education in the United States. Graduation from such SAF-accredited programs is required of all applicants for Registered Forester status in Alabama and several other states.

Natural Resources — MNR

Code	Title	Hours
Natural Resources (MNR)		
Select 30 Credits in @ 6000-8999 (Electives)		30
Total Hours		**30**

Natural Resources (Distance Option) — MNR

The distance-learning option enables students to participate in online learning. The College of Forestry, Wildlife and Environment offers the Masters of Natural Resources distance program (non-thesis), which is the online version of the Masters of Natural Resources (non-thesis option) program. The MNR (non-thesis) degree requires a minimum of 30 graduate semester credit hours. All courses in the degree must be taken for a grade.

Natural Resources (MNR)
Select 30 Credits in @6000 – 8999 (Electives)
Total Hours 30

Natural Resources — MS

Code	Title	Hours
Natural Resources (MS)		
FORY 7510	Research Methods	2
FOWS 7950	Graduate Seminar	1
FORY 7990	Research and Thesis	4-6
or NATR 7990	Research and Thesis	
Select 21-23 Credits in @ 6000-8999 (Electives)		23-21
Total Hours		**30**

Professional Forester Option — MNR

The Master of Natural Resources (MNR) Professional Forester option is for individuals with baccalaureate degrees in fields other than forestry and those who are interested in becoming Registered Foresters in Alabama or elsewhere in the United States. This degree program is a two-year program which begins with a 10 week summer Field Practicum and requires a minimum of 65 semester hours of which 35 hours of specified undergraduate course work plus 30 hours of graduate course work.

The MNR Professional Forester program is accredited by the Society of American Foresters (SAF). SAF is the accrediting body recognized by the Council on Higher Education Accreditation as the accrediting agency for forestry education in the United States. Graduation from such SAF-accredited programs is required of all applicants for Registered Forester status in Alabama and several other states.

First Year

Summer	Hours	Fall	Hours	Spring	Hours
BIOP 3391 Forest and Manufacturing Operations	1	FORY 3100 Dendrology	3	FORY 3200 Forest Tree Physiology	3
FOEN 3040 Forest Surveying	2	FORY 3180 Forest Resource Sampling	3	FORY 4190 Forest Biometrics	3
FORY 3020 Forest Biology	3	BIOP 1390 Introduction to Forest Products and Packaging	3	FORY 4230 Forest Ecology	3
FORY 3050 Field Mensuration	4	FORY 3010 Forest Soils	3	FORY 6400 Forest Economics	3
FORY 3060 Introduction to Forest Management Strategies	1			Graduate Electives*	3
	11		**12**		**15**

Second Year

Fall	Hours	Spring	Hours
FORY 6150 Forest Health	3	FORY 6140 Forest Regeneration and Seedling Production	3
FORY 6151 Forest Health Laboratory	1	FOEN 6700 Harvesting	3
FORY 6410 Forest Management and Administration	3	Graduate Electives*	7
FORY 6230 Silviculture	4		
FOWS 5270 Natural Resource Policy	3		
	14		**13**

Total Hours: 65

* **Graduate Electives on the following list fulfill the Knowledge, Skills, and Abilities required by the accreditation guidelines of the Society of American Foresters.**

Graduate Electives Course List

Code	Title	Hours
FORY 6360	Consulting Forestry	2
FORY 6440	International Forestry	3
FORY 6470	GIS Applications in Natural Resources	2
FORY 6460	Forest Fire Management	3
FORY 6650	Urban Forestry	3
FORY 7400	Forest Valuation and Economics	3
FORY 7650	Forest Operations and Wood Supply Chain Management	3
FOWS 6220	Landscape Ecology	3
FOWS 6230	Forest Stand Dynamics	3
FOWS 6250	Longleaf Pine Ecology, Management, and Restoration	3
FOWS 6260	Forest Wetlands Restoration Ecology	3
FOWS 6620	Natural Resource Finance and Investment	3
NATR 6250	Wetland Ecology and Management	3
NATR 6880	Ecological Economics	3

Neuroscience Certificate

The **Certificate Program in Neuroscience** at Auburn University is tailored for MS/PhD students who have a keen interest in brain-related sciences but are primarily focused on a different subject area. To earn the certificate, students must complete 12 credit hours from various departments and colleges. At least one elective must be taken outside the student's home department, and all courses must be completed with a "B" average or higher. Courses are taught by distinguished research faculty from multiple departments and schools/colleges, preparing the next generation of neuroscientists.

Code	Title	Hours
Choose 12 hours from courses below:		
DRDD 7000	Introduction to Grant Writing [1]	3
DRDD 7280	Neuroscience Methods	3
DRDD 7290	Neuropharmacology of Drug Abuse	2
DRDD 7300	Neuropharmacology	3
DRDD 7310	Psychopharmacology I	3
DRDD 7320	Psychopharmacology II	3
PHYS 5600/6600	Frontiers of Physics	3
PSYC 5610	Behavioral Effects of Environmental Contaminants	3
PSYC 6620	Neuropharmacology and Behavior	3
PSYC 7150	Biological Psychology [2]	3
PSYC 7400	Cognitive Neuroscience [2]	3
VBMS 7000	Neuroanatomy	5
VBMS 7160	Neuroscience [2]	4
VBMS 7960	Veterinary Neuroradiology	1

1 *To count towards the certificate requirement, the application must be neuroscience-related.*
2 *Recommended introductory courses to neuroscience.*

Nursing: Doctor of Nursing Practice — DNP

The Doctor of Nursing Practice (DNP) is the terminal practice degree for advanced nursing practice. The DNP degree program at Auburn University College of Nursing can be completed as a post-master's or BSN to DNP program. The post-master's DNP is designed for students who are advanced practice registered nurses and hold national certification in the advanced practice role prior to starting the DNP program. The BSN to DNP is designed for students who have completed a BSN program and hold licensure as a registered nurse.

The DNP program is designed to prepare nurses for the highest level of clinical nursing practice with a focus on enhancing leadership skills, improving patient outcomes, and translating research into practice. The program emphasizes evidence-based practice, quality improvement, and systems leadership, equipping nurses with the advanced knowledge and skills needed to lead in various healthcare settings. Courses are delivered primarily online, with some on-campus requirements.

Post-Master's DNP Pathway

The post-master's DNP pathway is designed for advanced practice registered nurses (APRNs) who already hold a master's degree in nursing. This pathway builds on the competencies acquired at the master's level and provides additional specialized knowledge and skills. The pathway requires 41 credit hours and can be completed in six semesters of full-time study. Students complete a practice-focused scholarly project and 300 practicum hours during the last three semesters of study. Some students may need to complete more credits beyond the 40 required for graduation to meet the *Commission on Collegiate Nursing Education Standards for Accreditation of Baccalaureate and Graduate Nursing Programs* (2024) practicum hour requirement of at least 1,000 post-baccalaureate practicum hours. Students may take and repeat NURS 8540 Advanced Practice Practicum until the 1,000 hours are achieved.

BSN to DNP Pathway

The BSN to DNP pathway is tailored for registered nurses who hold a Bachelor of Science in Nursing (BSN) and wish to pursue a Doctor of Nursing Practice degree. This pathway requires 71 credit hours, 1,140 practicum hours, and can be completed in nine

semesters of full-time study. Once students in this pathway complete the first six semesters, they become eligible to sit for the Nurse Practitioner (NP) certification exam.

Admission to the DNP Program is competitive and all qualified applicants may not be admitted. All applications must meet the admission criteria for applications to be considered complete and to be considered for admission.

Admission Criteria

- Submission of all official transcripts to the Graduate School
- Nursing GPA of 3.0 on a 4.0 scale (in master's program for post-MSN)
- Good academic standing from last university attended
- A master's degree (post-MSN pathway) or bachelor’s degree in nursing (BSN to DNP pathway) from an accredited nursing program: Commission on Collegiate Nursing Education (CCNE), Accreditation Commission for Education in Nursing (ACEN), or NLN Commission for Nursing Education Accreditation (CNEA).
- Current unencumbered license as a registered nurse in the state in which student plans to participate in clinical experience
- National certification and recognition or licensure as a nurse practitioner or nurse anesthetist in the state where practicing
- Three professional references for online recommendation form – References should be qualified to judge abilities to be successful in graduate studies.
- 500-word Professional Goal Statement; statement will address reasons for pursuing the DNP degree, past clinical experiences, career goals, and past achievements.
- Resume or curriculum vitae
- Personal interview with a faculty member may be required

College of Nursing Specific Admission and Progression Information

- If applicant is currently a student in last semester of a BSN or MSN NP program (at time of application), the applicant must submit a request for waiver of the BSN and RN licensure or MSN and NP certification admission requirements to the DNP Coordinator. If waiver request is approved and applicant is admitted, the student must complete the degree in good standing prior to enrollment and must obtain the RN licensure or NP certification during the first semester of study. These applicants will be admitted under provisional status until all admission requirements are fulfilled. An official transcript indicating completion of the degree must be submitted directly to the Graduate School and documentation of RN licensure or NP Certification must be submitted to AU College of Nursing before the student will be a fully approved admission. If a waiver is obtained, these applicants will be considered based on the nursing GPA on the current transcript.
- Applicants may be admitted under provisional status, if otherwise qualified, if the nursing GPA is less than 3.0 on 4.0 scale.
- Once the student has completed 9 hours of graduate credit with a cumulative graduate GPA of 3.0 or higher on a 4.0 scale, the provisional status will be removed. Failure to meet the requirement as stated will prevent progression in the nursing graduate program.
- Students must complete the Letter of Intent form sent by the AU College of Nursing, accept enrollment within their application, and meet all compliance requirements by the deadline indicated on the admission offer.
- Students are required to provide compliance documentation and must complete a background check and drug screen. All compliance documentation, background check, drug screen, and any requirements by Auburn University and/or College of Nursing must be completed by the deadline indicated, prior to registering for courses. Students who fail to satisfy all requirements for admission within the specified time period will be dismissed from the nursing graduate program.
- To progress through the program, students must receive a grade of at least a B in all courses. Students earning any two course grades of less than a B will be dismissed from the graduate program.

Code	Title	Hours
Semester I		
NURS 8320	Informatics and Technology in Healthcare	3
NURS 8510	Foundation for Evidence-Based Practice *	3
NURS 8710	Transitional Skills for DNP Practice *	2
Semester II		
NURS 8350	Nursing Philosophy, Science, and Theory *	3
NURS 8420	Population Health Outcomes	3
NURS 8720	Health Innovations and Clinical Outcomes Improvements *	3

Semester III		
NURS 8430	Financial Management for Advanced Practice	3
STAT 7000	Experimental Statistics I **	4
NURS 8930	DNP Project Practicum I: Development (1 theory, 2 clinical)	3
Semester IV		
NURS 8440	Leadership for Advanced Health Policy	3
NURS 8540	Advanced Practice Practicum	2
NURS 8940	DNP Project Practicum II : Implementation (1 theory, 3 clinical)	4
Semester V		
NURS 8950	DNP Project Practicum III : Evaluation and Presentations	4
Total Hours		**40**

* NURS 8710 and NURS 8510 marked * are pre-requisites to both NURS 8720 Health Innovations and Clinical Outcomes Improvements and NURS 8930 DNP Project Practicum I: Development.
* NURS 8720 and NURS 8350 marked * are pre-requisites to NURS 8930 DNP Project Practicum I: Development. DNP Project courses I, II and III must be taken in sequence.
** STAT 7000 marked ** may be pre-requisite *or* co-requisite to NURS 8930 DNP Project Practicum I: Development.

- DNP Project courses I, II, and III must be taken in sequence.
- NURS 8540 Advanced Practice Practicum is only required for students with <700 clinical hours from Master's Program.
- Courses listed under each semester are only taught during that semester.

Doctor of Philosophy in Nursing — PhD

The PhD in Nursing is designed for nurses who are driven to discover, challenge, and lead in healthcare science, policy, intervention, and technology. Auburn’s PhD students will work alongside scholars and scientists in many disciplines, developing innovative and practical solutions to the healthcare challenges of today and the future.

PhD graduates will provide leadership to the nursing profession: preparing new generations of professionals, expanding healthcare excellence in their communities and globally, driving innovative research and scientific advancement, and exploring new technologies and programs to create lasting health and wellness.

There are two pathways for admission: MSN-PhD or DNP-PhD. Full-time PhD students can complete their plan of study in nine semesters. The PhD program is primarily online. Auburn uses a variety of state-of-the-art online and distance learning technologies and techniques to facilitate the program and enrich the student learning experience. PhD students are admitted in fall semester only. The application deadline is June 1.

Admission Criteria

- Possess a current, unencumbered RN license from your state of residence within the United States.
- Have earned a master's degree in nursing or Doctor of Nursing Practice degree from an accredited nursing program with a minimum nursing GPA of 3.0 (MSN or DNP nursing courses are used to calculate the nursing GPA).
- Provide three professional references for the online recommendation form from individuals familiar with your capabilities for doctoral study and for future performance as a nurse scholar and researcher. Generally, two references from former professors are expected.
- Submit a Professional Goal Statement of approximately 750-1,000 words indicating your present research interests and career goals, including how the PhD in nursing will prepare you to achieve those goals. Describe any prior experiences that have prepared you for doctoral study (e.g., previous research presentations and leadership roles in practice, education, or professional organizations).
- Provide a writing sample (e.g., published paper or paper from previous degree program is acceptable).
- Provide a current curriculum vitae (CV) or resume.
- Complete an interview via telephone, on-campus, or video-conference.
- Submit all official transcripts to the Graduate School.

College of Nursing Specific Admission and Progression Information

Applicants must meet all College of Nursing admission criteria. Applicants may be admitted under fully approved status, or under provisional or exception status. Approved admissions meet all the criteria listed for the Graduate School and any additional criteria for the college. Provisional or exception status admission *may* be granted for students who do not meet certain requirements for admission. Applicants admitted as provisional or as an exception will be fully admitted to the nursing graduate program only when all requirements for admission have been satisfied. Applicants admitted as provisional or as an exception who fail to satisfy all requirements for admission within the specified time period will be dismissed from the nursing graduate program.

Continuation Requirements:

To progress through the program, all nursing graduate students must earn a grade of at least a B in all courses. Students receiving any two course grades of less than a B will be dismissed from the program. All PhD students must take and pass a comprehensive examination before commencing their dissertation research. The PhD comprehensive examination can be taken once the student has completed at least 28 credit hours of PhD course work.

MSN to PhD

First Year

Fall	Hours	Spring	Hours	Summer	Hours
NURS 8350 Nursing Philosophy, Science, and Theory	3	NURS 8460 Quantitative Research Design and Methods (Pre-requisite is STAT 7000 & co-requisite is STAT 7010)	3	NURS 8750 Measurement in Healthcare Research and Use of Data	3
NURS 8340 Development of the Role of Scientist	2	NURS 8770 Conceptual Design & Critical Review of the Literature	3	NURS 8560 Systematic Reviews for Medical and Behavioral Interventions	2
STAT 7000 Experimental Statistics I	4	STAT 7010 Experimental Statistics II	3		
NURS 8010 Doctoral Seminar I	1	NURS 8020 Doctoral Seminar II	1		
	10		**10**		**5**

Second Year

Fall	Hours	Spring	Hours	Summer	Hours
NURS 8450 Qualitative Research Methods in Nursing	3	NURS 8740 Dissertation Development Seminar	2	NURS 8550 Grant Writing and Management	3
NURS 8760 Health Policy (Pre-requisites are STAT 7000, STAT 7010, NURS 8460)	3	Comprehensive Exam (Possibly written and oral)		NURS 8040 Doctoral Seminar IV	1
NURS 8030 Doctoral Seminar III	1	Elective (Committee approved)	3	Elective (Committee approved)	3
Elective (Committee approved)Could be Stats Elective	3	Statistics Elective (Committee approved)	3		
	10		**8**		**7**

Third Year

Fall	Hours	Spring	Hours	Summer	Hours
NURS 8990 Research and Dissertation (Pre-requisites are NURS 8350, NURS 8340, STAT 7000, NURS 8460, STAT 7010, NURS 8770, NURS 8450, NURS 8750, NURS 8760, NURS 8550)	4	NURS 8990 Research and Dissertation (Pre-requisites are NURS 8350, NURS 8340, STAT 7000, NURS 8460, STAT 7010, NURS 8770, NURS 8450, NURS 8750, NURS 8760, NURS 8550)	3	NURS 8990 Research and Dissertation (Pre-requisites are NURS 8350, NURS 8340, STAT 7000, NURS 8460, STAT 7010, NURS 8770, NURS 8450, NURS 8750, NURS 8760, NURS 8550)	3
	4		**3**		**3**

Total Hours: 60

DNP to PhD

First Year

Fall	Hours	Spring	Hours	Summer	Hours
NURS 8340 Development of the Role of Scientist	2	NURS 8460 Quantitative Research Design and Methods (Pre-requisite is transfer credit of an approved Statistics course or STAT 7000 & co-requisite is STAT 7010.)	3	NURS 8560 Systematic Reviews for Medical and Behavioral Interventions	2
NURS 8350 Nursing Philosophy, Science, and Theory	3	NURS 8770 Conceptual Design & Critical Review of the Literature	3	NURS 8750 Measurement in Healthcare Research and Use of Data	3
STAT 7000 Experimental Statistics I (Course would only be necessary if Statistics course previously taken is not approved as transfer credit.)	4	STAT 7010 Experimental Statistics II	3		
NURS 8010 Doctoral Seminar I	1	NURS 8020 Doctoral Seminar II	1		
	10		**10**		**5**

Second Year

Fall	Hours	Spring	Hours	Summer	Hours
NURS 8450 Qualitative Research Methods in Nursing	3	NURS 8740 Dissertation Development Seminar	2	NURS 8550 Grant Writing and Management	3
NURS 8760 Health Policy (Pre-requisites are STAT 7000 or transfer credit of an approved Statistics course, STAT 7010, NURS 8460)	3	Comprehensive Exam (written and oral)		NURS 8040 Doctoral Seminar IV	1
NURS 8030 Doctoral Seminar III	1	Statistics Elective (Committee approved)	3	Elective (Committee approved)	3
Elective (Committee Approved)Could be Stats Elective	3	Elective (Committee Approved)	3		
	10		**8**		**7**

Third Year

Fall	Hours	Spring	Hours	Summer	Hours
NURS 8990 Research and Dissertation (Pre-requisites are NURS 8350, NURS 8340, STAT 7000 or transfer credit of an approved Stats course, NURS 8460, STAT 7010, NURS 8770, NURS 8450, NURS 8750, NURS 8760, NURS 8550)	4	NURS 8990 Research and Dissertation (Pre-requisites are NURS 8350, NURS 8340, STAT 7000 or transfer credit of an approved Stats course, NURS 8460, STAT 7010, NURS 8770, NURS 8450, NURS 8750, NURS 8760, NURS 8550)	3	NURS 8990 Research and Dissertation (Pre-requisites are NURS 8350, NURS 8340, STAT 7000 or transfer credit of an approved Stats course, NURS 8460, STAT 7010, NURS 8770, NURS 8450, NURS 8750, NURS 8760, NURS 8550)	3
	4		**3**		**3**

Total Hours: 60

Nursing — MSN

Track Options:

- Nurse Practitioner Primary Care — MSN (p. 1722)
- Nurse Educator — MSN (p. 1723)

The College of Nursing offers a Master's of Science in Nursing (MSN) with two program options: Nurse Educator and Primary Care Nurse Practitioner. Both program options share a core curriculum and have track specific courses. Courses are delivered primarily online, with some on-campus requirements. MSN graduates are ready to lead in educator and advanced practice nursing roles in health-related services to diverse populations.

Admission to all program options is competitive and all qualified applicants may not be admitted. All applications must meet the admission criteria for applications to be considered complete and to be considered for admission.

Admission Criteria

- Submission of all official transcripts directly to the Graduate School
- A Bachelor of Science degree in nursing from an accredited college or university or waiver request granted (see below)
- Nursing grade point average (GPA) of 3.0 on a 4.0 scale (students with GPAs lower than 3.0 may be considered for provisional admission if otherwise qualified)
- Current unencumbered license as a registered nurse in the state in which student plans to participate in any clinical experience
- Three professional references for online recommendation form - References should be qualified to judge abilities to be successful in graduate studies
- 500 word professional goal statement
- Current resume or curriculum vitae
- Successful completion (C or better) of an undergraduate statistics course
- Good academic standing from last university attended

College of Nursing Specific Admission and Progression Information

- If applicant is a student in the final semester of a BSN program at time of application, the applicant must submit a request to the Nurse Educator or Nurse Practitioner Program Coordinator for a waiver to apply. If waiver is approved, the applicant must successfully complete the BSN program in good standing before admission and must obtain the RN license during the first semester of study. These students will be admitted as provisional until the RN license is obtained. An official transcript indicating completion of the BSN program must be sent directly to the Graduate School and proof of RN license must be provided to the College of Nursing in order to remove the provisional status. If a waiver is granted, these applicants will be considered based on the nursing GPA on their current transcript.
- Students may be interviewed by the Graduate Admission, Progression, and Graduation Committee and other faculty and/or community members.
- Students must accept enrollment within their application and complete the letter of intent by the date indicated on the admission offer.

- Students are required to submit required compliance documentation, including a background check and drug screen. All compliance requirements must be completed by the date indicated prior to course registration. Students who fail to satisfy all requirements for admission within the specified time period will be dismissed from the nursing graduate program.
- To progress through the program, all AUCON graduate students must receive a grade of at least a B in all courses. Students earning any two course grades of less than a B will be dismissed from the graduate program.

Students may be admitted full-time (fall semester only) or part-time (fall, spring, or summer semester). Courses are offered only one time each academic year, therefore, changing status from full-time to part-time may impact planned graduation dates. Application deadlines are: (1) Summer Semester- March 1, (2) Fall Semester-June 1, and (3) Spring Semester-October 1. The application is completed online and may be found on the Auburn University Graduate School webpage and the Auburn University College of Nursing webpage.

Core Courses

Code	Title	Hours
NURS 7110	Adv Health/Physical Assessment	3
NURS 7230	Advanced Pathophysiology	3
NURS 7240	Advanced Pharmacology	3
NURS 7250	Healthcar Policy & Eth Nur Ldr	3
NURS 7310	Trans to Adv Practice Nursing	2
NURS 7340	Adv Theoretical Found of Nurs	3
NURS 7350	Quality & Safety in Healthcare	3
NURS 7430	Adv EBP	3
NURS 7540	Imp/Eval-Evid Based Nurs Pract	2

Nurse Educator Specific Courses

Code	Title	Hours
NURS 7210	EBT Strategies	2
NURS 7260	Transition-Clin to Nurse Edu	2
NURS 7320	Curriculum Development/Eval	4
NURS 7810	Nursing Education Practicum	3

Primary Care Nurse Practitioner Specific Courses

Code	Title	Hours
NURS 7220	Roles and Issues of the PCNP	3
NURS 7330	Diag Reasoning/Clinical Mngmnt	3
NURS 7440	Primary Care Women & Children	3
NURS 7550	Primary Care II	3
NURS 7920	Primary Care Practicum	7-8

Nursing Education Graduate Certificate

The purpose of the Post-Master's (MSN) Nursing Education Certificate program is to provide specialization in nursing education for nurses who already hold a Master's degree in nursing.

Admission to the Post-MSN Nursing Education Certificate program is competitive and all qualified applicants may not be admitted. All applications must meet the admission criteria for applications to be considered for admission.

Admission Criteria

- Master's of Science in Nursing (MSN) or Master's in Nursing (MN or MS) from an accredited nursing program
- Current unencumbered license as a registered nurse in the United States
- Nursing GPA of 3.0 on a 4.0 scale in the Master's Program
- Good academic standing from the last university attended

- Successful completion of Advanced Pathophysiology, Advanced Pharmacology, and Advanced Physical Assessment with 3.0 or higher within the last 5 years
- Successful completion (C or better) of an undergraduate statistics course
- Three professional references for online recommendation form — References should be qualified to judge abilities to be successful in graduate studies.
- 500-word Professional Goal Statement
- Submission of all official transcripts sent directly to the Graduate School
- Current resume or curriculum vitae

College of Nursing Specific Admission and Progression Information

- If applicant is a student in the last semester of an MSN program at time of application, the applicant must submit a request for waiver of the MSN Nursing Education Graduate Certificate to the Nurse Educator Program Coordinator. If waiver is granted, the applicant must complete the MSN Program in good standing before admission and meet the admission requirements during the first semester of study. These students will be admitted as provisional until the requirements are met. An official transcript indicating completion of the MSN program must be sent directly to the Graduate School in order to remove the provisional status. If a waiver is granted, the applicant will be considered based on the nursing GPA on their current transcript.
- Students may be interviewed by the Graduate Admission, Progression, and Graduation (APG) Committee and other faculty and/or community members.
- Students must accept enrollment within their application and complete the letter of intent by the date indicated on the admission offer.
- Students are required to submit required compliance documentation, including a background check and drug screen. All compliance requirements must be completed by the date indicated prior to course registration. Students who fail to satisfy all requirements for admission within the specified time period will be dismissed from the nursing graduate program.
- To progress through the program, all AUCON graduate students must receive a grade of at least a B in all courses. Students earning any two course grades of less than a B will be dismissed from the graduate program.

First Year	
Summer	**Hours**
NURS 7260 Transition from Clinician to Nurse Educator	2
NURS 7210 Evidence-Based Teaching Strategies	2

First Year	
Fall	**Hours**
NURS 7320 Curriculum Development and Evaluation	4

First Year	
Spring	**Hours**
NURS 7810 Nursing Education Practicum (180 Practicum hrs, 3 Clinical)	3

* Courses only taught during semester listed.

*Total Credit Hours = 11; Total Clinical Hours = 180

Nursing: Primary Care Nurse Practitioner — Graduate Certificate

The Post-Master's Primary Care Nurse Practitioner (PCNP) Certificate program is offered to nurses who hold a master's degree in another specialty area. Students who complete the PCNP graduate certificate can apply to sit for the certification exam to be licensed as a family nurse practitioner. Students who complete the certificate program will be ready to lead in advanced practice roles in health-

related services for diverse populations. The PCNP Certificate program is offered via a hybrid format which includes online courses and some on-campus sessions.

Admission to the Post-MSN Certificate program is competitive and all qualified applicants may not be admitted. All applications must meet the admission criteria to be considered for admission.

Admission Criteria

- Master's of Science in Nursing (MSN) or Master's in Nursing (MN or MS) from an accredited nursing program
- Current unencumbered license as a registered nurse in the United States
- Nursing GPA of 3.0 on a 4.0 scale in the master's Program
- Good academic standing from the last university attended
- Successful completion of Advanced Pathophysiology, Advanced Pharmacology, and Advanced Physical Assessment with 3.0 or higher within the last 5 years
- Successful completion (C or better) of an undergraduate statistics course
- Three professional references for online recommendation form - References should be qualified to judge abilities to be successful in graduate studies
- 500-word Professional Goal Statement
- Submission of all official transcripts sent directly to Graduate School
- Current resume or curriculum vitae

College of Nursing Specific Admission and Progression Information

- If applicant is a student in an MSN program at time of application, the applicant must submit a request for waiver of the MSN and NP certification admission requirements to the Nurse Practitioner Program Coordinator. If waiver is approved, the applicant must complete the MSN in good standing before admission and must obtain the NP certification during the first semester of study. These students will be admitted as provisional until the NP Certification is obtained. An official transcript indicating completion of the MSN and documentation of NP Certification must be provided to AUCON and the Graduate School to remove the provisional status. If a waiver is obtained, these applicants will be considered based on the MSN GPA on their current transcript.
- Students may be interviewed by the Graduate Admission, Progression, and Graduation Committee and other faculty and/or community members.
- Students must accept enrollment within their application and complete the letter of intent by the date indicated on the admission offer.
- Students are required to submit required compliance documentation, including a background check and drug screen. All compliance requirements must be completed by the date indicated prior to course registration. Students who fail to satisfy all requirements for admission within the specified time period will be dismissed from the nursing graduate program.
- To progress through the program, all AUCON graduate students must receive a grade of at least a B in all courses. Students earning any two course grades of less than a B will be dismissed from the graduate program.

Program Requirements

Code	Title	Hours
Primary Care Nurse Practitioner Specific Courses		
NURS 7220	Roles and Issues of the Primary Care Practitioner	3
NURS 7330	Diagnostic Reasoning and Clinical Management	3
NURS 7440	Primary Care Practicum of Women and Children	3
NURS 7550	Primary Care II: Adults and Elderly	3
NURS 7920	Primary Care Practicum	7
Total Hours		**19**

Nurse Practitioner Primary Care — MSN

First Year

Summer	Hours	Fall	Hours	Spring	Hours
NURS 7340 Advanced Theoretical Foundations of Nursing	3	NURS 7230 Advanced Pathophysiology	3	NURS 7240 Advanced Pharmacology	3
NURS 7350 Quality and Safety in Healthcare	3	NURS 7250 Healthcare Policy and Ethics for the Nurse Leader	3	NURS 7110 Advanced Health and Physical Assessment	3
(30 project hours, 2.5 theory; 5 project)		(30 project hours, 2.5 theory; 5 project)		(60 clinical hours, 2 theory; 1 clinical)	
NURS 7310 Transition to Advanced Practice Nursing*	2	NURS 7430 Advanced Evidence-Based Practice*	2	NURS 7540 Implementation and Evaluation of Evidence-Based Nursing Practice *	2
	8		**8**		**8**

Second Year

Summer	Hours	Fall	Hours	Spring	Hours
NURS 7220 Roles and Issues of the Primary Care Practitioner	**3**	**NURS 7440 Primary Care Practicum of Women and Children**	**3**	**NURS 7920 Primary Care Practicum**	**7**
NURS 7330 Diagnostic Reasoning and Clinical Management	**3**	**(120 clinical hours, 1 theory; 2 clinical)**		**(360 practicum, 1 theory; 6 clinical)**	
(90 clinical hours, 1.5 theory; 1.5 clinical)		**NURS 7550 Primary Care II: Adults and Elderly**	**3**		
		(120 clinical hours, 1 theory; 2 clinical)			
	6		**6**		**7**

Total Hours: 43

- **Full-time students are admitted in summer semester only. Students admitted in fall or spring semesters will be part-time.**
- ***NURS 7310, NURS 7430 and NURS 7540, marked *, must be taken in sequence in the following order:* 1.NURS 7310 Transition to Advanced Nursing Practice *2.* NURS 7430 Evidence- Based Nursing Practice 3. NURS 7540 Implementation & Evaluation of Evidence-Based Nursing Practice**
- **Courses listed under each semester are only taught during that semester.**
- **All core/pre-requisite courses must be successfully completed *before* advancing to the Semester II clinical courses. Clinical courses *must* then be successfully completed *before* taking NURS 7920 Primary Care Practicum.**

Nurse Educator — MSN

First Year

Summer	Hours	Fall	Hours	Spring	Hours
NURS 7340 Advanced Theoretical Foundations of Nursing (pre-requisite to NURS 7320 Curriculum Development and Evaluation)	3	NURS 7230 Advanced Pathophysiology	3	NURS 7240 Advanced Pharmacology	3
NURS 7350 Quality and Safety in Healthcare	3	NURS 7250 Healthcare Policy and Ethics for the Nurse Leader	3	NURS 7110 Advanced Health and Physical Assessment	3

NURS 7310 Transition to Advanced Practice Nursing*	2	(30 project hours, 2.5 theory; 5 project)		(60 clinical hours, 2 theory, 1 clinical)	
NURS 7260 Transition from Clinician to Nurse Educator	**2**	NURS 7430 Advanced Evidence-Based Practice*	2	NURS 7540 Implementation and Evaluation of Evidence-Based Nursing Practice *	2
NURS 7210 Evidence-Based Teaching Strategies (pre-requisite to NURS 7320 Curriculum Development and Evaluation)	**2**	**NURS 7320 Curriculum Development and Evaluation**	**4**	**NURS 7810 Nursing Education Practicum**	**3**
				(180 Practicum Hrs., 3 clinical	
	12		**12**		**11**

Total Hours: 35

- Full-time students are admitted in summer semester only. Students admitted in fall or spring semesters will be part-time.
- ***NURS 7310, NURS 7430, and NURS 7540 marked,* must be taken in sequence in the following order:*** 1. NURS 7310 Transition to Advanced Nursing Practice. 2. NURS 7430 Evidence-Based Practice. 3. NURS 7540 Implementation & Evaluation of Evidence-Based Nursing Practice.
- Courses listed under each semester are taught only during that semester.
- **NURS 7340 Advanced Theoretical Foundations of Nursing and NURS 7210 Teaching Strategies: Methods, Design, and Technology** are pre-requisites to NURS 7320 Curriculum Development and Evaluation.

Nutrition — MS, PhD

- Nutrition — MS (p. 1727)
- Nutrition — PhD (p. 1728)

The Department of Nutritional Sciences offers graduate study leading to the Master of Science (MS) and the Doctor of Philosophy (PhD) degrees in nutrition. For the MS degree, the student may specialize in general, community, clinical or sports nutrition. The department emphasizes the integration of knowledge from various fields for the purpose of understanding and developing professional skills for careers in higher education, government, and food, and healthcare industries.

For admission to the MS or PhD programs, the student must have a bachelor's degree from an accredited institution, a satisfactory GPA, and acceptable undergraduate academic preparation. The admission committee will evaluate all application items, including transcripts, letters of recommendation, a statement of intent, and resume. International applicants are also required to submit satisfactory TOEFL scores. Applicants lacking background requirements in chemistry and anatomy and physiology for the nutrition program must make up deficiencies prior to starting the program.

The **MS degree** with a thesis track requires a minimum of 30 semester hours and a thesis. The MS degree with the nonthesis track requires a minimum of 33 semester hours and a scholarly research project.

Required courses for the thesis track in nutrition include:

Code	Title	Hours
NTRI 7500	Minerals	3
NTRI 7510	Vitamins	3
NTRI 7520	Macronutrients Integr Metabo	4
NTRI 7530	Human Nutrient Metabolism	4
ERMA 7300	Design and Analysis in Ed I	3-4
or STAT 7000	Experimental Statistics I	
NTRI 7050	Methods Of Research	3
NTRI 7850	Research Seminar for MS	1
NTRI 7990	Research And Thesis (minimum of 5 hours)	1-10
Elective Graduate Level Courses		5

The non-thesis track in Nutrition is available through both distance education and on campus.

Required courses for the non-thesis track in nutrition include:

Code	Title	Hours
NTRI 7500	Minerals	3
NTRI 7510	Vitamins	3
NTRI 7520	Macronutrients Integr Metabo	4
NTRI 7530	Human Nutrient Metabolism	4
ERMA 7300	Design and Analysis in Ed I	3-4
or STAT 7000	Experimental Statistics I	
NTRI 7050	Methods Of Research	3
NTRI 7850	Research Seminar for MS	1
NTRI 7980	Nonthesis Research (minimum of 5 hours)	1-6
Elective Graduate Level Courses		8

The MS in Nutrition (Non-Thesis) with Dietetic Internship Experience offers a minimum of 1200 hours of supervised field experience in conjunction with the MS degree to enable baccalaureate degree graduates of Didactic Programs in Dietetics (DPDs) the opportunity to fulfill the experiential requirements to sit for the Registration Examination for Dietitians. Students complete 9-credit hours of field experience taking NTRI 7010 Advanced Practicum in Dietetics as the elective courses for the non-thesis option. Academic coursework is completed over the first year, followed by the field experience. Supervised practice will occur in various settings, including acute and critical care, outpatient, long-term care, wellness, public health, community, school foodservice, and other professional settings. The Auburn University Dietetic Internship Experience emphasis is in Public Health and Community Nutrition. The supervised practice is completed regionally in Alabama and Georgia (within an approximate 60 mile radius) or may be arranged via distance at student-coordinated sites subject to approval by the Dietetic Internship Director. Graduates who successfully complete the Auburn University MS in Nutrition with Dietetic Internship Experience will be eligible to take the Registration Examination for Dietitians.

Examples of elective courses for the MS in nutrition may include:

Code	Title	Hours
NTRI 6820	Nutrition In The Life Cycle	3
NTRI 6560	Nutr And Food Service Mgt	3
NTRI 6020	Medical Nutrition I	4
NTRI 6030	Medical Nutrition II	4
NTRI 7620	Sports & Perform Nutrition	3
KINE 7680	Adv Physiology of Exercise	3
KINE 7700	Adv Physiology of Exercise II	3
KINE 8780	Biochemistry of Exercise	3
KINE 6500	Exercise Assessment & Testing	3
KINE 6400	Ex Assessment Rx & Programming	3
KINE 7750	Advanced Sport Psychology	3
VBMS 7070	Endocrinology	4
BIOL 6220	Intro Molecular Genetics	3
BIOL 6190	Cell And Mol Signal Transduct	3
BCHE 7220	Prin Of Cellular Molec Enzy	3
BIOL 6500	Immunology	3
BCHE 7280	Topics In Biochemistry	1-3
NTRI 7910	Practicum In Nutr and Dietetic	1-12
ADED 7600	Nature Of Adult Education	3
ADED 7060	Curic And Pgm Plan In Adult Ed	3

NTRI 7930	Advanced Independent Study	1-6
NTRI 7010	Advanced Practicum in Dietetic	1-9

PhD Degree

The PhD degree requires a minimum of 60 semester hours beyond the bachelor's degree, a general doctoral examination with written and oral components, and a dissertation describing original research in the area of nutrition. The student becomes a candidate for the degree on successful completion of the general examinations. Course requirements for the PhD degree in nutrition are the same as for the corresponding Master's degree or an equivalent course from another institution plus NTRI 8970, NTRI 8850, and NTRI 7280. Laboratories are available for human, animal, chemical, and physical research. Supporting courses to strengthen the nutrition major may be in, but not limited to, biochemistry, physiology, chemistry, animal science, kinesiology, education, and biostatistics.

Course requirements for the PhD degree in nutrition include:

Code	Title	Hours
NTRI 7500	Minerals	3
NTRI 7510	Vitamins	3
NTRI 7520	Macronutrients Integr Metabo	4
NTRI 7530	Human Nutrient Metabolism	4
NTRI 7280	Lab Meth In Food Sci And Nutr	3
ERMA 7300	Design and Analysis in Ed I	3-4
or STAT 7000	Experimental Statistics I	
ERMA 7310	Design & Analysis in Ed II	3
or STAT 7010	Experimental Statistics II	
NTRI 7050	Methods Of Research	3
NTRI 8850	Research Sem For Doct Program	1-2
NTRI 8970	Adv Top Nutr, Diet & Hosp Mngt	1-6
NTRI 8990	Research And Dissertation	1-10
Elective Graduate Level Courses		

Examples of elective courses for the PhD degree in nutrition may include:

Code	Title	Hours
NTRI 6020	Medical Nutrition I	4
NTRI 6030	Medical Nutrition II	4
NTRI 6560	Nutr And Food Service Mgt	3
NTRI 7620	Sports & Perform Nutrition	3
NTRI 6820	Nutrition In The Life Cycle	3
KINE 7680	Adv Physiology of Exercise	3
KINE 7700	Adv Physiology of Exercise II	3
KINE 8780	Biochemistry of Exercise	3
KINE 6500	Exercise Assessment & Testing	3
KINE 6400	Ex Assessment Rx & Programming	3
KINE 7750	Advanced Sport Psychology	3
VBMS 7070	Endocrinology	4
BIOL 6220	Intro Molecular Genetics	3
BIOL 6500	Immunology	3
BIOL 6190	Cell And Mol Signal Transduct	3
BCHE 7220	Prin Of Cellular Molec Enzy	3
BCHE 7280	Topics In Biochemistry	1-3
NTRI 7910	Practicum In Nutr and Dietetic	1-12
ADED 7600	Nature Of Adult Education	3

ADED 7060	Curic And Pgm Plan In Adult Ed	3
NTRI 7930	Advanced Independent Study	1-6
NTRI 7010	Advanced Practicum in Dietetic	1-9

Nutrition — MS

Code	Title	Hours
MS Nutrition Thesis		
NTRI 7500	Minerals	3
NTRI 7510	Vitamins	3
NTRI 7520	Macronutrients: Integration and Metabolism	4
NTRI 7530	Human Nutrient Metabolism	4
ERMA 7300	Design and Analysis in Education I	3-4
or STAT 7000	Experimental Statistics I	
NTRI 7050	Methods Of Research	3
NTRI 7850	Research Seminar for Master's Program	1
NTRI 7990	Research And Thesis ((minimum of 5 hours))	5
Elective Graduate Level Courses		5

The non-thesis track in Nutrition is available through both distance education and on campus. Required courses for the non-thesis track in nutrition include:

Code	Title	Hours
NTRI 7500	Minerals	3
NTRI 7510	Vitamins	3
NTRI 7520	Macronutrients: Integration and Metabolism	4
NTRI 7530	Human Nutrient Metabolism	4
ERMA 7300	Design and Analysis in Education I	3-4
or STAT 7000	Experimental Statistics I	
NTRI 7050	Methods Of Research	3
NTRI 7850	Research Seminar for Master's Program	1
NTRI 7980	Nonthesis Research (minimum of 5 hours)	1-6
Elective Graduate Level Courses		8

Examples of elective courses for the MS in nutrition may include:

Code	Title	Hours
ADED 7060	Curriculum and Program Planning in Adult Education	3
ADED 7600	Nature of Adult Education	3
BCHE 7220	Principles of Cellular and Molecular Enzymology	3
BCHE 7280	Topics in Biochemistry	1-3
BIOL 6190	Cell and Molecular Signal Transduction	3
BIOL 6220	Introductory Molecular Genetics	3
BIOL 6500	Immunology	3
KINE 6400	Exercise Assessment, Prescription, & Programming	3
KINE 6500	Exercise Assessment and Testing	3
KINE 7680	Advanced Physiology of Exercise I	3
KINE 7700	Advanced Physiology of Exercise II	3
KINE 7750	Advanced Sport Psychology	3
KINE 8780	Biochemistry of Exercise	3
NTRI 6020	Medical Nutrition I	4

NTRI 6030	Medical Nutrition II	4
NTRI 6560	Nutrition and Food Service Management	3
NTRI 7620	Sports and Performance Nutrition	3
NTRI 6820	Nutrition In The Life Cycle	3
NTRI 7010	Advanced Practicum in Dietetics [1]	1-9
NTRI 7910	Practicum in Nutrition and Dietetics	1-12
NTRI 7930	Advanced Independent Study	1-6
VBMS 7070	Endocrinology	4

[1] Required for Dietetic Internship track.

The Master of Science degree in Nutrition (non-thesis track) with Dietetic Internship requires a minimum of 34 semester hours. It will serve as an additional track for the MS Nutrition non-thesis track within the department. Students who successfully complete this program will be eligible to sit for the Registered Dietitian Nutritionist qualifying examination. The program will provide academic work and field work (practicum) to prepare future Registered Dietitian Nutritionists.

There are three graduate degrees outside of Nutrition that students can utilize for the required Master's Degree to be eligible for the Dietetic Internship. The three options are MEd in Adult Education, MS Hospitality Management, and MS Exercise, Performance, and Health Optimization. Each of these options will allow the Dietetic Internship practicum course (NTRI 7010) to serve as an elective course within the program.

Nutrition — PhD

Code	Title	Hours
PhD Nutrition		
NTRI 7500	Minerals	3
NTRI 7510	Vitamins	3
NTRI 7520	Macronutrients: Integration and Metabolism	4
NTRI 7530	Human Nutrient Metabolism	4
NTRI 7280	Laboratory Methods in Food Science and Nutrition	3
ERMA 7300	Design and Analysis in Education I	3-4
or STAT 7000	Experimental Statistics I	
ERMA 7310	Design and Analysis in Education II	3
or STAT 7010	Experimental Statistics II	
NTRI 7050	Methods Of Research	3
NTRI 8850	Research Seminar for Doctoral Program	1-2
NTRI 8970	Advanced Topics in Nutrition, Dietetics and Hospitality Management	1-6
NTRI 8990	Research And Dissertation	1-10
Elective Graduate Level Courses		

Examples of elective courses for the PhD degree in nutrition may include:

Code	Title	Hours
ADED 7060	Curriculum and Program Planning in Adult Education	3
ADED 7600	Nature of Adult Education	3
BCHE 7220	Principles of Cellular and Molecular Enzymology	3
BCHE 7280	Topics in Biochemistry	1-3
BIOL 6190	Cell and Molecular Signal Transduction	3
BIOL 6220	Introductory Molecular Genetics	3
BIOL 6500	Immunology	3
KINE 6400	Exercise Assessment, Prescription, & Programming	3

KINE 6500	Exercise Assessment and Testing	3
KINE 7680	Advanced Physiology of Exercise I	3
KINE 7700	Advanced Physiology of Exercise II	3
KINE 7750	Advanced Sport Psychology	3
KINE 8780	Biochemistry of Exercise	3
NTRI 6020	Medical Nutrition I	4
NTRI 6030	Medical Nutrition II	4
NTRI 6560	Nutrition and Food Service Management	3
NTRI 7620	Sports and Performance Nutrition	3
NTRI 6820	Nutrition In The Life Cycle	3
NTRI 7010	Advanced Practicum in Dietetics	1-9
NTRI 7910	Practicum in Nutrition and Dietetics	1-12
NTRI 7930	Advanced Independent Study	1-6
VBMS 7070	Endocrinology	4

One Health — Graduate Certificate

The One Health concept is based on the premise that health related interactions among people, animals, and the environment have profound influences on disease risk, transmission, and prediction efforts. This graduate certificate requires a minimum of 15 credits from the following list of on-campus and on-line distance education courses offered at Auburn University or the University of Alabama at Birmingham School of Public Health. Those completing the certificate program will increase their knowledge regarding relationships between One Health concepts and many other professions such as urban planning, engineering, and natural resource management. This certificate will also ensure students are competent in the fundamentals of One Health concepts and able to articulate linkages between One Health concepts and challenging technical problems related to the environment.

Social and Ethical Issues in Public Health (HCO 670) – This course examines ethical issues related to public health research and practice and explores the social issues that complicate ethical decision making.

Public Health Policy (HCO 604) – This course applies basic microeconomic principles to the study of the U.S. health care system and public health policy.

Required Courses - 6 Credits

Code	Title	Hours
FOWS 7200	Disease Ecology	3
FOWS 7400	Introduction to Public Health	3

Elective Courses - 9 Credits needed

Code	Title	Hours
Social and Ethical Issues in Public Health (HCO 670)		3
Public Health Policy (HCO 604)		3
FOWS 7300	Current Topics in One Health	1
HDFS 6930	Society and Health	3
FOWS 7500	Outbreaks to Pandemics: Emerging Infectious Diseases in a Modern World	2
NTRI 6100	Nutrition in Disease Prevention	2
NURS 8420	Population Health Outcomes	3

Pavement Analysis and Design — Graduate Certificate

The overall objective of the program is to provide interdisciplinary graduate-level education for those seeking advanced professional knowledge and skills in Pavement Analysis and Design, who do not wish to gain a graduate degree at this point.

Auburn's pavement and materials program is focused on making transportation networks sustainable. Our graduates make a positive impact locally, regionally, and globally. Students can take advantage of research studies conducted at Auburn University such as

projects about increasing the use of recycled materials, reducing greenhouse gas emissions, and extending the life of pavements to minimize reconstruction work.

This Graduate Certificate Program is built on top of the successful Engineering Online Program within the Samuel Ginn College of Engineering, which was ranked highly in U.S. News and World Reports for Best Online Engineering Programs. It is an on-campus equivalent educational program that combines traditional instruction with modern delivery methods to offer graduate degrees beyond Auburn's campus.

The program is structured to advance the working engineer's knowledge and skills in the rapidly changing field of pavement analysis and design. Engineers in the pavement analysis and design area are responsible for roadway design, construction, maintenance, and rehabilitation of pavements. Pavements – a primary component of transportation infrastructure – are engineered with a strong understanding of materials behavior, mechanistic principles, and construction details.

At a Glance

- The program requires students to take four related graduate courses (12 credit hours).
- Students attending courses online have the same professors as their on-campus peers.
- Students can access lectures online through a live feed or at their convenience via streaming video.
- The online schedule allows for flexibility to maintain a career while completing the program.

Faculty

Pavement analysis and design courses are taught by Auburn's outstanding civil engineering faculty and research professors from the National Center for Asphalt Technology (NCAT).

Pavement Materials — Graduate Certificate

This graduate certificate prepares individuals to advance an engineer's knowledge and skills in the rapidly changing field of pavement materials. Engineers in the pavement materials area are responsible for roadway design, construction, maintenance, and rehabilitation of pavements. Pavements, a primary component of transportation infrastructure, are engineered with a strong understanding of materials behavior, mechanistic principles, and construction details.

The certificate requires two required and two elective graduate courses (12 credit hours) from the following:

Code	Title	Hours
Required (6 hours)		
CIVL 6820	Design and Production of Asphalt Paving Mixtures (Required)	3
CIVL 7870	Advanced Characterization of Pavement Materials (Required - prerequisite CIVL 6820)	3
Electives (6 hours)		
CIVL 6810	Pavement Design and Construction	3
CIVL 7820	Advanced Pavement Design and Rehabilitation (Prerequisite CIVL 6810)	3
CIVL 7840	Pavement Management and Rehabilitation	3
CIVL 7860	Pavement Construction	3
CIVL 6630	Advanced Concrete Materials	3
CIVL 6970	Civil Engineering Special Topics (e.g., Asphalt Binders)	3
CIVL 7970	Special Topics in Civil Engineering	3
Total Hours		**12**

Pharmaceutical Sciences: Health Outcomes Research and Policy Option — MS

The Auburn University Harrison College of Pharmacy offers interdisciplinary MS and PhD degree programs in pharmaceutical sciences. Those pursuing one of these degrees must select one of four curricular options: 1) medicinal chemistry, 2) pharmaceutics, 3) pharmacology, or 4) health outcomes research and policy.

The medicinal chemistry, pharmaceutics and pharmacology options are designed for students interested in the drug discovery or development processes and are affiliated with the Department of Drug Discovery and Development. Areas of interest include

neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The MS degree is offered under the thesis option. Students must earn a minimum of 30 semester hours of graduate courses (6000–8999). Thesis students register for Research and Thesis in semester(s) when working on the thesis, when submitting, defending or awaiting final approval of the thesis, and when taking final examinations. Candidates for the MS degree are required to prepare a thesis proposal and complete a proposal defense.

For the MS Program, students must complete a Core Curriculum outlined below:

Code	Title	Hours
Scientific Communications (Three credits required)		3
HORP 7950	Seminar (may be repeated multiple times for credit)	
DRDD 7950	Seminar (may be repeated multiple times for credit)	
Data Analyses and Interpretation (Three credits required)		3
ERMA 7300	Design and Analysis in Education I	
DRDD 7010	Pharmacokinetics	
DRDD 7030	Drug Products and Biopharm	
DRDD 7230	Advanced Medicinal Chemistry I	
DRDD 7340	Organ Systems Pharmacology I	
DRDD 7360	Cellular & Molecular Pharmacology & Toxicology I	
STAT 7000	Experimental Statistics I	
Experimental Design (Three credits required)		3
HORP 7990	Research And Thesis (may be repeated multiple times for credit)	
DRDD 7990	Research and Thesis (may be repeated multiple times for credit)	
Option specific requirements for MS students pursuing the Health Outcomes Research and Policy option include:		
HORP 7510	Health Services Delivery and Evaluation	3
HORP 7520	Social and Behavioral Theory in Health	3
HORP 7530	Pharmaceutical Economics, Outcomes, and Policy	3
HORP 7540	Pharmacoepidemiology: Methods and Applications	3
HORP 7820	Research Methods and Design Health Science I	2
HORP 7950	Seminar (may be repeated multiple times for credit)	1
HORP 7990	Research And Thesis (Total of 4 CR required)	4
DRDD 7000	Introduction to Grant Writing	3
STAT 6110	Sas Programming and Applications	3

In addition to the specific core and option course requirements listed above, students must complete instructor approved graduate electives (6000–8999) to reach the 30 hour degree requirement.

Pharmaceutical Sciences: Health Outcomes Research and Policy Option (Non-Thesis) — MS

Pharmaceutical Sciences Non-Thesis Masters Degree Program — Health Outcomes Research and Policy Option

A. Program Administration

After the student is admitted to the non-thesis Masters Program, the student will be assigned to the Graduate Program Officer (GPO) as his/her temporary advisor. By the end of the second semester in the non-thesis MS program, the student must select a faculty member, who will serve as the research advisor for the student. The advisor selection process will be the same with PhD and thesis-option MS programs. The student will work with the research advisor to formulate an advisory committee. This advisory committee will consist of no fewer than three HORP faculty members. This committee will assist the research advisor in the selection of coursework

and in oversight of the student's overall progress. In addition, the committee will assist the research advisor in evaluating the student's performance in the non-thesis research course (HORP 7980). Because of the demands of this program, students will not be permitted to engage in outside employment while enrolled in the program.

B. Program Curriculum

1. Curricular Overview

The required courses of this curriculum are aligned with the three core competencies of the graduate program: Scientific Communications, Data Analyses and Interpretation, and Experimental Design. The Scientific Communications requirement (3 credits) is to be fulfilled by HORP 7950 (1 credit per semester). The Data Analyses and Interpretation requirement (3 credits) is to be fulfilled by ERMA 7300 or STAT 7000 (3 credits). The Experimental Design requirement (3 credits) is to be fulfilled by HORP 7980 (1–3 credits per semester, student must take a minimum of 4 to satisfy the degree requirement).

Code	Title	Hours
STAT 6110	Sas Programming and Applications	3
HORP 7510	Health Services Delivery and Evaluation	3
HORP 7520	Social and Behavioral Theory in Health	3
HORP 7530	Pharmaceutical Economics, Outcomes, and Policy	3
HORP 7540	Pharmacoepidemiology: Methods and Applications	3
HORP 7820	Research Methods and Design Health Science I	2
HORP 7950	Seminar [1]	3
HORP 7980	Non-Thesis Research [2]	4
Core Data Analysis Requirement [3]		3
Restricted Advisor Approved Electives [4]		3
Total Hours		**30**

1. Students must take HORP 7950 each fall and spring semester. A total of at least 3 credit hours are required.
2. Students may take 1–3 credit hours of HORP 7980 per semester. Students must take a total of 4 credit hours of HORP 7980.
3. STAT 7000 or ERMA 7300 must be taken to fulfill 3 credit hour core data analysis requirement.
4. At least 3 credit hours of restricted advisor approved electives are required.

Pharmaceutical Sciences: Health Outcomes Research and Policy Option — PhD

The Auburn University Harrison College of Pharmacy offers interdisciplinary MS and PhD degree programs in pharmaceutical sciences. Those pursuing one of these degrees must select one of four curricular options: 1) medicinal chemistry, 2) pharmaceutics, 3) pharmacology, or 4) health outcomes research and policy.

The medicinal chemistry, pharmaceutics and pharmacology options are designed for students interested in the drug discovery or development processes and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The health outcomes research and policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The PhD program requires a minimum of 60 semester hours earned through instruction beyond the bachelor's degree including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000–8999); and 2) a minimum of 30 semester hours of additional graduate course work (6000–8999) that may include ungraded courses, and must include at least 10 hours of research and dissertation. A general examination, often called the preliminary examination, is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing. The student becomes a candidate for the degree upon successful completion of the general examination. Students working on the dissertation, submitting their dissertation or awaiting approval of their final examination

must register for Research and Dissertation in the semester(s) when these steps occur. Candidates for the PhD degree must complete a dissertation proposal and successfully defend their proposal during the final examination.

For the PhD program, students must complete a core curriculum outlined below:

Code	Title	Hours
Scientific Communications (Six credits required)		6
HORP 8950	Seminar (may be repeated multiple times for credit)	
DRDD 8950	Seminar (may be repeated multiple times for credit)	
DRDD 7000	Introduction to Grant Writing	
Data Analyses and Interpretation (Six credits required)		6
ERMA 7300	Design and Analysis in Education I	
ERMA 7310	Design and Analysis in Education II	
MNGT 8400	Advanced Quantitative Methods for Management I	
DRDD 7010	Pharmacokinetics	
DRDD 7030	Drug Products and Biopharm	
DRDD 7230	Advanced Medicinal Chemistry I	
DRDD 7240	Advanced Medicinal Chemistry II	
DRDD 7340	Organ Systems Pharmacology I	
DRDD 7350	Organ Systems Pharmacology II	
DRDD 7360	Cellular & Molecular Pharmacology & Toxicology I	
DRDD 7370	Cellular & Molecular Pharmacology & Toxicology II	
STAT 7000	Experimental Statistics I	
STAT 7010	Experimental Statistics II	
Experimental Design (Six credits required)		6
HORP 8990	Research And Dissertation	
DRDD 8990	Research And Dissertation	
Option specific requirements for PhD students pursuing the Health Outcomes Research and Policy option include:		
HORP 7510	Health Services Delivery and Evaluation	3
HORP 7520	Social and Behavioral Theory in Health	3
HORP 7530	Pharmaceutical Economics, Outcomes, and Policy	3
HORP 7540	Pharmacoepidemiology: Methods and Applications	3
HORP 7820	Research Methods and Design Health Science I	2
HORP 8950	Seminar (may be repeated multiple times for credit)	1
HORP 8990	Research And Dissertation (total of 10 CR required)	10
DRDD 7000	Introduction to Grant Writing	3
STAT 6110	Sas Programming and Applications	3
In addition to the specific core and option course requirements listed above, students must complete instructor approved graduate electives (6000–8999) to reach the 60 hour degree requirement.		

Pharmaceutical Sciences — MS, PhD

Degree Programs

- Pharmaceutical Sciences: Health Outcomes Research and Policy Option — MS (p. 1730)
- Pharmaceutical Sciences: Health Outcomes Research and Policy Option (Non-Thesis) — MS (p. 1731)
- Pharmaceutical Sciences: Health Outcomes Research and Policy Option — PhD (p. 1732)
- Pharmaceutical Sciences: Medicinal Chemistry Option — MS (p. 1709)
- Pharmaceutical Sciences: Medicinal Chemistry Option (Non-Thesis) — MS (p. 1710)
- Pharmaceutical Sciences: Medicinal Chemistry Option — PhD (p. 1710)
- Pharmaceutical Sciences: Pharmaceutics Option — MS (p. 1734)
- Pharmaceutical Sciences: Pharmaceutics Option (Non-Thesis) — MS (p. 1735)

- Pharmaceutical Sciences: Pharmaceutics Option — PhD (p. 1734)
- Pharmaceutical Sciences: Pharmacology Option — MS (p. 1736)
- Pharmaceutical Sciences: Pharmacology Option (Non-Thesis) — MS (p. 1736)
- Pharmaceutical Sciences: Pharmacology Option — PhD (p. 1737)

Graduate Certificates

- Medicinal Chemistry (p. 1709)

Pharmaceutical Sciences: Pharmaceutics Option — PhD

The Auburn University Harrison College of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The PhD program requires a minimum of 60 semester hours earned through instruction beyond the bachelor's degree including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000–8999); and 2) a minimum of 30 semester hours of additional graduate course work (6000–8999) that may include ungraded courses, and must include at least 10 hours of research and dissertation. A general examination, often called the preliminary examination, is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing. The student becomes a candidate for the degree upon successful completion of the general examination. Students working on the dissertation, submitting their dissertation or awaiting approval of their final examination must register for Research and Dissertation in the semester(s) when these steps occur. Candidates for the PhD degree must complete a dissertation proposal and successfully defend their proposal during the final examination.

For the PhD program, students must complete a core curriculum outlined below.

Code	Title	Hours
DRDD 7090	Pharmaceutical Science I: Targets	4
DRDD 7100	Pharmaceutical Science II: ADME	4
DRDD 7010	Pharmacokinetics	4
DRDD 7030	Drug Products and Biopharm	4
DRDD 8950	Seminar (May be repeated multiple times for credit.)	1
DRDD 8990	Research And Dissertation (Total of 10 CR required)	1-10

In addition to the specific core and option course requirements listed above, students must complete committee approved graduate electives (6000–8999) to reach the 60 hour degree requirement.

Pharmaceutical Sciences: Pharmaceutics Option — MS

The Auburn University Harrison College of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The MS degree is offered under the thesis option. Students must earn a minimum of 30 semester hours of graduate courses (6000–8999). Thesis students register for Research and Thesis in semester(s) when working on the thesis, when submitting, defending or awaiting final approval of the thesis, and when taking final examinations. Candidates for the MS degree are required to prepare a thesis proposal and complete a proposal defense.

For the MS Program, students must complete a Core Curriculum outlined below.

Code	Title	Hours
DRDD 7090	Pharmaceutical Science I: Targets	4
DRDD 7100	Pharmaceutical Science II: ADME	4
DRDD 7010	Pharmacokinetics	4
DRDD 7030	Drug Products and Biopharm	4
DRDD 7950	Seminar (May be repeated multiple times for credit.)	1
DRDD 7990	Research and Thesis (Total of 4 CR required)	1-4

In addition to the specific core and option course requirements listed above, students must complete committee approved graduate electives (6000–8999) to reach the 30 hour degree requirement.

Pharmaceutical Sciences: Pharmaceutics Option (Non-Thesis) — MS

A. Program Administration

Admission to the program will be accompanied by assignment to a specific Pharmaceutics faculty member, who will serve as the research mentor for the student. Thus, admission to the program will be offered only upon approval of that faculty member. Upon acceptance of admission, the student will work with the faculty member to formulate an advisory committee. This advisory committee will consist of no fewer than three members and a majority of members must come from the Department of Drug Discovery and Development. This committee will assist the faculty mentor in the selection of coursework and in oversight of the student's research activity. In particular, the committee will assist the faculty member in evaluating the student's performance in the non-thesis research course (DRDD 7980). Because of the demands of this program, students will not be permitted to engage in outside employment while enrolled in the program.

B. Program Curriculum

1. Curricular Overview

The required courses of this curriculum are aligned with the three core competencies of the graduate program: Scientific Communications, Data Analyses and Interpretation, and Experimental Design. The Scientific Communications requirement (3 credits) is to be fulfilled by DRDD 7950 (1 credit per semester). The Data Analyses and Interpretation requirement (3 credits) is to be fulfilled by DRDD 7030 (3 credits). The Experimental Design requirement (3 credits) is to be fulfilled by DRDD 7980 (1–3 credits per semester).

Additional required courses for this option are listed below. DRDD 7950 (1 credit per semester) is required for each Fall and Spring semester enrolled in the program. Four credits of DRDD 7980 (1–3 credits per semester) are required for graduation; furthermore, DRDD 7980 is required for each semester enrolled in the program.

Code	Title	Hours
DRDD 7090	Pharmaceutical Science I: Targets	4
DRDD 7100	Pharmaceutical Science II: ADME	4
DRDD 7010	Pharmacokinetics	4
DRDD 7030	Drug Products and Biopharm	4
DRDD 7930	Directed Studies in Pharmacal Sciences	2
DRDD 7950	Seminar (May be repeated multiple times for credit.)	1
DRDD 7980	Non-Thesis Research (Total of 4 CR required)	1–6

In addition to the specific core and option course requirements listed above, students must complete committee approved graduate electives (6000–8999) to reach the 30 hour degree requirement.

1 Students must take DRDD 7950 each fall and spring semester. A total of at least 3 credit hours are required.
2 Students must take 1–3 hours of DRDD 7980 each semester. A total of at least 3 credit hours are required.
3 At least 7 credit hours of restricted electives are required from the following list: DRDD 6800, DRDD 7020, DRDD 7021, DRDD 7050, DRDD 7060, DRDD 7110, DRDD 7260, DRDD 7270, DRDD 7360, DRDD 7930, DRDD 7960.

Pharmaceutical Sciences: Pharmacology Option — MS

For the MS Program, students must complete a Core Curriculum outlined below.

The Auburn University Harrison College of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The MS degree is offered under the thesis option. Students must earn a minimum of 30 semester hours of graduate courses (6000–8999). Thesis students register for Research and Thesis in semester(s) when working on the thesis, when submitting, defending or awaiting final approval of the thesis, and when taking final examinations. Candidates for the MS degree are required to prepare a thesis proposal and complete a proposal defense.

Code	Title	Hours
DRDD 7090	Pharmaceutical Science I: Targets	4
DRDD 7100	Pharmaceutical Science II: ADME	4
DRDD 7340	Organ Systems Pharmacology I	3
DRDD 7360	Cellular & Molecular Pharmacology & Toxicology I	3
DRDD 7950	Seminar (May be repeated multiple times for credit.)	1
DRDD 7990	Research and Thesis (Total of 4 CR required)	1–6

In addition to the specific core and option course requirements listed above, students must complete committee approved graduate electives (6000–8999) to reach the 30 hour degree requirement.

Pharmaceutical Sciences: Pharmacology Option (Non-Thesis) — MS

Pharmaceutical Sciences Non-Thesis Masters Degree Program — Pharmacology Option

A. Program Administration

Admission to the program will be accompanied by assignment to a specific Pharmacology faculty member, who will serve as the research mentor for the student. Thus, admission to the program will be offered only upon approval of that faculty member. Upon acceptance of admission, the student will work with the faculty member to formulate an advisory committee. This advisory committee will consist of no fewer than three members and a majority of members must come from the Department of Drug Discovery and Development. This committee will assist the faculty mentor in the selection of coursework and in oversight of the student's research activity. In particular, the committee will assist the faculty member in evaluating the student's performance in the non-thesis research course (DRDD 7980).

B. Program Curriculum

1. Curricular Overview

The required courses of this curriculum are aligned with the three core competencies of the graduate program: Scientific Communications, Data Analyses and Interpretation, and Experimental Design. The Scientific Communications requirement (3 credits) is to be fulfilled by DRDD 7950 (1 credit per semester). The Data Analyses and Interpretation requirement (3 credits) is to be fulfilled by DRDD 7030 (3 credits). The Experimental Design requirement (3 credits) is to be fulfilled by DRDD 7980 (1-3 credits per semester).

Additional required courses for this option are listed below. DRDD 7950 (1 credit per semester) is required for each Fall and Spring semester enrolled in the program. Four credits of DRDD 7980 (1-3 credits per semester) are required for graduation; furthermore, DRDD 7980 is required for each semester enrolled in the program.

Code	Title	Hours
DRDD 7090	Pharmaceutical Science I: Targets	4
DRDD 7100	Pharmaceutical Science II: ADME	4
DRDD 7330	Pharmacology Research Methods	3
DRDD 7340	Organ Systems Pharmacology I	3
DRDD 7360	Cellular & Molecular Pharmacology & Toxicology I	3
DRDD 7950	Seminar (May be repeated multiple times for credit.)	1
DRDD 7980	Non-Thesis Research (Total of 4 CR required)	1–6

In addition to the specific core and option course requirements listed above, students must complete committee approved graduate electives (6000–8999) to reach the 30 hour degree requirement.

1 Students must take DRDD 7950 each fall and spring semester. A total of at least 3 credit hours are required.
2 Students must take 1–3 hours of DRDD 7980 each semester. A total of at least 6 credit hours are required.
3 At least 3 credit hours of restricted electives are required from the following list: STAT 7000, STAT 7010, DRDD 6800, DRDD 7300, DRDD 7310, DRDD 7960, VBMS 7140, VBMS, 7180.
4 At least 3 credit hours of restricted advisor approved electives are required.

Pharmaceutical Sciences: Pharmacology Option — PhD

The Auburn University Harrison College of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The PhD program requires a minimum of 60 semester hours earned through instruction beyond the bachelor's degree including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000–8999); and 2) a minimum of 30 semester hours of additional graduate course work (6000–8999) that may include ungraded courses, and must include at least 10 hours of research and dissertation. A general examination, often called the preliminary examination, is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing. The student becomes a candidate for the degree upon successful completion of the general examination. Students working on the dissertation, submitting their dissertation or awaiting approval of their final examination must register for Research and Dissertation in the semester(s) when these steps occur. Candidates for the PhD degree must complete a dissertation proposal and successfully defend their proposal during the final examination.

For the PhD program, students must complete a core curriculum outlined below.

Code	Title	Hours
DRDD 7090	Pharmaceutical Science I: Targets	4
DRDD 7100	Pharmaceutical Science II: ADME	4

DRDD 7340	Organ Systems Pharmacology I	3
DRDD 7360	Cellular & Molecular Pharmacology & Toxicology I	3
DRDD 8950	Seminar (May be repeated multiple times for credit.)	1
DRDD 8990	Research And Dissertation (Total of 10 CR required)	1-10

In addition to the specific core and option course requirements listed above, students must complete committee approved graduate electives (6000–8999) to reach the 60 hour degree requirement.

Physics — MS, PhD

Degree Programs

- Physics — MS (p. 1738)
- Physics — PhD (p. 1739)

The Department of Physics offers the doctor of philosophy degree to students who have achieved a mastery of the fundamental laws of nature and demonstrated the ability to complete a research project that results in new knowledge in physics. All students complete the basic graduate level courses in Classical Mechanics, Electricity and Magnetism, Quantum Mechanics and Statistical Physics. They demonstrate their mastery of these subjects by passing a General Doctoral Examination that has both a written and an oral component. To increase their knowledge of a broad range of advanced physics topics and to develop expertise in their chosen area of focus, students complete at least 12 additional hours of graded course work with a minimum of nine at the 8000-level. The research project is usually undertaken in one of the research focuses of the Department—plasma physics, condensed matter and surface physics, atomic and molecular physics, space physics, and computational physics. It is completed with the defense of the student's dissertation. Students are also expected to publish their research in a refereed journal and/or present it at an appropriate professional meeting.

The master of science is also offered. Successful students complete the same basic graduate level courses as PhD students. Students electing the non-thesis option complete an additional 12 hours of graduate level course work. Students electing the thesis option complete at least an additional 6 hours of graduate level course work and at least 4 hours of thesis work. In addition to defending their thesis, they are encouraged to publish their results in a refereed journal or present them at a scientific meeting.

Physics — MS

Code	Title	Hours
MS Physics		
PHYS 7100	Classical Mechanics	3
PHYS 7200	Electricity and Magnetism I	3
PHYS 7250	Electricity and Magnetism II	3
PHYS 7300	Quantum Mechanics I	3
PHYS 7350	Quantum Mechanics II	3
PHYS 7400	Statistical Physics	3
PHYS 7950	Physics Colloquium (1-hr course repeated)	3
9 Credits in @ 6000-8000 (approved electives). For the M.S. Thesis option, 4-6 credit hours of Research and Thesis (PHYS 7990) replace elective credits.		9
Total Hours		**30**

Code	Title	Hours
MS Physics Non-Thesis		
PHYS 7100	Classical Mechanics	3
PHYS 7200	Electricity and Magnetism I	3
PHYS 7250	Electricity and Magnetism II	3
PHYS 7300	Quantum Mechanics I	3
PHYS 7350	Quantum Mechanics II	3
PHYS 7400	Statistical Physics	3
PHYS 7950	Physics Colloquium (1-hour course repeated)	3

9 Credits in @ 6000-8000 (approved electives)	9
Total Hours	**30**

Physics — PhD

Code	Title	Hours
PhD Physics		
PHYS 7100	Classical Mechanics	3
PHYS 7200	Electricity and Magnetism I	3
PHYS 7250	Electricity and Magnetism II	3
PHYS 7300	Quantum Mechanics I	3
PHYS 7350	Quantum Mechanics II	3
PHYS 7400	Statistical Physics	3
PHYS 7950	Physics Colloquium (1-hour course repeated)	6
PHYS 8990	Research and Dissertation	10
Additional approved electives in @ 6000-8000 level (graded)		12
Additional approved electives in @ 6000 - 8000 level (graded or ungraded)		14
Total Hours		**60**

Plant Pathology — MAg, MS, PhD

Degree Programs

- Plant Pathology — MAg (p. 1741)
- Plant Pathology — MS (p. 1741)
- Plant Pathology — PhD (p. 1741)

The Department of Entomology and Plant Pathology offers plant pathology degrees including a Master of Science (MS), Master of Agriculture (MAg) and Doctor of Philosophy (PhD). The Graduate program emphasizes basic and applied aspects of the science of plant pathology preparing students for careers in teaching, research and extension with a variety of academic, governmental, state, private and industrial opportunities. The educational goals and objectives of the MS degree program are to produce graduates who are fundamentally trained in the scientific principles and general knowledge of plant pathology and related sciences and who are able to apply these principles to successfully solve problems and employ this knowledge at an advanced level of study. The purpose of the PhD program in plant pathology is to produce graduates who are fundamentally trained in the scientific principles and general knowledge of plant pathology and related sciences and who are able to employ this knowledge at the advanced level of study and apply these principles to solve problems involving plant diseases and associated pathogens.

Admission is based primarily on a combination of Grade Point Average (GPA) and Graduate Record Examination (GRE) scores and (if an international student) TOEFL tests are also required.

Students holding baccalaureate degrees in agriculture or the biological sciences may find this degree program helpful to their professional development and career goals. For a major in plant pathology at the MS level, the student should have a baccalaureate degree from a recognized institution with pre-requisite training in agriculture, biology, botany, microbiology and related fields such as chemistry, physics, and mathematics. Qualified students lacking mandatory courses may be admitted but will be required by the student’s advisory committee to make up any deficiencies.

The MS program in plant pathology is available to qualified individuals who wish to pursue a master's level program that requires a thesis. Importance is placed on both classroom and research training.

The MS requires a minimum of 30 semester hours, including:

Code	Title	Hours
MS		
PLPA 6200	Mycology	2
PLPA 6300	Plant-Bacterial Interactions	2

PLPA 6400	Plant Virology	2
PLPA 6500	Plant Nematology	2
PLPA 7950	Seminar in Plant Pathology	1
PLPA 7990	Research and Thesis	6
Graduate level statistics		3
Select 6 Credits in PLPA @ 6000-8990 (Electives)		6
Select 6 Credits @ 6000-8990 (Electives)		6
Total Hours		**30**

A graduate-level course in statistics is also required. A minimum of 21 semester hours must be taken in plant pathology and a specialty area may be selected from related subject matter fields. There is no language requirement for the MS degree. In addition to the required course work, the student must complete research, a written thesis and a thesis defense examination as defined by the student's advisory committee.

The master of agriculture (MAg) program with a specialization in plant pathology is available to qualified applicants who wish to pursue a master's level program that does not require a thesis. The MAg with a specialization in plant pathology carries the same entrance requirements as the MS but is a non-thesis degree.

The MAg requires a minimum of 32 semester hours, 21 of which must be in plant pathology, including:

Code	Title	Hours
MAg		
PLPA 6200	Mycology	2
PLPA 6300	Plant-Bacterial Interactions	2
PLPA 6400	Plant Virology	2
PLPA 6500	Plant Nematology	2
Select 21 Credits in @ 6000-8999 (Electives) [1]		21
Course in Statistics (strongly recommended)		3
Total Hours		**32**

[1] The remaining graduate level courses can be taken from a variety of subject areas determined in consultation with the student's advisory committee. A comprehensive examination is required after all courses are completed.

There is no language requirement for the MAg degree.

The PhD program requires 60 semester hours of course work, including:

Code	Title	Hours
PhD		
PLPA 6200	Mycology	2
PLPA 6300	Plant-Bacterial Interactions	2
PLPA 6400	Plant Virology	2
PLPA 6500	Plant Nematology	2
PLPA 8910	Teaching Practicum	1
PLPA 8950	Seminar	1
PLPA 8990	Research and Dissertation	10
Graduate level statistics		3
Select 10 Credits in PLPA @ 6000-8999 (Electives)		10
Select 27 Credits @ 6000-8999 (Electives)		27
Total Hours		**60**

Of the 60 semester hours, 30 must be graded graduate courses 6000-level and taken at Auburn University. There is no language requirement for the PhD. Upon completion of the course work, PhD students must take a general written examination. Students must pass all parts of the written examination before scheduling the preliminary oral examination (referred to as the PhD prelim exam). After

satisfactory completion of the prelim exam the student advances to candidacy. The PhD student will conduct independent research and prepare a dissertation through the guidance and direction of an advisory committee. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

Plant Pathology — MAg

Code	Title	Hours
MAg		
PLPA 6200	Mycology	2
PLPA 6300	Plant-Bacterial Interactions	2
PLPA 6400	Plant Virology	2
PLPA 6500	Plant Nematology	2
Select 21 Credits in @ 6000-8999 (Electives) [1]		21
Course in Statistics (strongly recommended)		3
Total Hours		**32**

[1] The remaining graduate level courses can be taken from a variety of subject areas determined in consultation with the student's advisory committee. A comprehensive examination is required after all courses are completed.

Plant Pathology — MS

Code	Title	Hours
MS		
PLPA 6200	Mycology	2
PLPA 6300	Plant-Bacterial Interactions	2
PLPA 6400	Plant Virology	2
PLPA 6500	Plant Nematology	2
PLPA 7950	Seminar in Plant Pathology	1
PLPA 7990	Research and Thesis	6
Graduate level statistics		3
Select 6 Credits in PLPA @ 6000-8990 (Electives)		6
Select 6 Credits @ 6000-8990 (Electives)		6
Total Hours		**30**

Plant Pathology — PhD

Code	Title	Hours
PhD		
PLPA 6200	Mycology	2
PLPA 6300	Plant-Bacterial Interactions	2
PLPA 6400	Plant Virology	2
PLPA 6500	Plant Nematology	2
PLPA 8910	Teaching Practicum	1
PLPA 8950	Seminar	1
PLPA 8990	Research and Dissertation	10
Graduate level statistics		3
Select 10 Credits in PLPA @ 6000-8999 (Electives)		10
Select 27 Credits @ 6000-8999 (Electives)		27
Total Hours		**60**

Political Science Graduate Programs — Graduate Certificate, MPA, PhD

Degree Program:

- Public Administration — MPA (p. 1747)
- Public Administration and Public Policy — PhD (p. 1747)

Graduate Certificates:

- Economic Development (p. 1637)
- Election Administration (p. 1748)
- Global Public Service (p. 1748)
- NonProfit Organizations and Community Governance (p. 1749)

The Department of Political Science offers the Master of Public Administration (MPA) and the PhD in Public Administration and Public Policy. Graduates from the MPA program are employed as managers, planners, and directors in city, state, and local government agencies and federal government programs; they also serve as program officers, development directors, executive directors, and senior administrators in local and national nonprofit organizations. The Department of Political Science also offers four graduate certificates: Graduate Certificate in Economic Development, Graduate Certificate in Election Administration, Graduate Certificate in Global Public Service, and Graduate Certificate in Non-Profit Organizations and Community Governance.

- For more information about the MPA program, see http://www.cla.auburn.edu/polisci/graduate-programs/mpa/.
- For more information about the PhD program, see http://www.cla.auburn.edu/polisci/graduate-programs/phd-in-public-administration-and-public-policy/.

Master of Public Administration

The Department of Political Science offers the MPA. It is a professional degree program for leadership in public service at all levels of government as well as in nonprofit organizations. The program is accredited by the Network of Schools of Public Policy, Affairs, and Administration (NASPAA). Highly qualified students may pursue concurrently the Master of Community Planning.

Application Process

Applicants for the MPA must have a bachelor's degree or its equivalent from an accredited college or university. The admissions committee will evaluate the undergraduate transcripts, personal statement, letters of recommendation, a writing sample, and any public sector experience in government agencies or nonprofit organizations. The program is not limited to political science majors, but successful applicants who have little background in public sector institutions and processes may be required to take additional courses.

Applicants should ensure these materials are sent to the Graduate School web application:

- Official transcripts from every institution attended
- Personal statement of purpose in pursuing the MPA degree
- Three letters of professional or academic recommendation
- Writing sample
- Statement of merit or need (if applying for a graduate assistantship)
- Other information listed in the application

Web applications are located at: http://graduate.auburn.edu/prospective-students/application-instructions/

Degree Requirements

Once they are admitted, the program requires 36 semester hours (pre-service students) or 33 semester hours (in-service students) and an ePortfolio. Six core courses for a total of 18 hours credit are required of all pre-service students. The required 18 hours include 3 credit hours of an administrative internship in a governmental agency or nonprofit organization. Five core courses for a total of 15 hours credit are required of all in-service students. In-service students are not required to complete the internship. All students take an additional 18 hours of electives either through one of the graduate certificates offered by the MPA program or an approved concentration in a related administrative field or policy area.

Details about the requirements are provided below.

Pre-Service Students (Track 1)

Core Courses (18 credit Hours)

Code	Title	Hours
POLI 6150	Intergovernmental Relations	3
POLI 7000	Research Methods	3
POLI 7350	Foundations of Public Admin	3
POLI 7360	Foundations of Policy	3
POLI 7520	Program Evaluation	3
POLI 7920	MPA Internship	3
POLI 7AA0	MPA ePortfolio	0
MPA Electives		18
Total Hours		**36**

In-Service Students (Track 2)

Core Courses (15 credit Hours)

Code	Title	Hours
POLI 6150	Intergovernmental Relations	3
POLI 7000	Research Methods	3
POLI 7350	Foundations of Public Admin	3
POLI 7360	Foundations of Policy	3
POLI 7520	Program Evaluation	3
POLI 7AA0	MPA ePortfolio	0
MPA Electives		18
Total Hours		**33**

Practical Experience through Internship (3 hours)

The program requires a total of 3 credit hours of internship (POLI 7920 Internship) for pre-service students. In-service with extensive direct experience with government agencies or nonprofit organizations are not required to complete the internship.

Electives (18 hours)

The MPA requires 18 credits of electives. This requirement may be fulfilled in any one of the three following ways:

- By completing one of the following four formal specializations: Graduate Certificate in Economic Development, Graduate Certificate in Election Administration, Graduate Certificate in Global Public Service, Graduate Certificate in Non-Profit Organizations and Community Governance
- By completing the Dual MPA-MCP Degree with Community Planning
- By taking 18 credits of classes approved by the MPA director that support the generalist public administration curriculum

ePortfolio

Successful completion of the degree includes the preparation of the MPA ePortfolio. The MPA ePortfolio demonstrates mastery of the competencies established by the Network of Schools of Public Policy, Affairs, and Administration (NASPAA).

The MPA Portfolio reviews are scheduled in the final semester of course work. Students who do not pass the MPA Portfolio review have one additional opportunity to present their material to MPA faculty in the following fall or spring semester.

PhD in Public Administration and Public Policy

Code	Title	Hours
PhD in Public Administration and Public Policy		
POLI 8000	Doctoral Seminar in Public Administration	3
POLI 8010	Research Design and Analysis	3
POLI 8020	Doctoral Seminar in Public Policy	3

POLI 8120	Qualitative Research Methods	3
POLI 8130	Quantitative Methods	3
POLI 8210	Seminar in Professional Development Part 1	1
POLI 8220	Seminar in Professional Development Part 2	2
POLI 8990	Research and Dissertation	10
POLI 6000-8999	47 Hours of Advisor Approved Courses	47
Total Hours		**75**

The PhD in Public Administration and Public Policy is offered by Auburn University's Department of Political Science. Only students with master's degrees from accredited universities or colleges will be considered for the PhD program. Applicants having an insufficient background in public administration and public policy may be required to take additional prerequisite courses as determined by the admissions committee.

Application Process

Applicants must submit transcripts, a CV or resume, a statement of purpose, and letters of recommendation. Applicants are encouraged, though not required, to submit GRE scores for evaluation. The committee welcomes additional evidence of strong analytical and verbal skills, creativity and commitment to the field of study.

Applicants should ensure these materials are sent to the Graduate School web application:

- Official transcripts from every institution attended

Applicants should ensure these materials are sent to the PhD administrators in the Department of Political Science:

- CV or resume
- Three letters of recommendation
- Statement of purpose

For more information, see the website for the PhD in Public Administration.

Requirements

The PhD curriculum includes core courses, a research methodology sequence, and two subfields. Details about the requirements for the subfields are given below.

Core Courses

All students in the program take the core courses in Public Administration and Public Policy.

Research Methodology Courses

Students will take a three-course methodology sequence covering a broad scope of political inquiry, research design, qualitative methods, and quantitative analysis. Students must earn a grade of A or B in each of the methodology courses before they can progress to the general comprehensive exams.

Subfields

The PhD program has seven subfields: American Politics & Policy, Applied Research, Community Planning, Election Administration, Global (IR/Comparative), Nonprofit Organizations & Community Governance, and Public Administration. Students choose seven courses (21 hours) across their chosen subfields: three in one area, three in the other, and one from any subfield.

Minimum Credit Requirements

Code	Title	Hours
Hours of formal PhD course work		39
Hours of dissertation credit		10
Total hours for PhD course work		49
Hours needed past bachelor's degree		75

Comprehensive Exams, Oral Exams, and Dissertation Defense

During the spring or fall semester after the course work is completed, students take comprehensive exams administered by the department. The exams will consist of sections testing core and track knowledge as well as one section focusing on students' areas of specialization. Students will have two opportunities to pass the comprehensive exams and must pass each written examination before

scheduling the oral examination. Upon successful completion of the comprehensive exams, students should prepare a prospectus to present to their dissertation committee during their oral examinations. Admission to doctoral candidacy is contingent upon successful completion of all elements of the written and oral doctoral exams. After completion of the dissertation, the students must pass a final oral examination defending their dissertation work before their committee and a University Reader approved by the Graduate School.

Graduate Certificates

Four graduate certificates are offered in public administration and public policy: The Graduate Certificate in Economic Development, Graduate Certificate in Election Administration, Graduate Certificate in Global Public Service, and Graduate Certificate in Non-Profit Organizations and Community Governance.

Application Process

Applications for graduate certificates include the same items as applications for the MPA degree.

Applicants should ensure these materials are sent to the Graduate School web application:

- Official transcripts from every institution attended
- Other information listed in the application

Graduate Certificate in Economic Development

The Graduate Certificate in Economic Development provides a specialization in the theories and practice of economic development, primarily within the U.S and Alabama. It is an interdisciplinary graduate certificate offered by the faculty of participating departments (Public Administration, Community Planning, and Agricultural Economics and Rural Sociology) and is administered by the Master of Public Administration program.

Students may pursue the Graduate Certificate in Economic Development as a degree-seeking or non-degree seeking student. To earn the graduate minor, students must complete the program's basic course, Economic Development and Competition (POLI 7700/7706), three elective courses selected from an approved list, and a one-week non-credit intensive economic development training course sponsored by the Government and Economic Development Institute (GEDI). The Auburn Intensive Economic Development Course is accredited by the International Economic Development Council (IEDC). Since its inception, this program has produced 1,300 alumni, 70% of whom have had jobs in community economic development. GEDI will be an active partner with the MPA program, linking the program to its extensive network of economic development practitioners throughout Alabama.

Code	Title	Hours
POLI 7700	**Economic Development and Competition**	**3**
Economic Development Seminar by GEDI		
Choose any 3 the following courses:		9
POLI 6150	Intergovernmental Relations and Federalism	
POLI 7140	Financial Management for Public and Nonprofit Organizations	
POLI 7330	Seminar in Administrative Leadership, Responsibility, and Democratic Government	
POLI 7520	Program Evaluation	
POLI 7920	MPA Internship	3-6
CPLN 6050	Land and Urban Economics	
CPLN 6090	Community Development	
CPLN 6460	Geographic Information Systems for Planning and Policy	
AGEC 7110	Agricultural Economic Development	
RSOC 6610	Rural Sociology	
RSOC 6650	Sociology of Natural Resources and the Environment	
RSOC 7620	Sociology of Community	
RSOC 7630	Political Economy of Development	

G raduate Certificate in Election Administration

Required Classes

These courses are required for the Graduate Certificate in Election Administration. Corresponding 5000-level classes taken as an undergraduate fulfill the graduate certificate requirement but do not count toward the 42 graduate credits needed for the MPA. Substitutions require permission of MPA Director.

This graduate certificate is designed to provide students and practicing professionals with the knowledge, skills, and abilities to function effectively in election administration specifically law and policy and critical contemporary issues facing the election administration community.

The Graduate Certificate in Election Administration is a 15 graduate credit hour certificate according to the courses outline below, and a 12 graduate credit hour certificate if the student has completed the CERA Program (Certified Election and Registration Administrators). CERA was developed by the Election Center (a national nonprofit organization also known as the National Association of Election Officials) along with Auburn MPA faculty, and is the only national certification program for election officials and vendors in the election administration arena. CERA includes 12 courses in professional education and development taught by Auburn faculty and other requirements established by the Election Center including substantial professional engagement in the field through research, conference presentations, and participation in working groups and other similar activities.

Code	Title	Hours
Elections Administration		
Required Courses		6-9
POLI 6270	Seminar in Election Administration	3
POLI 6280	Election Administration Reform Policy (Election Regulation, Policy, and Reform)	3
POLI 7920	MPA Internship [1]	3-6
Electives (choose any two)		6
POLI 6150	Intergovernmental Relations and Federalism	
POLI 6470	Comparative Election Administration (Comparative Election Administration)	
POLI 7520	Program Evaluation	
POLI 6550	Issues in Public Administration [2]	
Total Hours		**21-27**

1 CERA/CERV/CEM Certification can be used in place of POLI 7920

2 See advisor for approval of special topics (e.g., cyber and operational security; auditing and accountability)

Graduate Certificate in Global Public Service

Code	Title	Hours
Required Courses		
POLI 6380	INGOs and International Organizations	3
POLI 6390	NGOs and International Development	3
CADS 6780	International Philanthropy	3
Select two courses from the following:		**6**
POLI 6470	Comparative Election Administration	
POLI 6550	Issues in Public Administration	
POLI 6360	Nonprofit Resource Development	
POLI 7520	Program Evaluation	
Total Hours		**15**

Graduate Certificate in NonProfit Organizations and Community Governance

Required Classes

These courses are required for the Graduate Certificate in NonProfit Organizations and Community Governance. Corresponding 5000-level classes taken as an undergraduate fulfill the graduate certificate requirement but do not count toward the 42 graduate credits needed for the MPA. Substitutions require permission of MPA Director.

This graduate certificate is designed to prepare graduate-level students and practicing professionals for management and leadership positions in nonprofit organizations, including positions related to nonprofit management, governance, and resource development.

Code	Title	Hours
Graduate Certificate in NonProfit Organizations and Community Governance		
POLI 6370	Nonprofit Management	3
POLI 6350	Nonprofit Law and Governance	3
POLI 6360	Nonprofit Resource Development	3
Select two courses from the list below:		6
POLI 7920	MPA Internship	
POLI 7520	Program Evaluation	
POLI 6150	Intergovernmental Relations and Federalism	
POLI 6380	INGOs and International Organizations	
POLI 6390	NGOs and International Development	
POLI 6550	Issues in Public Administration	
SOWO 7030	Evaluation in Social Work Practice	
SOWO 7090	Advanced Social Welfare Policy	
Total Hours		**15**

Public Administration and Public Policy — PhD

Code	Title	Hours
PhD in Public Administration and Public Policy		
POLI 8000	Doctoral Seminar in Public Administration	3
POLI 8010	Research Design and Analysis	3
POLI 8020	Doctoral Seminar in Public Policy	3
POLI 8120	Qualitative Research Methods	3
POLI 8130	Quantitative Methods	3
POLI 8210	Seminar in Professional Development Part 1	1
POLI 8220	Seminar in Professional Development Part 2	2
POLI 8990	Research and Dissertation	10
POLI 6000-8999	47 Hours of Advisor Approved Courses	47
Total Hours		**75**

Public Administration — MPA

The Master of Public Administration program consists of two tracks, one for pre-service students looking to move into public administration careers and the other for in-service students who already have two or more years of relevant work experience.

Code	Title	Hours
Pre-Service Students (Track 1)		
POLI 7000	Research Methods for Public and Nonprofit Organizations	3
POLI 7360	Foundations of Public Policy	3
POLI 7350	Foundations of Public Administration and Public Service	3
POLI 7520	Program Evaluation	3
POLI 6150	Intergovernmental Relations and Federalism	3
POLI 7920	MPA Internship	3
POLI 7AA0	MPA ePortfolio	0
MPA Electives (POLI 6000–8999)		18
Total Hours		**36**

Code	Title	Hours
In-Service (Track 2)		
POLI 7000	Research Methods for Public and Nonprofit Organizations	3
POLI 7360	Foundations of Public Policy	3
POLI 7350	Foundations of Public Administration and Public Service	3
POLI 7520	Program Evaluation	3
POLI 6150	Intergovernmental Relations and Federalism	3
POLI 7AA0	MPA ePortfolio	0
MPA Electives (POLI 6000–8999)		18
Total Hours		**33**

Election Administration — Graduate Certificate

This graduate certificate is designed to provide students and practicing professionals with the knowledge, skills, and abilities to function effectively in election administration specifically law and policy and critical contemporary issues facing the election administration community.

The Graduate Certificate in Election Administration is a 15 graduate credit hour certificate according to the courses outline below, and a 12 graduate credit hour certificate if the student has completed the CERA Program (Certified Election and Registration Administrators). CERA was developed by the Election Center (a national nonprofit organization also known as the National Association of Election Officials) along with Auburn MPA faculty, and is the only national certification program for election officials and vendors in the election administration arena. CERA includes 12 courses in professional education and development taught by Auburn faculty and other requirements established by the Election Center including substantial professional engagement in the field through research, conference presentations, and participation in working groups and other similar activities.

Code	Title	Hours
Elections Administration		
Required Courses		6-9
POLI 6270	Seminar in Election Administration	3
POLI 6280	Election Administration Reform Policy (Election Regulation, Policy, and Reform)	3
POLI 7920	MPA Internship [1]	3-6
Electives (choose any two)		6
POLI 6150	Intergovernmental Relations and Federalism	
POLI 6470	Comparative Election Administration (Comparative Election Administration)	
POLI 7520	Program Evaluation	
POLI 6550	Issues in Public Administration [2]	
Total Hours		**21-27**

1 CERA/CERV/CEM Certification can be used in place of POLI 7920

2 See advisor for approval of special topics (e.g., cyber and operational security; auditing and accountability)

Certificate in Global Public Service

Code	Title	Hours
Required Courses		
POLI 6380	INGOs and International Organizations	3
POLI 6390	NGOs and International Development	3
CADS 6780	International Philanthropy	3
Select two courses from the following:		**6**
POLI 6470	Comparative Election Administration	
POLI 6550	Issues in Public Administration	
POLI 6360	Nonprofit Resource Development	

POLI 7520	Program Evaluation	
Total Hours		**15**

NonProfit Organizations and Community Governance — Graduate Certificate

This graduate certificate is designed to prepare graduate-level students and practicing professionals for management and leadership positions in nonprofit organizations, including positions related to nonprofit management, governance, and resource development.

Code	Title	Hours
Graduate Certificate in NonProfit Organizations and Community Governance		
POLI 6370	Nonprofit Management	3
POLI 6350	Nonprofit Law and Governance	3
POLI 6360	Nonprofit Resource Development	3
Select two courses from the list below:		6
POLI 7920	MPA Internship	
POLI 7520	Program Evaluation	
POLI 6150	Intergovernmental Relations and Federalism	
POLI 6380	INGOs and International Organizations	
POLI 6390	NGOs and International Development	
POLI 6550	Issues in Public Administration	
SOWO 7030	Evaluation in Social Work Practice	
SOWO 7090	Advanced Social Welfare Policy	
Total Hours		**15**

Economic Development — Graduate Certificate

The Graduate Certificate in Economic Development provides a specialization in the theories and practice of economic development, primarily within the U.S and Alabama. It is an interdisciplinary graduate certificate offered by the faculty of participating departments (Public Administration, Community Planning, and Agricultural Economics and Rural Sociology) and is administered by the Master of Public Administration program.

Students may pursue the Graduate Certificate in Economic Development as a degree-seeking or non-degree seeking student. To earn the graduate minor, students must complete the program's basic course, Economic Development and Competition (POLI 7700/7706), three elective courses selected from an approved list, and a one-week non-credit intensive economic development training course sponsored by the Government and Economic Development Institute (GEDI). The Auburn Intensive Economic Development Course is accredited by the International Economic Development Council (IEDC). Since its inception, this program has produced 1,300 alumni, 70% of whom have had jobs in community economic development. GEDI will be an active partner with the MPA program, linking the program to its extensive network of economic development practitioners throughout Alabama.

Code	Title	Hours
POLI 7700	**Economic Development and Competition**	**3**
Economic Development Seminar by GEDI		
Choose any 3 the following courses:		9
POLI 6150	Intergovernmental Relations and Federalism	
POLI 7140	Financial Management for Public and Nonprofit Organizations	
POLI 7330	Seminar in Administrative Leadership, Responsibility, and Democratic Government	
POLI 7520	Program Evaluation	
POLI 7920	MPA Internship	3-6
CPLN 6050	Land and Urban Economics	
CPLN 6090	Community Development	
CPLN 6460	Geographic Information Systems for Planning and Policy	

AGEC 7110	Agricultural Economic Development
RSOC 6610	Rural Sociology
RSOC 6650	Sociology of Natural Resources and the Environment
RSOC 7620	Sociology of Community
RSOC 7630	Political Economy of Development

Polymer and Fiber Engineering — MS, PhD

Code	Title	Hours
Polymer & Fiber Engineering (MS)		
PFEN 7950	Graduate Seminar (I)	1
PFEN 7950	Graduate Seminar (II)	1
PFEN 7990	Research and Thesis	4
Select 24 Credits in @ 6000-8999		24
Total Hours		**30**

Code	Title	Hours
Polymer & Fiber Engineering Non-Thesis (MS)		
6 Credits in PFEN 7980		6
Select 21 Credits in PFEN 6000-8999		21
Select 9 Credits in @ 6000-8999		9
Total Hours		**36**

Code	Title	Hours
PhD		
PFEN 8990	Research and Dissertation	10
Select 21 Credits in PFEN 6000-8999		21
Select 29 Credits in @ 6000-8999 (Electives)		29
Total Hours		**60**

Certificate in Polymer Engineering

This graduate certificate prepares individuals to advance their level of knowledge and understanding in polymer materials and engineering that can be applied in their area of specialty. Polymer materials are ubiquitous in our daily lives and in advanced industrial applications critical to our society. The focus of this coursework is to equip students with the advanced education required to contribute to the existing industries which produce, process, or utilize polymer materials as well as those working in research and development where new discoveries in polymer materials will enable new discovery that will impact every sector's use of polymer materials, from space to sports, transportation to medicine.

The certificate will focus on the fundamentals of polymer chemistry and structure, polymer processing, and polymer characterization.

Students will take the following (3) required courses for a total of eleven (11) hours.

Code	Title	Hours
Graduate Certificate in Polymer Materials Engineering - 11 hours:		
Students will complete the following three core courses:		
PFEN 6200	Polymer Processing	4
PFEN 6510	Polymer Chemistry	3
PFEN 7700	ADVANCED METHODS IN POLYMER CHARACTERIZATION	4
Total Hours		**11**

Poultry Science — MAg, MS, PhD

Degree Programs

- Poultry Science — ABM (p. 1504)
- Poultry Science — MAg (p. 1751)
- Poultry Science — MS (p. 1752)
- Poultry Science — PhD (p. 1752)

The Department of Poultry Science offers graduate programs in Poultry Science, leading to Master of Agriculture, Master of Science, and Doctor of Philosophy degrees. These degrees are designed to prepare outstanding students for careers in the commercial poultry industry, allied industries, government, and academia. Research training and experience can be acquired in the specialized areas of poultry management, poultry nutrition, poultry health (parasitology, pathology, virology), poultry physiology, processing and product technology, and food safety.

Applicants must indicate which graduate degree they wish to pursue in Poultry Science. All applications are reviewed by the departmental Graduate Committee. Application materials include: official copies of all college transcripts, TOEFL scores (for international students), 3 letters of recommendation, a resume, and a statement of purpose. Transcripts and test scores are sent directly to the Graduate School. The letters of recommendation may either be submitted online (preferred) or mailed to the graduate program officer. The resume and statement of purpose are sent to the graduate program officer at the departmental address or via email attachment. The GRE is not required. For graduate studies leading to MS or MAg degrees, applicants must have a bachelor's degree in poultry science, animal science, or the biological sciences from a recognized institution with a minimum GPA of 3.0 out of 4.0. To be considered for the PhD program, applicants must have a MS degree with thesis in an appropriate field. The course of study, developed by the student and the advisory committee, may include additional courses to address specific needs or course work deficiencies.

Additional information about the departmental requirements, policies and availability of financial support can be obtained by contacting the graduate program officer, Dr. Wilmer Pacheco (wjp0010@auburn.edu).

MS/MAg Degree Requirements

1. The Master of Science (MS degree) requires a research project with a formal written thesis while the Master of Agriculture (MAg) requires a research project with a written report. The MS degree requires a minimum of 30 semester credit hours while the MAg requires a minimum of 33 semester credit hours. Both degrees require a comprehensive final oral examination.
2. Curriculum – Courses are selected in conjunction with the major professor and advisory committee to address the area of emphasis. All students are required to take 2 credits of POUL 7950, a course in statistics, and 4 credits of POUL 7990 or POUL 7980.

PhD Degree Requirements

1. For the PhD degree, a minimum of 30 semester hours of graduate coursework beyond the MS (60 hours beyond the bachelor's degree) is required.
2. Curriculum – Courses are selected in conjunction with the major professor and advisory committee to address the area of emphasis. All students are required to take 3 credits of POUL 7950, a minimum of one course in statistics, and at least 10 credits of POUL 8990.
3. Examinations – Upon completion of course work, students must pass general written examinations administered by the advisory committee, followed by a comprehensive preliminary oral examination. After satisfactory completion of these exams, the student advances to candidacy. A dissertation based on an independent research project is required to earn a PhD degree. After completion of the dissertation, the student must pass a final Doctoral oral examination defending the dissertation.

Poultry Science — MAg

Code	Title	Hours
MAg		
POUL 7950	Graduate Seminar (I)	1
POUL 7950	Graduate Seminar (II)	1
POUL 7980	Non-thesis Research	4

Select 27 Credits @ 6000-8999 (must include minimum of 1 Statistics course)	27
Total Hours	**33**

Poultry Science — MS

Code	Title	Hours
MS		
POUL 7950	Graduate Seminar (I)	1
POUL 7950	Graduate Seminar (II)	1
POUL 7990	Research and Thesis	4
Select 24 Credits @ 6000-8999 (must include a minimum of 1 Statistics course)		24
Total Hours		**30**

Poultry Science — PhD

Code	Title	Hours
PhD		
POUL 7950	Graduate Seminar (I)	1
POUL 7950	Graduate Seminar (II)	1
POUL 7950	Graduate Seminar (III)	1
POUL 8990	Research and Dissertation	10
Select 47 Credits @ 6000-8999 (must include a minimum of 1 Statistics course)		47
Total Hours		**60**

Power Engineering — Graduate Certificate

This graduate certificate prepares individuals who are interested in continuing their education by seeking advanced knowledge in power engineering. Students who complete the certificate will have advanced knowledge in topics such as power electronics, power system operations, and power quality.

Code	Title	Hours
Complete any four (4) courses (total of 12 credit hours) from the following list of approved courses:		
ELEC 6610	Power Electronics	3
ELEC 6620	Power System Analysis	3
ELEC 6630	Electric Machines	3
ELEC 6650	Power System Protection	3
ELEC 6970	Special Topics (Power Quality)	3
ELEC 6970	Special Topics (Intro to Renewable Energy)	3
ELEC 7610	Power System Dynamics and Stability	3
ELEC 7620	Power System Operation	3
ELEC 7630	Advanced Electric Machines	3
ELEC 7640	Power System Transients	3

Psychological Sciences — MS, PhD

Degree Programs:

- Applied Behavior Analysis (Non-Thesis) — MS (p. 1755)
- Industrial & Organizational Psychology (Non-Thesis) — MS (p. 1754)
- Clinical Psychology — PhD (p. 1755)
- Cognitive and Behavioral Sciences — PhD (p. 1756)
- Industrial & Organizational Psychology — PhD (p. 1756)

The Department of Psychological Sciences offers two terminal master's degrees—a Master of Science (Non-Thesis) in Applied Behavior Analysis (ABA) and a Master of Science (Non-Thesis) in Industrial & Organizational Psychology (I-O)—and doctoral degrees in three areas—a PhD in Clinical Psychology, a PhD in Cognitive and Behavioral Sciences (CaBS), and a PhD in Industrial & Organizational Psychology (I-O). The doctoral programs do not offer terminal master's degrees.

For the most accurate and up-to-date information about program requirements, applicants should consult the department's webpage (https://cla.auburn.edu/psychological-sciences/graduate-studies/graduate-application-requirements/ (https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcla.auburn.edu%2Fpsychological-sciences%2Fgraduate-studies%2Fgraduate-application-requirements%2F&data=05%7C01%7Cblltn%40auburn.edu%7Cb7de73bd2546469d2b3d08db45cb408c%7Cccb6deedbd294b388979d72780f62d3b%7C1%7C0%7C638180511634074498%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=mfwtKcOebPzcImyW418ZjzqHT0j80gzEIEkMs18u2D0%3D&reserved=0)). Please email bryangt@auburn.edu for application and general program information.

Graduate degrees in Counseling, Counseling Psychology, Educational Psychology, and School Psychology are offered through the College of Education.

Admission Requirements for the MS and the PhD

Holders of the bachelor's degree in any discipline from an accredited institution will be considered for graduate work in psychology. Students admitted to the PhD programs earn a thesis-based MS degree after completing intermediate program requirements. All programs commence in the fall semester. Spring or summer semester admission is not available.

To be considered for admission, potential applicants must submit an online application and related materials. Required materials and deadlines are subject to change, so it is imperative that applicants consult the application instructions on the Department of Psychological Sciences' web page for up-to-date directions.

To ensure consideration, the application process should be completed by December 1 for the PhD programs, February 1 for the ABA-MS program, and March 31 for the MS in I-O program.

MS in Applied Behavior Analysis

In the ABA program, students are trained to provide clinical and educational services to individuals from various populations and backgrounds including: children and adolescents with autism spectrum disorders in a clinic setting; typically developing children in school settings; children and adolescents, as well as their caregivers, in foster care settings; and adolescents in a juvenile residential facility. The ABA program is accredited by the Association of Behavior Analysis International.

General Requirements

The MS in ABA is a full-time non-thesis program requiring six consecutive semesters of full-time coursework (24 semester hours) and practicum training (21 semester hours). All students complete a capstone research project. Course and credit-hour requirements for the program total 45 hours.

Required Courses

See the Applied Behavior Analysis (Non-Thesis) — MS (p. 1755)

MS in Industrial and Organizational (I-O) Psychology

The non-thesis M.S. in I-O Psychology program is designed to train students with the skills and knowledge to enable students to become Industrial - Organizational practitioners in an applied setting. I-O Psychology focuses on understanding, predicting, and modifying behavior in organizational settings, typically, but not limited to, work environments.

General Requirements

The M.S. in I-O Psychology program provides students with a well-rounded foundation in Industrial and Organizational Psychology. This degree does not require research or a thesis, and students participate in applied opportunities and internships. For the online program, enrollment in at least six credit hours (two 3-credit courses) per semester of required coursework (including approved electives) constitutes a full-time course load.

Required Courses

See the Industrial & Organizational Psychology (Non-Thesis) — MS (p. 1754)

PhD in Clinical Psychology

The Clinical Psychology PhD program uses a scientist-practitioner training model that blends basic and applied research with clinical practice.

General Requirements

Typically, the program requires five years at Auburn in course work, individualized research, and practicum experiences. In addition, a one-year full-time internship at an APA-approved program is required. 83 credit hours total are required.

Students enrolled in the Clinical Psychology PhD program complete a sequence of departmental core courses providing a foundation in psychology on which specialization is based. In doctoral study, students are expected to write and defend an empirically based master's thesis. Admission to doctoral candidacy is contingent upon the successful completion of the general doctoral examination. Students must also write and defend a research dissertation.

Required Courses

See the Clinical Psychology - PhD (p. 1755)

PhD in Cognitive and Behavioral Sciences

The CaBS program provides a firm foundation in cognitive and behavioral sciences. Electives allow students in the CaBS PhD program flexibility in developing their own areas of specialization.

General Requirements

CaBS students are required to complete a series of core courses, write and defend an empirically based master's thesis, and successfully complete a general doctoral examination before being admitted to doctoral candidacy. They must also write and defend a research dissertation. 60 credit hours total are required.

Required Courses

See the Cognitive and Behavioral Sciences — PhD (p. 1756)

PhD in Industrial and Organizational (I-O) Psychology

Students enrolled in the I-O Psychology doctoral program will be trained in scientific methods applied to the industrial and organizational environment. Graduates of the program will be prepared to work in academic, research, and/or applied settings.

General Requirements

The I-O Psychology doctoral program provides doctoral students with a well-rounded foundation in Industrial Psychology, Organizational Psychology, and quantitative coursework. Students are required to complete a research-based thesis and a general doctoral exam before advancing to doctoral candidacy. The last milestone is a doctoral dissertation. The degree requires a total of 73 semester hours of credit.

Required Courses

See the Industrial & Organizational Psychology — PhD (p. 1756).

Industrial & Organizational Psychology (Non-Thesis) — MS

Code	Title	Hours
MS in Industrial/Organizational Psychology		
PSYC 6690	Advanced Analytics for Social and Behavioral Sciences	3
PSYC 7700	Foundations in Industrial and Organizational Psychology	3
PSYC 7710	Training and Development in Organizations	3
PSYC 7720	Personnel Selection	3
PSYC 7730	Research Methods in Industrial/Organizational Psychology	3
PSYC 7750	Ethics and Professional Issues in Industrial/Organizational Psychology	3
PSYC 7910	Practicum in Applied Psychology	3
Psychology Electives		9
Total Hours		**30**

Psychology: Applied Behavior Analysis (Non-Thesis) — MS

Code	Title	Hours
PSYC 7220	Behavioral Principles	3
PSYC 7320	Clinical Psychopharmacology	3
PSYC 7240	Methods for Studying Individual Behavior	3
PSYC 7260	Ethical and Professional Issues in Behavior Analysis	3
PSYC 7310	Autism and Intellectual Disabilities	3
PSYC 7910	Practicum in Applied Psychology	3
PSYC 7910	Practicum in Applied Psychology	3
PSYC 7910	Practicum in Applied Psychology	3
PSYC 7910	Practicum in Applied Psychology	3
PSYC 7980	Applied Behavior Analysis Capstone Project	9
PSYC 8550	Applied Behavior Analysis	3
PSYC 8570	Applied Behavior Analysis 2	3
PSYC 8540	Behaviorism	3

Total Credit Hours = 45

Clinical Psychology — PhD

Code	Title	Hours
PhD in Clinical Psychology		
COUN 7330	Counseling Diverse Populations	3
PSYC 7100	History of Ideas in Psychology	3
PSYC 7110	Ethics and Problems of Scientific and Professional Psychology	1
PSYC 7140	Learning and Conditioning	3
or PSYC 7190	Cognitive Psychology	
PSYC 7150	Biological Psychology	3
PSYC 7160	Human Development	3
or COUN 7310	Counseling Applications of Lifespan Development	
PSYC 7180	Social Psychology	3
PSYC 7250	Clinical Research Methods and Ethics	3
PSYC 7270	Experimental Design in Psychology	4
PSYC 7280	Experimental Design in Psychology II	4
PSYC 7990	Research and Thesis	4
PSYC 8300	Developmental Psychopathology	3
PSYC 8310	Introduction to Clinical Methods and Ethics	3
PSYC 8330	Cognitive Behavior Therapy	3
PSYC 8360	Assessment of Cognitive Abilities and Achievement	3
PSYC 8370	Foundations of Psychological Assessment	3
18 Credits in PSYC 8910 - Clinical Practicum		18
PSYC 8990	Research and Dissertation	10
Select 6 Credits in @ 6000-8999		6
Total Hours		**83**

In addition, a one-year full-time internship at an APA-approved program is required.

Cognitive and Behavioral Sciences — PhD

Code	Title	Hours
Cognitive and Behavioral Sciences		
PSYC 7110	Ethics and Problems of Scientific and Professional Psychology	1
HIED 8510	Seminar in College Teaching	3
PSYC 7140	Learning and Conditioning	3
PSYC 7150	Biological Psychology	3
PSYC 7190	Cognitive Psychology	3
PSYC 7270	Experimental Design in Psychology	4
PSYC 7280	Experimental Design in Psychology II	4
PSYC 7400	Cognitive Neuroscience	3
PSYC 8500	Cognitive and Behavioral Sciences Seminar	1
PSYC 7990	Research and Thesis	4
PSYC 8990	Research and Dissertation	10
1 graduate-level PSYC course in Statistics or Methods approved by the student's research committee		3
An additional 18 credit hours of graduate-level course work approved by the student's research committee is required.		18
Total Hours		**60**

Industrial & Organizational Psychology — PhD

Code	Title	Hours
Required Coursework		
PSYC 7270	Experimental Design in Psychology (Experimental Design in Psychology I)	4
PSYC 7280	Experimental Design in Psychology II	4
PSYC 7990	Research and Thesis	4
PSYC 8990	Research and Dissertation	10
PSYC 7750	Ethics and Professional Issues in Industrial/Organizational Psychology (Ethics and Professional Issues in I/O)	3
PSYC 7700	Foundations in Industrial and Organizational Psychology	3
PSYC 7720	Personnel Selection	3
PSYC 7730	Research Methods in Industrial/Organizational Psychology (Research Methods in I/O)	3
PSYC 7770		3
GENERAL PSYCHOLOGY ELECTIVES: SELECT 2 or graduate level course 6000 or above (pending major professor & I/O Director approval)		**6**
PSYC 7150	Biological Psychology	
PSYC 7160	Human Development	
PSYC 7170	Theories of Personality	
PSYC 7180	Social Psychology	
PSYC 7190	Cognitive Psychology	
PSYC 7400	Cognitive Neuroscience	
PSYC 7140	Learning and Conditioning	
QUANTITATIVE ELECTIVES- SELECT 2 or graduate level course 6000 or above (pending major professor & I/O Director approval)		**6**
PSYC 7230	Psychometric Theory	
PSYC 8250	Multivariate Methods	
PSYC 8270	Factor Analysis	
PSYC 8280	Meta-Analysis	
PSYC 8350	Applied Psychometric Principles	
PSYC 8970	Special Topics (SEM FOR APPLIED RESEARCHERS)	

I-O ELECTIVES: SELECT 24 HOURS or graduate level course 6000 or above (pending major professor & I/O Director approval)		**24**
PSYC 7970	Research in Special Topics	
PSYC 8180	Advanced Social Psychology	
PSYC 8700	Advanced Industrial Psychology	
PSYC 8710	Advanced Organizational Psychology	
PSYC 8730	Performance Appraisal	
PSYC 8760	Decision Making in the Workplace and Organizations	
PSYC 8770	Organizational Change	
PSYC 8780	Work and Family	
PSYC 8970	Special Topics	
PSYC 8930	Directed Studies in Psychology	
PSYC 7120	Teaching of Psychology	
PSYC 7710	Training and Development in Organizations	
PSYC 7740	Organizational Culture	
PSYC 7760	Occupational Health Psychology	
PSYC 7910	Practicum in Applied Psychology No more than 3 hours towards doctoral elective	
PSYC 7930	Directed Studies	
Total Hours		**73**

Pulp and Paper Engineering — Graduate Certificate

This graduate certificate prepares individuals to advance their level of knowledge and understanding in pulp and paper science and engineering that can be applied in their area of specialty. The certificate will focus on the application of mathematical and scientific principles to the design, development, and manufacturing of pulp and paper products. This certificate will prepare individuals for employment in pulp and paper facilities as mechanical engineers, industrial engineers, chemical engineers, process engineers, and electrical engineers.

Code	Title	Hours
Graduate Certificate in Pulp and Paper Engineering - 12 hours:		
Students will complete the following three core courses:		
CHEN 6090	Pulp and Paper Technology	3
CHEN 6110	Pulp and Paper Engineering	3
CHEN 6970	Advanced Special Topics in Chemical Engineering (Special Topics in Pulp and Paper Technology)	3
Additionally, students will select three (3) credit hours from the approved elective courses.		3
Total Hours		**12**

Real Estate Development — MRED

The Auburn University Executive Master of Real Estate Development (AUMRED) program is an executive graduate degree offered jointly by the College of Architecture, Design and Construction and the College of Business. The program emphasizes best development practices related to environmental sustainability, economic resilience, social responsibility, financial feasibility and design excellence. It provides a targeted understanding of multiple disciplines that puts students at an advantage in their real estate development careers. The program is entrepreneurially and industry focused, designed for practicing professionals with a minimum of three to five years in real estate development or related fields (real estate or mortgage brokerage, architecture, landscape architecture, community planning and building construction, for example). It combines short, intense on-campus residencies with distance modules and four-day field trips to nationally and internationally significant cities and development projects. The curriculum consists of 39 credit hours that are delivered over a five semester period.

Information concerning specific program requirements may be obtained by visiting www.harbert.auburn.edu.

First Year

Fall	Hours	Spring	Hours	Summer	Hours
RDEV 7120 Field Studies	1	RDEV 7350 Real Estate Investment Analysis	3	RDEV 7120 Field Studies	1
RDEV 7130 Principles of Real Estate Development	3	RDEV 7240 Building Design and Construction Principles	3	RDEV 7430 Real Estate Project Management	3
RDEV 7140 Real Property Analysis	3	RDEV 7540 Real Estate Development Law	3	RDEV 7230 Real Estate Market Analysis	3
	7		**9**		**7**

Second Year

Fall	Hours	Spring	Hours
RDEV 7120 Field Studies	1	RDEV 7630 Real Estate Development Capstone Project	5
RDEV 7340 Site Planning and Infrastructure Development	3	RDEV 7440 Real Estate Contract Negotiations	1
RDEV 7530 Real Estate Capital Markets	3	RDEV 7120 Field Studies	3
	7		**9**

Total Hours: 39

Graduate Executive Programs

The graduate executive programs comprise the Executive MBA, the Physicians Executive MBA, and the Masters of Real Estate Development Executive programs. These programs are designed to be taken as a cohort with one start in the Fall of each year, an exact sequence of courses taken each term and with graduation in the Spring—five semesters later.

Non-Standard Calendar

Due to the hybrid nature of these graduate executive programs, which use a format that combines on-campus residency with online learning, the residencies typically occur during breaks on campus. See the relevant program website for the exact calendar dates per term for each executive program.

Full-Time Credit Hour Requirements

- Students in the graduate executive programs are restricted to the exact courses which are offered to that cohort in any one semester.
- The course load varies from term to term—from a minimum of 5 hours to a maximum of 9 hours.
- The course load is thus considered to be full time as they cannot take more hours or less as they follow the mandated and approved curriculum.

Tuition Costs Excluded VA Benefit Coverage

VA benefits will not cover costs for lodging, meals, travel, books, supplies or memberships to organizations. As many of these costs are included in the graduate executive programs' tuition, those costs have been broken out and will be billed separately. See the relevant program website for the exact amounts per term.

Restoration Ecology — Graduate Certificate

Offered entirely via distance education by the College of Forestry, Wildlife and Environment faculty, this certificate is designed to help those interested in natural resource management with training in restoration ecology, giving them the tools to better manage our natural resources while advancing their careers. The Restoration Ecology Graduate Certificate courses are designed to 1) provide graduate-level education for those seeking advanced positions in natural resource fields, or 2) place students in a position so that they can continue their graduate education in the certificate focus area.

This graduate certificate is designed to advance the level of knowledge and skills for individuals interested or working in the areas of natural resource management, forest and wildlife management, environmental sciences, natural resource management consulting, or environmental education. This graduate certificate is designed to help students better understand natural processes in terrestrial ecosystems; provide information on processes and practices that are relevant to the restoration of these ecosystems; and enhance critical thinking and communication skills.

Code	Title	Hours
Restoration Ecology - Graduate Certificate		
FOWS 6210	Restoration Ecology	
Select 4 Electives from the following:		12
FOWS 6230	Forest Stand Dynamics	
FOWS 6240	Fire Ecology	
FOWS 6250	Longleaf Pine Ecology, Management, and Restoration	
FOWS 6260	Forest Wetlands Restoration Ecology	
or FOWS 7260	Forest Wetlands Restoration Ecology	
FOWS 7220	Forest History of Alabama and the Southeastern United States	
WILD 6410	Human-Wildlife Conflicts	
Total Hours		**12**

Interdepartmental Graduate Program in Sociology: Rural Sociology (Thesis & Non-Thesis) — MS

Degree Programs

- Rural Sociology — MS (p. 1765)
- Sociology — MA, MS (p. 1763)

The master's program in rural sociology is part of the Interdepartmental Graduate Program in Sociology (IDGPS). The program is administered by co-directors representing the Departments of Sociology, Anthropology & Social Work (College of Liberal Arts) and Agricultural Economics & Rural Sociology (College of Agriculture).

IDGPS offers study and research leading to the degrees of Master of Science in Rural Sociology and Master of Arts or Master of Science in Sociology. Anthropologists, social work faculty, rural sociologists, and sociologists make up the faculty.

Admission Requirements

Applicants are required to have a bachelor's degree from an accredited institution and a GPA of at least 3.0 on all completed coursework. The applicant's statement of interest, GRE scores (recommended but not required), letters of recommendation, and curriculum vitae are also considered in making a decision on admission.

Applicants should ensure the following materials are submitted to the Graduate School web-based application system:

- Official scores from the General Test of the GRE
- Official transcripts from every college and university attended
- If an international student, the official score from the TOEFL exam
- Three recommendations that address academic abilities
- Statement of interest in the program and field of study
- Curriculum Vitae

Applications to the Program are reviewed, year-round, by the admissions committee who will evaluate each dossier.

Thesis and Non-Thesis Options

Thesis and non-thesis options are available for the MS degree in Rural Sociology. These two degree options are designed to serve the needs of differing types of students. The thesis option is recommended for students who are interested in gaining research experience or who might be interested in pursuing advanced graduate work. The non-thesis option is designed for individuals who are in mid-career, who wish to learn new skills in order to be more productive professionally, and who do not plan to pursue a more advanced

graduate degree. However, PhD students in other programs often choose to complete a Rural Sociology non-thesis degree to augment their studies.

The thesis option requires a minimum of 30 semester hours, with 6 semester hours of this total being for research and thesis (RSOC 7990 Research And Thesis). The non-thesis option requires 36 semester hours of course credit and the completion of a capstone paper.

Required Core Courses

All IDGPS students take three core graduate courses:

- SOCY 7000 Adv Sociological Theory
- SOCY 7100 Stat Anlys Surv Aggr And Data
- RSOC 7700 Methods Of Social Research

Students without undergraduate coursework in these core areas may be required to take additional courses. Remaining courses, at the 6000-level and above, are taken with the advice of the student's graduate advisory committee.

Financial Aid

A variable number of graduate research assistantships (GRA) are available on a competitive basis to support graduate students in the program. When assessed, strong preference is given to funding students pursuing the thesis option.

GRAs require work with faculty conducting research on a variety of topics dealing with, but not limited to, environment and natural resources, food and agriculture, and community and rural development. While funding from grants may become available throughout the year, GRAs are generally made available in February or March for the following academic year.

Most graduate assistantships require the commitment of 13–15 hours of work per week. Given these responsibilities, graduate students holding assistantships are expected to take no more than 9 hours of graduate credit coursework per semester.

Rural Studies — Graduate Certificate

Rural Studies

This graduate certificate is designed to advance the knowledge and skills of those who serve in the areas of social work, community planning, public services, or human development. This program can benefit those who work in small communities or who seek a position in an organization that works to make a difference in the quality of rural lives. The certificate focuses on applying critical thinking skills, cultural understanding, and creating positive change in the health, social, political, economic, and cultural aspects of rural communities.

Select 9 hours from the following courses:

Code	Title	Hours
RSOC 6190	Sociology of Sustainable Agrifood Systems	3
RSOC 6510	Social Welfare, Family and Poverty	3
RSOC 6610	Rural Sociology	3
RSOC 6650	Sociology of Natural Resources and the Environment	3
RSOC 6410	Extension Programs and Methods	3
RSOC 7620	Sociology of Community	3
RSOC 7630	Political Economy of Development	3
RSOC 7700	Methods of Social Research	3
RSOC 7960	Special Problems in Rural Sociology and Community Development	1-3
RSOC 7970	Special Topics in Rural Sociology and Community Development	3

Spanish — MA, MHS

Degree Programs

- Spanish — MA, MHS (p. 1762)

Graduate studies in Spanish lead to the Master of Arts (MA) in Spanish or the Master of Hispanic Studies (MHS). The Spanish graduate program is designed to prepare students for careers in teaching, business, government, world affairs, diplomacy, social service, and law enforcement and for doctoral studies in Spanish, with emphases such as literature, linguistics, or world language education. Students may begin their graduate studies at the beginning of any semester during the academic year.

Information about the MA and the MHS can be found at https://www.cla.auburn.edu/world-languages/future-students/graduate/graduate-degrees/.

Admission Requirements

Candidates wishing to pursue the MA or the MHS must have a bachelor's degree from an accredited institution, with at least 38 semester hours of undergraduate Spanish course work above the freshman level and satisfactory scores on the General Test of the GRE. International students must have acceptable scores on the TOEFL. Applicants lacking course requirements need to make up de#ciencies before admission to the graduate program.

Applicants should ensure that the following materials are sent to the Graduate School via the Graduate Web Application and Admission Process (https://graduate.auburn.edu/prospective-students/application-instructions/).

- Official transcripts from every undergraduate institution attended
- Official scores from the General Test of the GRE sent from ETS (for domestic students; not required for international students)
- Official scores from the TOEFL (for international students)
- Three letters of recommendation
- Graduate teaching assistantship application
- Writing sample. A writing sample in Spanish should be submitted to the Department of World Languages, Literatures, and Cultures at the time of the application. The writing sample typically is a research paper completed for a course taken as an undergraduate, usually a paper written for a senior-level literature or civilization course. It should be a minimum of five pages, typed.

Applicants should also provide two speaking samples electronically via a OneDrive folder shared privately with each candidate once the formal application has been completed through the Apply Yourself online system:

- Speaking biographical sample: Candidates must provide a 2–3 minute extemporaneous autobiography on the candidate's relevant background, including an explanation of the candidate's interest in pursuing a graduate degree in Spanish, and his/her professional plans for the future.
- Reading sample: The second speaking sample should be a reading from a printed text, for example, a poem, a paragraph or two from a novel or short story, or a newspaper article. Applicants should identify the selection on the recording. This selection should be approximately 1–2 minutes in length.
- The speaking samples will be requested electronically through a OneDrive folder shared privately with each candidate once the formal application has been completed through the Apply Yourself online system.
- All materials should be received by February 15.

Courses and Other Graduation Requirements

- The MA requires at least 30 semester hours including 4 credit hours for thesis.
- Candidates for the MHS must earn a minimum of 36 semester hours in their major, but no thesis is required. A concentration consisting of 6 semester hours of graduate-level courses in a related #eld or #elds may be earned as part of the MHS degree. These 6 hours do not have to be taken in the Department of World Languages, Literatures, and Cultures.
- Both degrees require satisfactory performance on the comprehensive examinations.
- Reading knowledge of one other world language is required. This knowledge may be demonstrated by earning a passing score on the proficiency test for that language or by completing the first-year sequence (or equivalent) in that language with a grade of B or better.

Financial Aid

- Graduate teaching assistantships are available to quali#ed students. For more information, please contact the department.
- All MA-Spanish or MHS graduate students are required to take FLSP 7090 Intro College Level Span Inst. For more information, check the student handbook available from the department.

Spanish — MA, MHS

Code	Title	Hours
MA Spanish Thesis		
FLSP 7090	Introduction to College Level Spanish Instruction	3
FLSP 7990	Research and Thesis	4
Select 23 Credits in FLSP 6000-8999*		23
Total Hours		**30**

* With approval of the Graduate Program Officer, a max of 3 credit hours may be taken as non-FLSP 6000–8999.

Code	Title	Hours
MHS Hispanic Studies Non-Thesis		
FLSP 7090	Introduction to College Level Spanish Instruction	3
Select 33 Credits in FLSP 6000-8999 *		33
Total Hours		**36**

* With approval of the Graduate Program Officer, a max of 3 credit hours may be taken as non-FLSP 6000–8999.

Social Work — MSW

The Auburn University MSW program is fully accredited by the Council on Social Work Education. It prepares students for advanced Clinical Social Work practice with a focus on the areas of health and mental health with an emphasis on health disparities, prevention, and policy.

The MSW program can be completed online or on campus.

The program's mission is to make a positive impact on health care needs and social problems unique to Alabama’s citizens by preparing students for specialized social work practice with diverse populations through the establishment and maintenance of community partnerships, along with the development and implementation of research techniques and evaluative strategies.

MSW Traditional Program (61 Credit Hours)

This program can be completed in a full-time (2 years) or part-time format (3 years). Students are required to complete two field experiences. The first internship is a generalist placement focusing on the acquisition and development of generalist practice skills using a strengths perspective. The second internship is an advanced clinical placement focusing on the development of advanced clinical social work practice skills.

Curriculum List Shown Below:

Code	Title	Hours
SOWO 7000	Introduction to Social Work and Social Welfare	3
SOWO 7060	Social Work Practice with Individuals and Families	3
SOWO 7070	Social Work with Groups and Communities	3
SOWO 7090	Advanced Social Welfare Policy	3
SOWO 7700	Foundations of Social Work Research	3
SOWO 7800	Human Behavior and the Social Environment	3
SOWO 7920	Generalist Field	10
SOWO 7030	Evaluation in Social Work Practice	3
SOWO 7020	Psychopathology	3
SOWO 7010	Advanced Clinical Practice	3
SOWO 7930	Advanced Field	12

SOWO 7950	Integrative Seminar	3
SOWO ELEC	Social Work Elective (Need 9 hours of SOWO electives)	9

MSW Advanced Standing Program (39 Credit Hours)

Students who have earned an undergraduate degree in social work from a program that is accredited by the Council on Social Work Education may qualify for admission to the MSW Advanced Standing Program. Classes can be taken in a full-time or part-time format. It typically takes 1 year / 3 semesters (full-time) or 2 years (part-time) to complete the 39 credit-hour program.

Students will complete one internship, an advanced clinical placement that focuses on the development of advanced clinical social work practice skills. This internship will be completed in a part-time format across two semesters.

Curriculum List Shown Below:

Code	Title	Hours
SOWO 7010	Advanced Clinical Practice	3
SOWO 7020	Psychopathology	3
SOWO 7030	Evaluation in Social Work Practice	3
SOWO 7940	Advanced Field Placement I	6
SOWO 7960	Advanced Field Placement II	6
SOWO 7950	Integrative Seminar	3
SOWO ELEC	Social Work Elective (Need 15 hours of SOWO electives)	15

Sociology — MA, MS

Degree Programs

- Sociology — MA (p. 1764)
- Sociology — MS (p. 1765)
- Rural Sociology — MS (p. 1765)

The interdepartmental graduate program in sociology offers study and research leading to the degrees of Master of Arts or Master of Science in Sociology and in Rural Sociology. Anthropologists, social work faculty, rural sociologists, and sociologists make up the faculty. The program is administered by a two-member coordinating committee from the Department of Agricultural Economics and Rural Sociology and the Department of Sociology, Anthropology, and Social Work. Information about the two degrees is available at https://www.cla.auburn.edu/sociology-anthropology-social-work/sociology/graduate-degrees/.

Admission Requirements

Admission to the program is administered by co-directors representing the Department of Sociology, Anthropology & Social Work and the Department of Agricultural Economics & Rural Sociology. Applicants are required to have a bachelor's degree from an accredited institution. A cumulative GPA of 3.0 on all completed coursework is desired. The applicant's statement of interest and letters of recommendation also are considered in making a decision on admission.

Applicants should ensure the following materials are submitted to the Graduate School web application:

- Official transcripts from every college and university attended
- If an international student, the official score from the TOEFL exam
- Three letters of recommendation

Applicants should ensure that the following materials are submitted to the graduate program officer in the Department of Sociology, Anthropology, and Social Work:

- Statement of interest

Applications to the program are reviewed year-round.

The program’s coordinating committee will evaluate each applicant’s dossier.

Thesis (MS) and Non-Thesis (MA) Options

The MS and MA degree options are designed to serve the needs of differing types of students. The thesis option is recommended for students interested in pursuing advanced graduate work and in gaining research experience. The non-thesis option is designed for individuals who are in mid-career, who wish to learn new skills in order to be more productive professionally, and who have no intent on pursuing a more advanced graduate degree.

The thesis option requires a minimum of 30 semester hours, with 6 semester hours of this total being for research and thesis (SOCY 7990 Research And Thesis or RSOC 7990 Research And Thesis). The non-thesis option requires 36 semester hours of course credit. Additionally, a capstone paper is required for the non-thesis option.

Required Core Courses

All students take core graduate courses in social theory, social research methods, and statistics:

- SOCY 7000 Adv Sociological Theory
- SOCY 7100 Stat Anlys Surv Aggr And Data
- RSOC 7700 Methods Of Social Research

Students without undergraduate course work in these areas may be required to take additional courses to prepare for the core graduate courses. Additional courses at the 6000-level and above are taken with the advice of the student's graduate advisory committee.

Financial Aid

A variable number of graduate teaching assistantships and graduate research assistantships are available on a competitive basis to support graduate students in the program. Strong preference is given to funding students pursuing the thesis option.

Admission to the program is determined collectively by the coordinating committee, but funding decisions are made by individual departments. To be considered for funding, applicants should send three letters of recommendation to the coordinating committee member in the appropriate department.

Most graduate teaching assistantships and graduate research assistantships require the commitment of 13–15 hours of work per week. Given these responsibilities, graduate students holding graduate teaching assistantships and graduate research assistantships are expected to take no more than 9 hours of graduate credit course work per semester. Experience indicates that a heavier course load leads to an erosion of performance both on the job and in the course work.

Graduate teaching positions are associated primarily with the Department of Sociology, Anthropology, and Social Work and involve working with faculty teaching in the undergraduate core curriculum. Students seeking graduate teaching assistantships should submit their completed applications by March 1 to be included in the review process regarding funding decisions for the following academic year. However, occasionally, funds for graduate teaching assistantships may become available later in the year, and applications are then reviewed accordingly.

Graduate research assistantships are associated primarily with the Department of Agricultural Economics and Rural Sociology and require working with faculty conducting research on a variety of topics dealing with rural development. Funding from grants becomes available at different times of the year. The funds for graduate research assistantships generally are made available in February or March. Please contact the coordinating committee member from the Department of Agricultural Economics and Rural Sociology for further information on funding.

Sociology — MA

Code	Title	Hours
MA Sociology Thesis		
SOCY 7000	Advanced Sociological Theory	3
SOCY 7100	Statistical Analysis of Survey, Aggregate, and Large Data Sources	3
RSOC 7700	Methods of Social Research	3
RSOC 7990	Research and Thesis	6
or SOCY 7990	Research and Thesis	

Select 15 Credits in @6000-8999		15
Total Hours		**30**

Code	Title	Hours
MA Sociology Non-Thesis		
SOCY 7000	Advanced Sociological Theory	3
SOCY 7100	Statistical Analysis of Survey, Aggregate, and Large Data Sources	3
RSOC 7700	Methods of Social Research	3
Select 27 Credits in @6000-8999		27
Total Hours		**36**

Sociology — MS

Code	Title	Hours
MS Sociology Thesis		
SOCY 7000	Advanced Sociological Theory	3
SOCY 7100	Statistical Analysis of Survey, Aggregate, and Large Data Sources	3
RSOC 7700	Methods of Social Research	3
RSOC 7990	Research and Thesis	6
or SOCY 7990	Research and Thesis	
Select 15 Credits in @6000-8999		15
Total Hours		**30**

Code	Title	Hours
MS Sociology Non-Thesis		
RSOC 7700	Methods of Social Research	3
SOCY 7000	Advanced Sociological Theory	3
SOCY 7100	Statistical Analysis of Survey, Aggregate, and Large Data Sources	3
Select 27 Credits in @6000-8999		27
Total Hours		**36**

Rural Sociology — MS

Code	Title	Hours
MS Rural Sociology Thesis		
SOCY 7000	Advanced Sociological Theory	3
SOCY 7100	Statistical Analysis of Survey, Aggregate, and Large Data Sources	3
RSOC 7700	Methods of Social Research	3
RSOC 7990	Research and Thesis	6
or SOCY 7990	Research and Thesis	
Select 15 Credits in @6000-8999		15
Total Hours		**30**

Code	Title	Hours
MS Rural Sociology Non-Thesis		
SOCY 7000	Advanced Sociological Theory	3
SOCY 7100	Statistical Analysis of Survey, Aggregate, and Large Data Sources	3
RSOC 7700	Methods of Social Research	3
Select 27 Credits in @6000-8999		27
Total Hours		**36**

Special Education, Rehabilitation, and Counseling — Graduate Certificates, MA, MEd, MS, EdS, PhD

Degree Programs

- Clinical Mental Health Counseling — MEd (p. 553)
- Clinical Rehabilitation Counseling — MEd (p. 1771)
- Collaborative Teacher Special Education, K–12 — MS, MEd, EdS (p. 1772)
- Counseling Psychology — MA, PhD (p. 554)
- Counselor Education — PhD (p. 555)
- Early Childhood/Elementary Special Education, P–6 — MS, MEd (p. 1778)
- Rehabilitation and Special Education — PhD (p. 1780)
- School Counseling (Certification) — MEd (p. 561)

Graduate Certificates

- Inclusive Elementary Education Practices (p. 561)
- Intervention for Students with Autism and Developmental Disabilities (p. 1781)
- Transition Specialist (p. 1781)
- Vocational Evaluation Forensic (p. 1781)
- Vocational Evolutional Forensic DE (p. 1782)

The Department of Special Education, Rehabilitation, and Counseling offers graduate degree programs leading to a master of science, master of education, education specialist, and doctor of philosophy. Offerings also include graduate certificates.

Master ’s Degree Programs (MEd)

Clinical Mental Health Counseling - MEd

This Master’s program is a 60-credit hour graduate program that prepares students to become Mental Health Counselors and is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Applicants may be considered for full-time or part-time enrollment with coursework that emphasizes trauma-informed, evidence-based, integrative counseling practices. Typically, graduates are employed in hospitals, outpatient clinics, community agencies, non-profit organizations, substance abuse centers, social service agencies, college counseling centers, and private practice. Students will complete practicum and internships in settings related to their career goals. The CMHC program considers applicants with Psychology, Counseling, Liberal arts, Education, Social Work, Criminal Justice, and other general areas of study undergraduate degrees. Coursework will prepare you for the educational requirements for licensure as a Licensed Professional Counselor (LPC) or Licensed Clinical Mental Health Counselor (LCMHC). Program requirements include a 100-hour Practicum and 600-hour Internship; this program is offered on-campus and on-line.

Clinical Rehabilitation Counseling - MEd

This Master's program is a 60-credit hour program which is fully accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) and provides students with the necessary academic and clinical experiences to sit for the Certified Rehabilitation Counselor (CRC) examination. The program requires a 100 hour practicum taken early in the course work, and a 600 hour supervised clinical internship generally taken near the conclusion of the program. Auburn University’s Clinical Rehabilitation Counseling Program has been ranked as 15th among the universities in the nation by US News & World Report. Graduates of the program are prepared to serve youth and adults with disabilities as Rehabilitation Counselors in the state-federal Vocational Rehabilitation system, in the proprietary sector of Rehabilitation, and in non-profit community-based Rehabilitation agencies. This program is offered on-campus and on-line.

Collaborative Teacher Special Education K-12 (MEd)

This program prepares teachers to serve students with disabilities at the elementary (K-6) and secondary (6-12) grade levels. Graduates are prepared at an advanced level to work with children and youth who have disabilities and implement evidence-based practices to meet their individual needs. There are curriculum options for students who have (a) a teaching certificate in Special Education, (b) a teaching certificate in an area other than Special Education, and (c) an undergraduate degree, but no teaching certification.

Early Childhood/Elementary Special Education P-6 (MEd)

This program prepares teachers to serve infants and toddlers (0-2 years), children in preschool (3-5 years), and students in K-6 settings. Graduates are prepared to implement evidence-based practices at an advanced level. There are curriculum options for students who have (a) a teaching certificate in Special Education, (b) a teaching certificate in an area other than Special Education, and (c) an undergraduate degree, but no teaching certification.

NOTE: Master of Education (MEd) degree programs in **Special Education** include both Alternative and Traditional certification options. Alternative MEd certification programs offer qualified students who hold non-teaching baccalaureate degrees a route to initial teacher certification while simultaneously earning a Master's degree. Admission requirements for the Alternative and Traditional Master's programs include a clear Alabama Fingerprint Background Check.

Additional admission requirements for the Alternative Master's programs in Special Education include documentation of a Bachelor's degree from an accredited college or university with a minimum GPA of 2.50 overall or a Master's degree or higher with a GPA of at least 3.0. This GPA must be documented on the official transcript of the degree granting institution and must be the GPA that was used as the basis for granting the degree, not a GPA that includes post-degree courses. Additionally, applicants must posses the appropriate number of teaching field courses or pass the appropriate content subject assessments.

Additional admission requirements for the Traditional Master's programs in Special Education include a valid Bachelor's level professional educator certificate in a teaching field and may include additional certification tests.

Degree requirements for Master's-level Special Education programs are in compliance with regulations established by the ALSBE and include a written comprehensive exam as well as a passing score on the appropriate content assessment for Alternative Master's students and Traditional Master's students with prior certification in a teaching field other than Special Education. In accordance with State regulations, effective for students unconditionally admitted to certification programs prior to July 1, 2017, a minimum GPA of 3.00 is required on all courses used to meet Master's-level certification program requirements. Effective for students unconditionally admitted to certification programs July 1, 2017 and after, a minimum 3.25 GPA will be required on all courses used to meet Master's-level certification program requirements.

School Counseling - MEd

This Master's program is a 60-credit hour program accommodating either full-time or part-time students with coursework that emphasizes advocacy and social justice. The program of study is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Graduates typically are employed in public or private elementary, middle/junior high, or high schools as professional school counselors. The School Counseling program considers applicants with Psychology, Counseling, Liberal Arts, Education, Social Work, Criminal Justice, and other general areas of study. Students complete practica and internships in settings related to their career goals. This program is offered on-campus and on-line.

NOTE: Students in all Master's-level **Counseling** programs must pass a comprehensive graduation exam which currently consists of the Counselor Preparation Comprehensive Examination (CPCE) and complete other assigned work and/ or examinations designed to evaluate students' skills in areas related to program goals. All Master's programs require extensive extramural practicum and internships in placements related to the area of professional preparation. Students in the Clinical Rehabilitation Counseling program are required to complete the Certified Rehabilitation Counselor (CRC) Examination, and students in all other Counseling Master's programs are provided the opportunity to complete the National Counselor Examination (NCE).

All graduate educator preparation programs are approved by the Alabama State Board of Education (ALSBE). Auburn University's College of Education is accredited through the National Council for Accreditation of Teacher Education (NCATE). Master's and Doctoral programs in Counselor Education are accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). The Doctoral program in Counseling Psychology is accredited by the American Psychological Association (APA). Application to the master's programs includes meeting Graduate School requirements for admission, and submitting appropriate documents as indicated on the Graduate School application.

Students in the School Counseling program must earn a passing score on the appropriate Praxis II subject assessment and may be subject to other components of the State testing program depending on prior professional educator certification. In accordance with State regulations, effective for students unconditionally admitted to the School Counseling certification program prior to July 1, 2017, a minimum GPA of 3.00 is required on all courses used to meet Master's-level certification program requirements. Effective for students unconditionally admitted to certification programs July 1, 2017 and after, a minimum GPA of 3.25 will be required on all courses used to meet Master's-level certification program requirements. Students must pass a comprehensive graduation exam which currently consists of a Portfolio/Summative Evaluation and complete other assigned work and/ or examinations designed to evaluate students' skills in areas related to program goals. The program requires extensive extramural practicum and internships in placements related to the area of professional preparation. Students are provided the opportunity to complete the National Counselor Examination (NCE)

for certification purposes. Additional admission requirements for the School Counseling program include a clear Alabama Fingerprint Background Check.

Specialist in Education Degree Program (EdS)

Special Education Collaborative Teacher (EdS)

This program prepares students to be a special education leader at the local, state, or national level, and is aligned with the National Board for Professional Teaching Standards. This alignment provides opportunities that may be helpful in program graduates' future pursuits in becoming National Board-Certified Teachers. Employment opportunities include, but are not limited to, public sector positions such as: local special education coordinators or directors, special education lead teachers or chairpersons, special education supervisors, state special education specialists or administrators, and national associate division directors or division team members. In addition, those gaining an EdS in Special Education are eligible for a number of private sector positions. To be considered for entry into this program, applicants must have a Master's degree in Special Education and a minimum of three years of teaching experience. Applicants to the EdS program in Special Education Collaborative Teacher must satisfy the Department and Graduate School's admission requirements, which includes uploading documents to their Graduate School application. This material includes Master's degree transcripts from an accredited college or university, academic good standing at the institution last attended, competitive GRE scores, three reference writers name and email addresses, current resume, a valid Master's-level professional educator certificate in Special Education, and a clear State of Alabama Fingerprint Background check. In some cases, depending on prior level certification, additional certification tests may be required. Degree requirements for Specialist-level teacher certification programs are in compliance with regulations established by the ALSBE. Specialist programs include a minimum of 30 semester hours beyond the Master's degree. Additional requirements include satisfactory completion of a field project and a written comprehensive exam. In accordance with State regulations, effective for students unconditionally admitted prior to July 1, 2017, a minimum GPA of 3.25 is required on all courses used to meet Specialist-level certification program requirements. Effective for students unconditionally admitted July 1, 2017 and after, a minimum GPA of 3.50 will be required on all courses used to meet Specialist-level certification program requirements.

NOTE: Masters and Specialist-Level Certification Individuals completing State-approved **Master's-level Special Education** certification programs are eligible to apply for Alabama Class A certification; individuals completing State-approved **Specialist-level Special Education** certification programs are eligible to apply for Alabama Class AA certification. Effective September 1, 2018, the Alabama State Board of Education will require an acceptable score on the edTPA for initial certification in a teaching field. This certification requirement applies to individuals completing Alternative Master's programs. Individuals seeking certification in states other than Alabama are responsible for contacting those state certification offices to obtain their application form and requirements. The State of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of program graduates when they apply for certification in other states.

Doctoral Degree Programs (PhD)

Counseling Psychology (PhD)

This doctoral program is a health service psychology program that is accredited by the American Psychological Association (APA). The next re-accreditation visit is scheduled to take place in 2027. Successful fulfillment of all requirements results in a Ph.D. (Doctor of Philosophy) degree in Counseling Psychology. The curriculum is built on a framework referred to as the "Scientist-Practitioner" model for training in Health Service Psychology, wherein emphasis is placed on the integration of the science and practice of Counseling Psychology. In addition to the core competencies articulated by the APA, the program assists students in developing competence in Group Therapy and Social Justice. The required curriculum includes a full-time, one-year, pre-doctoral internship. Graduates work in a wide range of settings including university Counseling Centers, VA hospitals, private and university affiliated hospitals, private practices, Community Mental Health agencies, academic departments as faculty, and postdoctoral fellowships. Counseling Psychology applicants may apply with a Bachelor's degree, some graduate coursework, a Master's degree, or a Doctoral degree (the latter in the case of re-specialization).

Counselor Education (PhD)

This doctoral program is a 64 credit program of study accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Admission requirements include meeting the clinical practice and academic coursework required by CACREP-accredited Master's level programs. The program focuses on the development of professional skills and competencies through course work and practicums in research, teaching, supervision, and advanced counseling. Integrated into these program requirements is an emphasis on social justice, advocacy and professional ethics. Students also complete an internship (3 semesters) that incorporates programmatic and student professional goals in the areas of counseling, supervision, teaching, research, and leadership and advocacy. Program requirements include a comprehensive exam (i.e., portfolio) and dissertation. Graduates are typically employed in Counselor Education faculty positions or Mental Health Counseling, Rehabilitation Counseling, or School

Counseling positions. Counselor Education applicants must have completed an approved Master's degree program prior to enrollment, preferably from a CACREP accredited Master's program requiring 60 credit hours.

Special Education (PhD)

This doctoral program prepares graduates for careers in research and instruction in higher education, or leadership roles in administration and policy-making at the state and national levels. Prospective students should have at least three years of teaching experience in Special Education and hold a teaching certificate in Special Education, and a Master's degree in Special Education. Special Education applicants must have completed three years of direct teaching of students with disabilities.

NOTE: The number of hours required for the three **Doctoral programs** varies and within each program is dependent on previous graduate work, ranging from 60–109 hours. Research methods, statistics, and foundations of education are components of all Doctoral programs. Doctoral students must register for at least 10 hours of dissertation credit while completing a dissertation.

Graduate Certificates

Inclusive Elementary Education Practices

This graduate certificate provides opportunities for elementary teachers in general education or Special Education to learn about curricula design, specialized teaching techniques, program implementation, current research directions and findings, and translating research into elementary inclusive teaching practices. Coursework and course activities will prepare you to implement evidence-based practices for students with autism spectrum disorders and other developmental disabilities

Admissions Prerequisites

- A Master's degree in a field related to education of students with disabilities, or intent to incorporate this certificate into a graduate degree in Special Education and thus meet the appropriate application requirements.

Degree Seeking Students

- Degree seeking students who plan to add a graduate certificate to their current degree program will apply for admission to the graduate certificate program at the **Graduate School** before completion of their degree program.

Non-Graduate Degree Admission

- Prospective students intending to pursue a graduate certificate without enrolling in a degree program must apply to the **Graduate School** for admission to the graduate certificate program

Intervention for Students with Autism and Developmental Disabilities

This graduate certificate allows teachers and educational professionals to access high quality professional development leading to improved educational outcomes for students with developmental disabilities and autism spectrum disorders. This certificate meets the significant need within Alabama's public schools and the region to provide instruction for children with developmental disabilities and autism spectrum disorders. Although the target audience for this graduate certificate will be Special Education teachers or those seeking a Master's degree in Special Education, other appropriate participants include professionals with Master's degrees in other related Human Service fields. Coursework and course activities will prepare you to implement evidence-based practices for students with autism spectrum disorders and other developmental disabilities

Coursework– 15 hours

- RSED 7400 (fall)
- RSED 7420 (summer)
- RSED 7230 (spring)
- RSED 7430 (summer)
- RSED 7410 (spring)

Admissions

- A master's degree in a field related to education of students with disabilities or
- Intend to incorporate this certificate into a graduate degree in special education and thus meet the appropriate application requirements.

Degree Seeking Students

- Degree seeking students who plan to add a graduate certificate to their current degree program will apply for admission to the graduate certificate program at the **Graduate School** before completion of their degree program.

Non-Graduate Degree Admission

- Prospective students intending to pursue a graduate certificate without enrolling in a degree program must apply to the **Graduate School** for admission to the graduate certificate program

Transition Specialist

This graduate certificate incorporates coursework and applied experiences to prepare you to collaborate with other professionals and transition stakeholders. Although the target audience for this graduate certificate is Special Education teachers or those preparing to be Special Education teachers, other appropriate participants include those majoring in General Education, Educational Administration, Rehabilitation Counseling, and other related Human Service fields. As defined by federal legislation, transition requires a set of "coordinated activities." In keeping with this federal definition and the standards set forth in professional organizations, those completing the Transition Specialist Graduate Certificate will gain an emphasis in transition and collaboration, while integrating up-to-date research on effective practice. In addition to the required courses identified for this graduate certificate program, the choices provided for elective courses will allow students to select the courses that will be most beneficial to them in their professional area. Professionals in education and other related human service fields with specialized training are needed to deliver transition services that address the unique needs of youth with disabilities as they exit high schools. Professional organizations have recognized this need and developed specific standards or guidelines to address the competencies needed by professionals who work with individuals with disabilities. These include the Council for Exceptional Children, Division of Career Development and Transition (Transition Specialist) standards, Council on Rehabilitation Education (CORE) standards, Council for Accreditation of Counseling and Related Education Programs (CACREP) standards, and APA Guidelines for Assessment and Intervention with Persons with Disabilities, to name just a few.

Degree Seeking Students

- Degree seeking students who plan to add a graduate certificate to their current degree program will apply for admission to the graduate certificate program at the **Graduate School** before completion of their degree program.

Non-Graduate Degree Admission

- Prospective students intending to pursue a graduate certificate without enrolling in a degree program must apply to the **Graduate School** for admission to the graduate certificate program

Vocational Evaluation Forensics

Purpose: Auburn University's Vocational Evaluation Forensic Certificate (VEFC) program is a short-term training certificate that exists for professionals and paraprofessionals who desire to work in the field of vocational rehabilitation. This new certificate incorporates current knowledge and training on societal trends in the areas of economics, forensics, employment, and evaluation, serving to enhance and improve students' education, ultimately leading to greater employment for individuals with disabilities. Upon completion of this one-year certificate program, students will possess the knowledge and skills to help consumers achieve positive employment outcomes in a technological society. Guided by our core values of diversity and evidence-based practice, we seek to foster student experiences that emphasize culture, values, knowledge, and navigational tools needed to become competent vocational service providers.

Eligibility: Individuals with a bachelor's or master's degree are eligible. Individuals with a disability and/or another minority status are strongly encouraged to apply. Those who are currently in the AU Clinical Rehabilitation Counseling program are also eligible for the VEFC program.

Program Overview: The VEFC certificate program at Auburn University is grant-funded by the Rehabilitation Services Administration (RSA) within the U.S Department of Education. The program is a one-year, six course, graduate certificate allowing both on campus and online undergraduate and graduate students to further their education in vocational rehabilitation. Each academic year, a cohort of students will be admitted beginning in the Fall 2021 semester. Scholarships and other financial assistance are available but competitive. There are 15 scholarships available each year. Students who have obtained a Master's degree will be well-trained and eligible to take the Certified Rehabilitation Counselor (CRC) exam and engage in the Certified Vocational Evaluation (CVE) process. Students who have previously obtained a Bachelor's degree will have enhanced competencies to serve individuals with disabilities.

Program Options: Accessibility is a priority and value of the program, therefore the VEFC certificate program can be completed on campus or via distance education (DE). Courses have been developed in collaboration with Auburn Online, Auburn University's premiere resource for distance and continuing education program support.

Degree Seeking Students

- Degree seeking students who plan to add a graduate certificate to their current degree program will apply for admission to the graduate certificate program at the **Graduate School** before completion of their degree program.

Non-Graduate Degree Admission

- Prospective students intending to pursue a graduate certificate without enrolling in a degree program must apply to the **Graduate School** for admission to the graduate certificate program

Online Learning Graduate Programs and Courses

The Department of Special Education, Rehabilitation, and Counseling offers the Special Education (MEd and EdS), Clinical Mental Health Counseling, Clinical Rehabilitation Counseling, and School Counseling graduate programs through online learning as well as through residential study.

Additional information

Detailed admission and program requirements for the department's multiple areas of graduate study are available on the College of Education's website, Academics (https://education.auburn.edu/academic-programs/).

Information about undergraduate programs offered in the Department of Special Education, Rehabilitation, and Counseling is available at: Special Education, Rehabilitation, and Counseling: Undergraduate (https://bulletin.auburn.edu/undergraduate/collegeofeducation/specialeducationrehabilitationandcounseling/).

Clinical Rehabilitation Counseling — MEd

On-Campus or Online

Code	Title	Hours
COUN 7320	Counseling Theories	3
COUN 7400	Orientation to Professional Counseling	3
COUN 7250	Advanced Assessment and Diagnosis in Counseling	3
COUN 7010	Medical Voc & Psychosocial Aspects of Disability	3
COUN 7350	Introduction to Counseling Practice	3
COUN 7330	Counseling Diverse Populations	3
COUN 7340	Group Counseling	3
COUN 7520	Introduction to Rehabilitation and Case Management in Rehabilitation Counseling	3
COUN 7110	Occupational, Career and Placement Services	3
COUN 7930	Advanced Theories in Counseling Practice	3
COUN 7910	Practicum	3
COUN 7500	Crisis Intervention in Counseling	3
ERMA 7200	Basic Methods in Education Research	3
COUN 7920	Internship	9
COUN 7310	Counseling Applications of Lifespan Development	3
COUN 7370	Foundations of Substance Use Counseling	3
COUN 7950	Emerging Adulthood and Transition in Rehabilitation	3
COUN 7130	Vocational Evaluation	3
Total Hours		**60**

Collaborative Teacher Special Education: K–12 — MEd/MS, EdS

Collaborative Teacher Special Education: K–12 — MEd/MS (https://education.auburn.edu/serc/academic-programs/special-education/med-collaborative-teacher-special-ed.php), EdS (https://education.auburn.edu/serc/academic-programs/special-education/eds-special-education.php)

Collaborative Teacher Special Education: K–12 — MEd (Alternative Certification, Online Option Available)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 24 hours		
At least 1/3 of the program shall be in teaching field courses.		
Required: 18 hours		**18**
RSED 7230	Advanced Behavior Management in Special Education	
RSED 6120	Curriculum in Special Education: Mathematics	
RSED 6180	Literacy and Instructional Classroom Management [4]	
RSED 7460	Positive Behavior Supports [1]	
RSED 6330	Assessment for Eligibility	
RSED 6420	Specialized Curriculum in Mathematics	
Select 6 hours from the following:		6
RSED 7420	Research in Specialization	
RSED 7430	Research Into Practice	
RSED 7400	Curriculum and Teaching in Specialization (Learning Strategies) [1]	
RSED 7410	Program Implementation in Specialization Autism (Leadership) [1]	
RSED 7220	Advanced Teaching Methods in Special Education	
Other advisor-approved courses 6000 level or above in the Teaching Field		
Professional Studies: 21-36 hours [3]		**21-36**
Required 21 hours		
RSED 6130	Curriculum in Literacy for Students with Disabilities	
RSED 6150	Literacy Methods in Special Education [4]	
RSED 6230	Rehabilitation Assistive Technology [4]	
RSED 7910		
RSED 7920	Clinical Residency [2]	
Required if not previously completed [3, 5]		
RSED 6000	Advanced Survey of Exceptionality [5]	
RSED 6140	Curriculum in Severe Disabilities [3]	
RSED 6160	Framework for Collaboration in K-12 [3]	
RSED 6170	Transition and Secondary Methods [3]	
RSED 6190	Functional Curriculum and Transition [3]	
Total Hours		**45-60**

1 the state diversity course requirement is fulfilled with RSED 7400 Curriculum and Teaching: Learning Strategies, RSED 7410 Program Implementation: Leadership, or RSED 7460 Positive Behavior Supports

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

3 The following courses: RSED 6140, RSED 6160, RSED 6170, RSED 6190 must be completed in addition to all other program requirements unless previously completed.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

4 The Alabama Literacy Act requirement is fulfilled with completion of 6130, 6150, and 6180. The Alabama Numeracy Act is fulfilled with completion of RSED 6120 and RSED 6420.

5 RSED 6000 must be completed if survey of special education course was not completed for prior level of certification.

Collaborative Teacher Special Education: K–12 — MEd/MS (Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 30 hours		
At least 1/3 of the program shall be in teaching field courses.		
Required: 6 hours		
RSED 7910		3
RSED 6230	Rehabilitation Assistive Technology	3
Select 24 hours from the following:		24
RSED 7120	Advanced Assessment in Special Education	
RSED 7220	Advanced Teaching Methods in Special Education	
RSED 7230	Advanced Behavior Management in Special Education	
RSED 7400	Curriculum and Teaching in Specialization (Learning Strategies) [1]	
RSED 7410	Program Implementation in Specialization Autism (Leadership) [1]	
RSED 7420	Research in Specialization	
RSED 7430	Research Into Practice	
RSED 7460	Positive Behavior Supports [1]	
RSED 7990	Research and Thesis (required for MS degree)	
Other advisor-approved courses 6000 level or above in the Teaching Field.		
Survey of Special Education/Diversity Course		
See RSED 6000 in Additional Courses AND RSED 7400, RSED 7410, or RSED 7460 in Teaching Field. [1]		
Additional Courses: [2]		
RSED 6000	Advanced Survey of Exceptionality [1,2]	
RSED 6140	Curriculum in Severe Disabilities [2]	
RSED 6150	Literacy Methods in Special Education [2]	
RSED 6160	Framework for Collaboration in K-12 [2]	
RSED 6170	Transition and Secondary Methods [2]	
RSED 6190	Functional Curriculum and Transition [2]	
RSED 6120	Curriculum in Special Education: Mathematics [2]	
RSED 6420	Specialized Curriculum in Mathematics [2]	
RSED 6130	Curriculum in Literacy for Students with Disabilities [2]	
RSED 6180	Literacy and Instructional Classroom Management [2]	
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement must be fulfilled with RSED 7400 Curriculum & Teaching: Learning Strategies, RSED 7410 Program Implementation: Leadership, or RSED 7460 Positive Behavior Supports.

2 The following courses or equivalents are required if not previously completed--particularly for candidates whose prior certification was NOT in special education: RSED 6000, RSED 6140, RSED 6150, RSED 6160, RSED 6170, RSED 6190, RSED 6120, RSED 6420, RSED 6130, RSED 6180. These credit hours are in addition to the 30 total program hours.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Special Education Collaborative Teacher — EdS (Certification, Online Option Available)

Code	Title	Hours
Teaching Field: 15 hours		
At least 1/3 of the program shall be teaching field courses.		
RSED 7420	Research in Specialization	3
RSED 7430	Research Into Practice	3
RSED 8030	Disabilities and Professional Issues [1]	3
RSED 8050	Disabilities and the Law	3
RSED 8950	Seminar (Supervision & Adminstration)	3
Survey of Special Education/Diversity Course		
See RSED 6000 in Additional Courses AND RSED 8030 in Teaching Field		
Additional Courses: 15 hours		**15**
RSED 6000	Advanced Survey of Exceptionality [1]	
RSED 7910	[2]	
Other advisor-approved RSED courses 6000 level and above		
Other advisor-approved supporting courses 6000 level and above [3]		
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with RSED 8030 Disabilities and Professional Issues.

2 Successful completion of a practicum shall be required for certification in a new area of special education.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Counseling Psychology — MA, PhD

Counseling Psychology — MA, PhD (https://education.auburn.edu/serc/academic-programs/counseling-psychology/phd-counseling-psychology.php)

The MA degree program is only open to students simultaneously enrolled and first admitted to the Counseling Psychology Ph.D. program.

Master of Arts

Code	Title	Hours
COUN 8530	Contemporary Issues in Counseling Psychology	3
COUN 7250	Advanced Assessment and Diagnosis in Counseling	3
COUN 7320	Counseling Theories	3
COUN 7330	Counseling Diverse Populations	3
COUN 7340	Group Counseling	3
COUN 7350	Introduction to Counseling Practice	3
ERMA 8350	Advanced Measurement Theory	3
Select 6 Hours of COUN 7910 or COUN 8910		6

Stats courses approved by program	6
Total Hours	**33**

COUN 8910: Advanced Practicum can substitute for COUN 7910 (the student must still complete 6 credits total from COUN 7910 or COUN 8910).

In addition to the above stated requirements, students must submit documentation of their clinical hours (including hours of direct provision of psychotherapy services to clients), evaluation forms completing by external supervisors for the two semesters of COUN 7910 (COUN 8910, if used to substitute for COUN 7910), and annual self-evaluations required by the program using the program form.

The student must meet the following additional outcomes beyond completion of courses with grades of Satisfactory (for S/U) courses and a GPA of 3.0 or better for traditionally graded courses: (A) accumulate 100 hours of direct provision of psychotherapy services to clients; (B) receive ratings of "consistent with beginning practicum student" or better in two semesters of practicum (COUN 7910 or COUN 8910) for the following items on the student evaluation form completed by external supervisors: (1) ability to form good relationships with clients, (2) ability to work with diverse clients (a rating of "cannot judge" is acceptable for one of the two semesters of this particular outcome but no ratings of "below expectations" or worse are acceptable for the two semesters used to meet this required outcome for the MA degree), and (3) ability to handle cases more effectively as a result of supervision; (C) two semesters of practicum ratings in which they did not receive a rating suggesting that the supervisor believes the student violated ethical principles of psychologists (this criterion requires that, for two semesters of practicum, a supervisor not indicate "yes" in response to the question, "Do you have any reason to believe that the student has violated ethical principles of psychologists?" found on the rating form that is completed by external supervisors); (D) successful completion of an outcome assessment assignment used in COUN 7910 (successful completion is defined as "acceptable/meets expectations/satisfactory" or better); and (E) receive a rating of satisfactory on making progress in research from program faculty during annual faculty evaluations of students.

Doctor of Philosophy

The American Psychological Association (APA) is the accrediting body for this program. The APA implemented new standards (called the Standards of Accreditation) with corresponding Implementing Regulations (which specify how standards are to be met and can be modified more frequently) that became effective January 1, 2017. This curriculum is designed to meet those standards.

Code	Title	Hours
COUN 7230	Career Development and Vocational Appraisal	3
COUN 7250	Advanced Assessment and Diagnosis in Counseling	3
COUN 7310	Counseling Applications of Lifespan Development	3
COUN 7320	Counseling Theories	3
COUN 7330	Counseling Diverse Populations	3
COUN 7340	Group Counseling	3
COUN 7350	Introduction to Counseling Practice	3
COUN 7910	Practicum (I)	3
COUN 7910	Practicum (II)	3
COUN 8120	Appraisal in Counseling and Psychology	3
COUN 8200	Intellectual Assessment of Adults	3
COUN 8220	Psychological Science and Health	3
COUN 8230	Colloquium in Counseling Psychology I	1
COUN 8240	Colloquium in Counseling Psychology II	2
COUN 8250	Colloquium in Counseling Psychology III	3
COUN 8260	Colloquium in Counseling Psychology IV	3
COUN 8310	Cognition and Emotion	3
COUN 8320	Great Ideas in Psychology	3
COUN 8400	Professional Seminar Counseling Psychology	3
COUN 8530	Contemporary Issues in Counseling Psychology	3
COUN 8540	Coun Supervision-Theory & Prac	3
COUN 8800	Professional Development Internship Skills	3

COUN 8910	Practicum (Advanced I)	3
COUN 8910	Practicum (Advanced II)	3
ERMA 8350	Advanced Measurement Theory	3
PSYC 7150	Biological Psychology	3
PSYC 7180	Social Psychology	3
or COUN 8970	Special Topics	
One program approved elective course of 3 hours or 3 hours of program approved electives		3
Program approved first semester doctoral stats course		3
Program approved second semester doctoral stats course		3
COUN 8930	Internship in Counseling Psychology (3 semesters)	0
COUN 8990	Research And Dissertation	10
Total Hours		**97**

Counselor Education — PhD

Counselor Education — PhD (https://education.auburn.edu/serc/academic-programs/counselor-education/phd-counselor-education.php)

Code	Title	Hours
COUN 8300	Research Design in Counseling and Evaluation	3
COUN 8510	Contemporary Issues in Counselor Education	3
COUN 8540	Coun Supervision-Theory & Prac	3
COUN 8550	Counselor Education Pedagogy	3
COUN 8620	Advanced Counseling Theories and Practice	3
COUN 8700	Diversity and Social Justice in Counselor Education	3
COUN 8910	Practicum (Teaching)	3
COUN 8910	Practicum (Advanced Counseling)	3
COUN 8910	Practicum (Supervision)	3
COUN 8910	Practicum (Research)	3
COUN 8920	Internship (Counselor Education)	9
COUN 8990	Research And Dissertation	10
ERMA 7210	Theory and Methodology of Qualitative Research	3
ERMA 7300	Design and Analysis in Education I	3
ERMA 7310	Design and Analysis in Education II	3
ERMA 8100	Program Evaluation	3
ERMA 8200	Survey Research Methods	3
Total Hours		**64**

Counselor Education – Clinical Mental Health Counseling Option — MEd

Code	Title	Hours
Clinical Mental Health Counseling MEd (On-Campus or Online)		
COUN 7200	Introduction to Measurement and Assessment	3
COUN 7230	Career Development and Vocational Appraisal	3
COUN 7240	Counseling Children and Adolescents	3
COUN 7250	Advanced Assessment and Diagnosis in Counseling	3
COUN 7310	Counseling Applications of Lifespan Development	3
COUN 7320	Counseling Theories	3
COUN 7330	Counseling Diverse Populations	3

COUN 7340	Group Counseling	3
COUN 7350	Introduction to Counseling Practice	3
COUN 7360	Advanced Counseling Practice: Family Systems	3
COUN 7370	Foundations of Substance Use Counseling	3
COUN 7400	Orientation to Professional Counseling	3
COUN 7410	Orientation to Clinical Mental Health Counseling	3
COUN 7500	Crisis Intervention in Counseling	3
COUN 7510	Advanced Clinical Mental Health Counseling Interventions	3
COUN 7910	Practicum	3
COUN 7920	Internship	9
ERMA 7200	Basic Methods in Education Research	3
Total Hours		**60**

Counselor Education – School Counseling Option (Certification) — MEd

Code	Title	Hours
Class A Program Checklist for School Counseling (On Campus or Online)		
Instructional Support Area: 33 hours		
At least 1/3 of the program shall be teaching field courses		
COUN 7200	Introduction to Measurement and Assessment	3
COUN 7230	Career Development and Vocational Appraisal	3
COUN 7240	Counseling Children and Adolescents	3
COUN 7310	Counseling Applications of Lifespan Development	3
COUN 7320	Counseling Theories	3
COUN 7330	Counseling Diverse Populations [1]	3
COUN 7340	Group Counseling	3
COUN 7350	Introduction to Counseling Practice	3
COUN 7400	Orientation to Professional Counseling	3
COUN 7420	Orientation to School Counsel	3
COUN 7500	Crisis Intervention in Counseling	3
Internship: 9 hours		
COUN 7920	Internship	9
Practicum: 3 hours		
COUN 7910	Practicum	3
Survey of Special Education/Diversity Course		
See RSED 6000 in Additional Courses AND COUN 7330 in Instructional Support Area [1]		
Additional Courses: 15 hours		
Required: 6 hours		
COUN 7450	Foundations of School Counseling	3
COUN 7460	Leadership and Advocacy for School Counselors	3
Select 9 hours from the following:		9
RSED 6000	Advanced Survey of Exceptionality [1]	
COUN 7250	Advanced Assessment and Diagnosis in Counseling	
ERMA 7200	Basic Methods in Education Research	
Other advisor-approved supporting courses 6000 level and above [2]		
Total Hours		**60**

[1] RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with COUN 7330 Counseling Diverse Populations.

[2] Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Early Childhood/Elementary Special Education: P–6 — MEd/MS

Early Childhood/Elementary Special Education: P–6 — MEd/MS (https://education.auburn.edu/serc/academic-programs/special-education/med-early-childhood-special-ed.php)

Early Childhood/Elementary Special Education — MEd (Alternative Certification, Online Option Available)

Code	Title	Hours
Alternative Class A Education Program Checklist		
Teaching Field: 24 hours		
At least 1/3 of the program shall be in teaching field courses.		
Required: 21 hours		**21**
RSED 7230	Advanced Behavior Management in Special Education (new course developed to address assessment and eligibility)	
RSED 6120	Curriculum in Special Education: Mathematics	
RSED 6180	Literacy and Instructional Classroom Management [4]	
RSED 7460	Positive Behavior Supports [1]	
RSED 6330	Assessment for Eligibility	
RSED 6420	Specialized Curriculum in Mathematics	
RSED 7410	Program Implementation in Specialization Autism (B-5)	
Select 3 hours from the following:		3
RSED 7420	Research in Specialization	
RSED 7430	Research Into Practice	
RSED 7400	Curriculum and Teaching in Specialization (Learning Strategies) [1]	
RSED 7410	Program Implementation in Specialization Autism (Leadership) [1]	
Other advisor-approved courses 6000 level or above in the Teaching Field		
Professional Studies: 21-36 hours		**21-36**
RSED 6130	Curriculum in Literacy for Students with Disabilities	
RSED 6150	Literacy Methods in Special Education [4]	
RSED 6230	Rehabilitation Assistive Technology	
RSED 7910		
RSED 7920	Clinical Residency [2]	
Required if not previously completed		
RSED 6000	Advanced Survey of Exceptionality [3]	
RSED 6100	Infants and Toddlers with Disabilities [3]	
RSED 6110	Curriculum in Early Childhood Special Education (course revised to removed literacy and add transition) [3, 4]	
RSED 6140	Curriculum in Severe Disabilities [3]	

RSED 6160	Framework for Collaboration in K-12 [3]	
Total Hours		**45-60**

1 The state diversity course requirement is fulfilled with RSED 7400 curriculum and Teaching: Learning strategies, RSED 7410 Program Implementation: Leadership, or RSED 7460 Positive Behavior Supports.

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

3 If equivalents of the following courses were completed at an undergraduate level, the credit hours will be waived and the total program hours reduced appropriately: RSED 6000, RSED 6100, RSED 6110, RSED 6140, RSED 6160.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

4 The Alabama Literacy Act requirement is fulfilled with completion of RSED 6130, RSED 6150, RSED 6180. The Alabama Numeracy Act is fulfilled with completion of RSED 6120, RSED 6420.

Early Childhood/Elementary Special Education — MEd/MS (Certification, Online Option Available)

Code	Title	Hours
Class A Program Checklist for Teaching Field		
Teaching Field: 30 hours		
At least 1/3 of the program shall be in teaching field courses.		
Required: 9 hours		
RSED 7910		3
RSED 6230	Rehabilitation Assistive Technology	3
RSED 7410	Program Implementation in Specialization Autism (B-5)	3
Select 21 hours from the following:		21
RSED 7120	Advanced Assessment in Special Education	
RSED 7220	Advanced Teaching Methods in Special Education	
RSED 7230	Advanced Behavior Management in Special Education	
RSED 7400	Curriculum and Teaching in Specialization (Learning Stratgies) [1]	
RSED 7410	Program Implementation in Specialization Autism (Leadership) [1]	
RSED 7420	Research in Specialization	
RSED 7430	Research Into Practice	
RSED 7460	Positive Behavior Supports [1]	
RSED 7990	Research and Thesis (required for MS degree)	
Other advisor-approved courses 6000 level or above in the Teaching Field		
Survey of Special Education/Diversity Course		
See RSED 6000 in Additional Courses AND RSED 7400, RSED 7410, or RSED 7460 in Teaching Field . [1]		
Additional Courses: [2]		
RSED 6000	Advanced Survey of Exceptionality [1,2]	
RSED 6100	Infants and Toddlers with Disabilities [2]	
RSED 6110	Curriculum in Early Childhood Special Education [2]	
RSED 6140	Curriculum in Severe Disabilities [2]	
RSED 6150	Literacy Methods in Special Education [2]	
RSED 6160	Framework for Collaboration in K-12 [2]	
RSED 6120	Curriculum in Special Education: Mathematics [2]	
RSED 6420	Specialized Curriculum in Mathematics [2]	
RSED 6130	Curriculum in Literacy for Students with Disabilities [2]	

RSED 6180	Literacy and Instructional Classroom Management [2]	
Total Hours		**30**

1 RSED 6000 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement must be fulfilled with RSED 7400 Curriculum & Teaching: Learning Strategies, RSED 7410 Program Implementation: Leadership, or RSED 7460 Positive Behavior Supports.

2 The following courses or equivalents are required if not previously completed--particularly for candidates whose prior level certification was NOT in special education: RSED 6000, RSED 6100, RSED 6110, RSED 6140, RSED 6150, RSED 6160, RSED 6120, RSED 6420, RSED 6130, RSED 6180. These credit hours are in addition to the 30 total program hours.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Rehabilitation and Special Education — PhD

Rehabilitation and Special Education — PhD (https://education.auburn.edu/serc/academic-programs/special-education/phd-rehabilitation-special-education.php)

Code	Title	Hours
Rehabilitation and Special Education - PhD		
RSED 8990	Research and Dissertation	10
71 Credits in @ 6000-8999		71
Total Hours		**81**

*This program is currently only admitting and preparing students in special education.

Inclusive Elementary Education Practices — Graduate Certificate

This graduate certificate provides opportunities for elementary teachers in general education or special education to learn about curricula design, specialized teaching techniques, program implementation, current research directions and findings, and translating research into elementary inclusive teaching practices.

The program requires 15 hours of coursework. Everyone in the program will complete six hours of required coursework. Key assessments will be included in these classes which will be used for program evaluation. Students will select nine additional hours of coursework from a given list.

Code	Title	Hours
Required Courses (6 hours)		
CTEE 7010	Approaches to Teaching (Required) Fall	3
RSED 7220	Advanced Teaching Methods in Special Education (Required) Summer	3
Choose 9 hours from options below		
RSED 7460	Positive Behavior Supports (Optional) Fall	3
CTEE 7420	Curriculum and Teaching in Language Arts (Grades K-6) (Optional) Fall	3
CTEE 7440	Curriculum and Teaching in Mathematics (Grades K-6) (Optional) Summer	3
RSED 6160	Framework for Collaboration in K-12 (Optional) Fall	3

Intervention for Students with Autism & Developmental Disabilities — Graduate Certificate

Intervention for Students with Autism & Developmental Disabilities — Graduate Certificate (https://education.auburn.edu/serc/academic-programs/special-education/cert-intervention-autism-disabilities.php)

This graduate certificate allows teachers and educational professionals professional development leading to improved educational outcomes for students with developmental disabilities and autism spectrum disorders. This certificate would be for special education teachers or other appropriate participants in Alabama's public schools and the region to provide instruction for children with developmental disabilities and autism spectrum disorders.

Fully Online and Fully On-Campus Options

Code	Title	Hours
Intervention for Students with Autism & Developmental Disabilities - GCRT		
RSED 7230	Advanced Behavior Management in Special Education	3
RSED 7400	Curriculum and Teaching in Specialization (Or RSED 7980 Non-thesis Project [Special Education EdS program only])	3
RSED 7410	Program Implementation in Specialization Autism	3
or RSED 7980	Non-Thesis Project	
RSED 7420	Research in Specialization	3
RSED 7430	Research Into Practice	3
Total Hours		**15**

Transition Specialist — Graduate Certificate

Transition Specialist — Graduate Certificate

This graduate certificate prepares individuals to develop knowledge and skills in school-based transition planning and interagency collaboration, while integrating up-to-date research on effective practices.

The certificate is designed for special education teachers or those preparing to be special education teachers, or other individuals that are involved in general education, educational administration, rehabilitation counseling, and other related human service fields.

Code	Title	Hours
Transition Specialist - GCRT		
Required: 15 hours		
RSED 7420	Research in Specialization	3
CTCT 7000	Foundations of Career and Technical Education	3
COUN 7230	Career Development and Vocational Appraisal	3
RSED 7230	Advanced Behavior Management in Special Education	3
COUN 7950	Emerging Adulthood and Transition in Rehabilitation	3
Total Hours		**15**

Vocational Evaluation Forensic — Graduate Certificate

Fully Online (p. 1782) and Fully On-Campus (p. 1781) Options

Code	Title	Hours
COUN 7520	Introduction to Rehabilitation and Case Management in Rehabilitation Counseling (May also count as COUN 7526)	3
RSED 7310	Proprietary Rehabilitation (May also count as RSED 7316)	3
COUN 7130	Vocational Evaluation (May also count as COUN 7136)	3

COUN 7950	Emerging Adulthood and Transition in Rehabilitation (May also count as COUN 7956)	3
COUN 7930	Advanced Theories in Counseling Practice (May also count as COUN 7936)	3
COUN 7110	Occupational, Career and Placement Services (May also count as COUN 7116)	3

In many fields the term "forensic" means any legal or court related process (forensic refers to more than clinical pathology). In this case using forensic rehabilitation skills will further develop our students understanding and application of vocational skills.

This is a graduate level certificate, as such students with a bachelors degree or masters degree are eligible to enroll in the FVRC program. Students will take six courses, which are required for certificate completion. There are no electives. Students will take two courses each semester, for three semesters to complete the programs. Cohorts will be admitted each fall semester. Courses can be taken as non-degree by students eligible for Master' level coursework, or have a degree in Rehabilitation Counseling, or those completing a master's degree.

Auburn University's (AU) *Vocational Evaluation Forensic Certificate* program is designed to help State VR entities meet personnel standards as required by the Workforce Innovation and Opportunity Act (WIOA; 2014; 2016), and the 1998 Amendments to the 1973 Rehabilitation Act. This proposal is designed to address the specific personnel needs of State VR system requirements, providing greater emphasis on evidence-based practices within vocational programming. Although some studies suggest that counselors who hold a master's degree in rehabilitation counseling perform significantly better with VR clients who have significant disabilities (Fleming, Del Valle, Kim, & Leahy, 2013), the creation of WIOA has downgraded the educational requirements to serve individuals with disabilities in a vocational capacity (McClanahan & Sligar, 2015; WIOA, 2014). This legislation allows employees with many different bachelor's degrees to provide vocational services to individuals with disabilities, despite a lack of specific training related to the rehabilitation field. This means that employees without education in vocational services or counseling will be working with individuals with disabilities, including those who have severe disabilities. Although there are a few forensic programs that exist, they do not incorporate the needs of State VR services. The AU *Vocational Evaluation Forensic Certificate program* will provide programming that covers the commonalities from both the State VR and Forensic systems. The main goal is to train skilled personnel to fill State vocational rehabilitation vacancies, and/or work in the forensic arena.

Vocational Evaluation Forensic DE — Graduate Certificate

Fully Online (p. 1782) and Fully On-Campus (p. 1781) Options

Code	Title	Hours
COUN 7520	Introduction to Rehabilitation and Case Management in Rehabilitation Counseling	3
RSED 7310	Proprietary Rehabilitation	3
COUN 7130	Vocational Evaluation	3
COUN 7950	Emerging Adulthood and Transition in Rehabilitation	3
COUN 7930	Advanced Theories in Counseling Practice	3
COUN 7110	Occupational, Career and Placement Services	3

In many fields the term "forensic" means any legal or court related process (forensic refers to more than clinical pathology). In this case using forensic rehabilitation skills will further develop our students understanding and application of vocational skills.

This is a graduate level certificate, as such students with a bachelors degree or masters degree are eligible to enroll in the FVRC program. Students will take six courses, which are required for certificate completion. There are no electives. Students will take two courses each semester, for three semesters to complete the programs. Cohorts will be admitted each fall semester. Courses can be taken as non-degree by students eligible for Master' level coursework, or have a degree in Rehabilitation Counseling, or those completing a master's degree.

Auburn University's (AU) Vocational Evaluation Forensic Certificate program is designed to help State VR entities meet personnel standards as required by the Workforce Innovation and Opportunity Act (WIOA; 2014; 2016), and the 1998 Amendments to the 1973 Rehabilitation Act. This proposal is designed to address the specific personnel needs of State VR system requirements, providing greater emphasis on evidence-based practices within vocational programming. Although some studies suggest that counselors who hold a master's degree in rehabilitation counseling perform significantly better with VR clients who have significant disabilities (Fleming, Del Valle, Kim, & Leahy, 2013), the creation of WIOA has downgraded the educational requirements to serve individuals with disabilities in a vocational capacity (McClanahan & Sligar, 2015; WIOA, 2014). This legislation allows employees with many different bachelor's degrees to provide vocational services to individuals with disabilities, despite a lack of specific training related to the rehabilitation field. This means that employees without education in vocational services or counseling will be working with

individuals with disabilities, including those who have severe disabilities. Although there are a few forensic programs that exist, they do not incorporate the needs of State VR services. The AU Vocational Evaluation Forensic Certificate program will provide programming that covers the commonalities from both the State VR and Forensic systems. The main goal is to train skilled personnel to fill State vocational rehabilitation vacancies, and/or work in the forensic arena.

Speech, Language, and Hearing Sciences

Degree Programs

Speech, Language, and Hearing Sciences — MS (p. 1784)

The Department of Speech, Language, and Hearing Sciences offers a master's programs in speech-language pathology accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association (ASHA). A Master of Science in Speech, Language, and Hearing Sciences (MS) has a thesis or non-thesis requirement. The degree does not require expertise in a foreign language. Information about the degree program is available at https://www.cla.auburn.edu/speech-language-hearing-sciences/.

The plan of study for the MS must conform to academic and practicum requirements for ASHA certification and Alabama licensure. Students then are prepared for careers in school systems, clinics, hospital/rehabilitation centers, physicians' offices, and private practice and for pursuing the doctoral degree.

Admission Requirements

A baccalaureate degree from an accredited university is necessary. Those with a degree in speech, language, and hearing sciences, or equivalent, complete the Master of Science in Speech, Language and Hearing Sciences (MS) degree with 52–59 hours semester credit hours dependent on whether a student selects the thesis or non-thesis track. General education courses on the undergraduate transcript should include at least one course in each of the following areas: statistics, biological science, physical science (must be chemistry or physics), and behavioral science. As this background is expected by the program's accreditation agency, any deficiency must be fulfilled before conferral of the master's degree in this program. Students who do not have required undergraduate prerequisite courses will be required to take the coursework prior to entering or as part of their graduate program. If any prerequisite coursework has not been completed, it is with the understanding that it could delay the student's graduation date.

Some application materials are sent directly to the Graduate School and other materials are sent CSDCAS.

Application to Auburn University's Speech, Language and Hearing Sciences Dept. requires that you complete both the electronic application through the Communication Sciences and Disorders Centralized Application Service (CSDCAS) AND the online application to the Auburn University Graduate School. Here are specific steps:

1. Apply online to AU's Graduate School and submit payment.
2. Complete the Casper Assessment through Altus Suite. Casper scores are sent directly to Auburn University so you do not need to upload your scores to CSDCAS.
3. Official transcripts from every college or university attended must be sent to CSDCAS.
4. Three professional letters of recommendation must be submitted to CSDCAS
5. A video: See website for instructions and prompt.
6. A personal statement. See website for instructions.
7. For international students whose native language is not English, the TOEFL must be taken and submitted to both CSDCAS and AU Graduate School. In keeping with the requirements of the Auburn University Graduate School, successful international applicants must score at least 550 on the Test of English as a Foreign Language (TOEFL) paper version (pBT), 213 on the computer version (cBT), and 79 on the internet version (iBT). Additionally, successful applicants must score minimums of 16 on the listening, reading, speaking, and writing components of the iBT.

January 15th is the annual deadline for applications to the graduate program. To be considered for admission, all materials need to be submitted to AU and CSDCAS no later than January 15th.

Graduation Requirements

The Master of Science in Speech, Language, and Hearing Sciences non-thesis track requires a minimum of 53 hours of graduate course work, including five semester hours of SLHS 7920 Internship in Speech-Language Pathology. Students must pass the comprehensive examination process to graduate (See handbook).

The MS in Speech, Language, and Hearing Sciences thesis track requires a minimum of 52 hours of graduate course work, including at least four hours of SLHS 7990 Research and Thesis. Although SLHS 7920 Internship is not required for thesis students, historically all students have enrolled in this course to acquire the required 400 clock hours of supervised practicum in speech language pathology.

Clinical Experience Requirements

In addition to academic course work requirements, the MS degree program requires a minimum of 400 clock hours of supervised clinical experience in the practice of speech-language pathology.

Graduate Assistantship Opportunities

The department has a limited number of graduate assistantships available. These assistantships must be applied for using the Application for Assistantship form downloaded from the departmental website. Assistantships are awarded based on academic performance and research experience.

Speech, Language, and Hearing Sciences — MS

First Year

Fall	Hours	Spring	Hours	Summer	Hours
SLHS 7570 Research Methods in Speech-Language Pathology	3	SLHS 7820 Dysphagia	3	SLHS 7840 Augmentative and Alternative Communication	3
SLHS 7860	3	SLHS 7550 Adult Aphasia	3	SLHS 7530 Stuttering	3
SLHS 7700 Clinical Problem Solving I	2	SLHS 7720 Clinical Problem Solving II	2	SLHS 7590 Language Disorders: School-Age	3
SLHS 7970 Special Topics Seminar	2	SLHS 7500 Clinical Practicum in SLP	1	SLHS 7500 Clinical Practicum in SLP	1
SLHS 7500 Clinical Practicum in SLP	1	SLHS 7510 Advanced Speech Sound Disorders	3		
SLHS 7520 Language Disorders: Birth to Five	3				

Second Year

Fall	Hours	Spring	Hours
SLHS 7810 Motor Speech Disorders	3	SLHS 7920 Internship in Speech-Language Pathology	5
SLHS 7560 Craniofacial Anomalies	3	SLHS 7990 Research and Thesis[2]	4-5
SLHS 7970 Special Topics Seminar	2		
SLHS 7500 Clinical Practicum in SLP	1		
SLHS 7540 Voice & Upper Airway Disorders	3		

* Thesis Track: A minimum of 4 and a maximum of 5 credit hours of SLHS 7990 Research and Thesis count toward the degree. Thesis students waive academic comprehensive examinations (0 credit) and also may waive SLHS 7920 Internship (5 credits) unless additional clock hour experience is needed. This option requires a minimum total of 52 semester credit hours.
Non-Thesis Track: Non-Thesis students waive must complete and pass comprehensive examinations (0 credit) and complete the SLHS 7920 Internship (5 credits). This option requires a minimum total of 53 semester credit hours.

1 Internship is required for non-thesis track students and is recommended for thesis track students.

2 Thesis hours should be completed by second year spring, but may be distributed across previous semesters.

Statistics — MS

Degree Programs

- Statistics (Non-Thesis) — MS (p. 1707)

The Department of Mathematics and Statistics offers a graduate degree program leading to a non-thesis master of science in statistics. The program is designed to provide a suitable mix of theoretical and applied backgrounds for students interested in a career in statistics. The curriculum provides students with the necessary technical, analytical, and interpretive skills required of professional statisticians while concentrating on education in the fundamentals of statistics and its interdisciplinary nature. Course offerings are structured to give students a variety of choices of specialization to pursue a career in academia, government, or industry and/or further their pursuit of a PhD degree in statistics. Students are required to complete a project that may involve statistical consulting, programming and/or complex data analysis. A PhD degree in mathematics with concentration in statistics is also available (see Mathematics (p. 1705)).

For those students whose graduate research includes a substantial amount of statistical methodology or data analysis, but who do not wish to pursue a degree, a graduate minor in statistics is available (see Statistics (p. 1801) under Graduate Minors (p. 1797)).

Statistics and Data Science — PhD

The Doctor of Philosophy program in the field of Statistics and Data Science (CIP code: 30.7001) is designed to prepare students for research and teaching positions in academia, industry, or government. Graduates are expected to have a broad set of fundamental skills in statistics and data science, as well as the ability to collaborate with researchers in applied fields through the formulation and implementation of novel statistical models and methods.

The program provides rigorous training in theory, methodology, and application of statistics and data science, and offers the opportunity to work with faculty on advanced research topics covering a wide range of theory and application areas. The PhD in Statistics and Data Science requires 60 credit hours, which include both required and elective coursework.

In order to demonstrate mastery of the subject matter, students are required to pass two qualifying exams: the first in theoretical statistics and data science and the second in statistical and data science methodology. These exams are typically taken by the end of the second year of study. In addition to coursework and qualifying exams, students are required to successfully defend their dissertation proposal and to present a final oral defense of their dissertation before a committee of faculty members.

In addition to coursework, research, and other program requirements, students in the Ph.D. program in Statistics and Data Science at Auburn University are expected to engage with the broader academic community through a range of activities. These activities include attending seminars, presenting at conferences, and publishing research articles. The requirement for students to engage with the broader academic community through such activities is designed to provide students with a comprehensive education in statistics and data science, as well as to help them build a strong professional network and establish themselves as experts in the field.

Overall, the PhD program in Statistics and Data Science provides students with the skills, knowledge, and experience needed to pursue successful careers in a wide range of fields in academia, industry, and government.

Code	Title	Hours
Statistics and Data Science - PhD		
Core I - Required		**15**
STAT 7600	Statistical Theory and Methods I	
STAT 7610	Statistical Theory and Methods II	
STAT 7020	Regression Analysis	
STAT 7840	Applied Multivariate Statistical Analysis	
STAT 7650	Computational Statistics	
Core II		**18**
Select 12 credits from the following:		
STAT 7860	Applied Time Series Analysis	
STAT 7700	Generalized Linear Models	
STAT 7030	Categorical Data Analysis	
STAT 7850	Theory of Statistical Inference	

STAT 7800	Linear Models	
STAT 7820	Applied Stochastic Processes I	
STAT 7830	Applied Stochastic Processes II	
STAT 7630	Bayesian Statistics	
Select 6 credits from the following:		
MATH 7800	Probability I	
MATH 7810	Probability II	
MATH 7820	Applied Stochastic Processes I	
MATH 7200	Real Analysis I	
MATH 7210	Real Analysis II	
STAT 7930	**Statistical Consulting Practicum**	**3**
STAT 7XXX - Statistics Seminar		**2**
Select advisor approved electives		**12**
STAT 8990	**Research and Dissertation**	**10**
Total Hours		**60**

Structural Analysis in Structural Engineering — Graduate Certificate

The overall objective of the program is to provide interdisciplinary graduate#level education for those seeking advanced professional knowledge and skills in structural analysis, who are not enrolled in a graduate degree program.

This Graduate Certificate Program is built on top of the successful Engineering Online Program within the Samuel Ginn College of Engineering, which was ranked highly in U.S. News and World Reports for Best Online Engineering Programs. It is an on#campus equivalent education program that combines traditional instruction with modern delivery methods to offer graduate studies beyond Auburn’s campus.

The program is structured to advance the working engineer’s knowledge and skills in the rapidly changing field of structural analysis. It deals with advanced graduate courses related to the structural analysis of a wide variety of structural systems and under both static and dynamic loading. Typical problems include:

- Analysis of complex structural systems for both static and dynamic loading
- Analysis and modeling of structural systems to account for dynamic loading due to wind, seismic and blast loads
- Structural engineering analysis for the repair of existing structures which represents a significant step in the direction of sustainability
- Advanced analysis topics in stability and complex stress analysis

At a Glance

- The program requires students to take four related graduate courses (12 credit hours).
- Students attending courses online have the same professors as their on#campus peers.
- Students can access lectures online through a live feed or at their convenience via streaming video.
- The online schedule allows for flexibility to maintain a career while completing the program.

Faculty

Structural Analysis courses in Structural Engineering are taught by Auburn’s outstanding civil engineering faculty.

Structural Design in Structural Engineering — Graduate Certificate

The overall objective of the program is to provide interdisciplinary graduate#level education for those seeking advanced professional knowledge and skills in Structural Design in Structural Engineering, who are not enrolled in a graduate degree program.

This Graduate Certificate Program is built on top of the successful Engineering Online Program within the Samuel Ginn College of Engineering, which was ranked highly in U.S. News and World Reports for Best Online Engineering Programs. It is an on#campus

equivalent education program that combines traditional instruction with modern delivery methods to offer graduate studies beyond Auburn's campus.

The program is structured to advance the working engineer's knowledge and skills in the rapidly changing field of the structural design. It deals with advanced graduate courses related to structural design for a wide variety of structural systems and under both static and dynamic loading. Typical problems include:

- Design of buildings and other structures using multiple types of construction materials (steel, reinforced concrete, prestressed concrete, masonry, and timber)
- Advanced design of structures under both statically and dynamically applied loads (gravity, wind, seismic, and blast)
- Design of both building and bridge structures for the expected service and extreme event demands

At a Glance

- The program requires students to take four related graduate courses (12 credit hours).
- Students attending courses online have the same professors as their on#campus peers.
- Students can access lectures online through a live feed or at their convenience via streaming video.
- The online schedule allows for flexibility to maintain a career while completing the program.

Faculty

Structural Design courses are taught by Auburn's outstanding Structural Engineering faculty.

Supply Chain Management — Graduate Certificate, MS, PhD

Supply Chain Management — Graduate Certificate, MS, PhD (https://harbert.auburn.edu/about/academic-departments/supply-chain-management.html)

Degree Programs:

- Supply Chain Management — MS (p. 1788)
- Business (Supply Chain Management Concentration) — PhD (p. 1787)

Graduate Certificates:

- Supply Chain Management Innovation (p. 1789)
- Supply Chain Operations (p. 1789)
- Supply Chain Planning (p. 1790)

Business (Supply Chain Management Concentration) — PhD

Program Structure: Ph.D. students are required to complete a minimum of 60 hours of coursework, including 18 Research and Dissertation hours. *This structure is highly consistent with the existing Ph.D. concentrations.* The general structure is presented below.

Year 1 - Semester 1

Code	Title	Hours
ISMN 8010	IS Management Research Sem. I	3
MNGT 8030	Research Methods in Management I	3
SCMN 8900	Directed Studies	3

Year 1 - Semester 2

Code	Title	Hours
MNGT 8400	Advanced Quantitative Methods for Management I	4
SCMN 7900	Directed Studies	3
MNGT 7970	Special Topics in Management	3

Year 1 - Summer - Research Project (data collection and analysis) - 3 hours. Outcome Paper 1 - Extended abstract conference submission or Category 1 journal

Code	Title	Hours
Summer Research Project		3

Year 2 - Semester 3

Code	Title	Hours
ERMA 7200	Basic Methods in Education Research	3
SCMN 8900	Directed Studies	3
Research Methods - select 1 class		3
HDFS 8090	Qualitative Methods in the Social Sciences	
PSYC 7270	Experimental Design in Psychology	
HDFS 8060	Multilevel Modeling	
ERMA 7400	Mixed Methods Research	

Year 2 - Semester 4

Code	Title	Hours
MNGT 8310	Seminar in Advanced Organizational Behavior	3
SCMN 7900	Directed Studies	3
Research Methods - select 1 class		3
HDFS 8090	Qualitative Methods in the Social Sciences	
PSYC 7270	Experimental Design in Psychology	
HDFS 8060	Multilevel Modeling	
ERMA 7400	Mixed Methods Research	

Year 2 - Summer - Research Project (data collection and analysis) - 3 hours. Outcome Paper 2 - Elite journal; prepare for comprehensive exam.

Code	Title	Hours
Summer Research Project		3

Year 3 - Semester 5 and 6: Research and Dissertation Hours

Code	Title	Hours
SCMN 8990	Research and Dissertation	9

Year 4 - Semester 7 and 8: Research and Dissertation Hours

Code	Title	Hours
SCMN 8990	Research and Dissertation	9
Total Minimum Hours - 60 hours		

Supply Chain Management — MS

The Master of Science in Supply Chain Management (MSCM) degree is designed to provide advanced and specialized education for a rapidly growing field and related industries. The underlying curriculum model aims to develop the necessary skills for professionals to perform at the middle and top management level in supply chain management. The degree program is designed for students that are interested in combining work life with the need for educational advancement.

The MSCM degree offers an interesting blend of theoretical knowledge and practical skills through courses created to keep students abreast of current management thinking and practice. Emphasis is placed on the concepts of strategic planning, informed decision-making and supply management trade-offs. Collectively, these graduate courses provide students a rigorous training in essential theories, business concepts, quantitative tools and analytical skills that can be used to source, design, plan and manage modern supply chains.

The Master of Science in Supply Chain Management is a non-thesis degree program that will be offered online and on-campus. The degree program requires a minimum of 30 credit-hours based on the following coursework:

Code	Title	Hours
SCMN 7600	Supply Mngt and Manufacturing	3
SCMN 7700	Demand Mngt & Fulfillment	3
SCMN 7800	Supply Chain Strategy	3
SCMN 6500	Inventory and Warehouse Management	3
SCMN 6600	Supply Chain Planning	3
BUSI 7150	Operational Excellence Through Supply Chain and Quality Management	3
At least four elective courses from the following list:		
BUSI 7120	Quantitative Analysis for Business Decisions	3
BUSI 7130	Strategic Analysis and the Competitive Environment	3
ISMN 6370	Project Management	3
SCMN 6390	Integrating Business Processes with ERP	3
SCMN 6960	Special Problems	3
SCMN 6720	Quality & Process Improvement	3
BUAL 6610	Predictive Modeling for Business Decisions	3
BUAL 6650	Business Data Management and Acquisition	3
BUAL 6660	Descriptive Analytics for Business Decisions	3
BUSI 7140	Organizational Leadership, Ethics and Change	3
BUSI 7250	International Business Operations	3
ISMN 7880	Adv Mngt of Info Sys	3

Additional electives can be added to the degree plan with departmental approval.

Students pursuing the MSCM degree will have a plan of study supervised by the Department of Supply Chain Management. This degree does not have a residency requirement, so students can complete the degree through either on-campus instruction or fully online through distance education.

Supply Chain Management Innovation — Graduate Certificate

This graduate certificate prepares individual's skills and knowledge in the supply chain field to include supply chain tactics, tools, and techniques. This certificate is designed to assist students to understand the essential role of supply chain management in achieving manufacturing and service operations excellence; develop expertise in supply chain planning, sourcing, transformation, fulfillment, and technology; evaluate a company's supply chain strategy, effectiveness; and, make constructive adjustments to support the organizational mission and vision.

Code	Title	Hours
BUSI 7150	Operational Excellence Through Supply Chain and Quality Management	3
and		
SCMN 7600	Supply Mngt and Manufacturing	3
and		
SCMN 7700	Demand Mngt & Fulfillment	3
and		
SCMN 7800	Supply Chain Strategy	3

Supply Chain Operations — Graduate Certificate

The Graduate Certificate in Supply Chain Operations is designed to provide advance and specialized education for executives and professionals working in or planning to transition to the supply chain field. The curriculum places emphasis on the concepts of operational planning, inventory control and process management through technology. Collectively, this graduate certificate provides students a rigorous training in managing supply chain operations and information technology.

Code	Title	Hours
BUSI 7150	Operational Excellence Through Supply Chain and Quality Management	3
SCMN 6720	Quality & Process Improvement	3
SCMN 6500	Inventory and Warehouse Management	3
SCMN 6390	Integrating Business Processes with ERP	3

Supply Chain Planning — Graduate Certificate

The Graduate Certificate in Supply Chain Planning is designed to provide advance and specialized education for executives and professionals working in or planning to transition to the supply chain field. The curriculum places emphasis on concepts of strategic planning, informed decision-making and supply management trade-offs. Collectively, this graduate certificate provides students a rigorous training in managerial quantitative tools and analytical skills that can be used to source, design, plan and manage modern supply chains.

Code	Title	Hours
BUSI 7150	Operational Excellence Through Supply Chain and Quality Management	3
BUSI 7120	Quantitative Analysis for Business Decisions	3
SCMN 6600	Supply Chain Planning	3
ISMN 6370	Project Management	3

Business Analytics and Information Systems — Graduate Certificate, MS, PhD

Degree Programs:

- Information Systems Management — MS (On-Campus/Online) (p. 1791)
- Information Systems Management — PhD (p. 1791)

Graduate Certificates:

- Business Analytics (p. 1791)
- Management Information Systems (p. 1702)

The Business Analytics and Information Systems department offers graduate study leading to the master of science and the doctor of philosophy degrees in Information Systems Management. The program also offers a joint program leading to both the MSIS and MBA degrees. Applicants must hold a bachelor’s degree from a recognized institution. Graduates of business schools will likely have met this requirement; graduates of other programs may be required to complete additional courses to compensate for deficiencies.

Master of Science in Information Systems

The (MSIS) Program in Business is a non-thesis program that emphasizes practical application of management information systems to managerial problem solving and decision making. Students are required to complete a final project. The program is designed to provide students the opportunity to develop an expertise in a chosen area of management. Applicants to the master's program must have completed an undergraduate degree. The MSIS program is offered as a traditional, on-campus program and as an online program. A twelve-hour graduate certificate is also available.

The MBA/MSIS is a 54-hour program administered jointly by the Business Analytics and Information Systems faculty and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work experience are required to do an additional 0-3-credit hour internship. Students must apply separately to each program (MSIS and MBA), but only have to pay one application fee. Students can also opt to apply for the second degree program during their first year in the other program.

The PhD program in Business with Information Systems Management concentration prepares graduates to conduct high-quality research in universities, colleges, government and business. Individual flexibility is provided in a program of study that develops the conceptual and methodological skills that graduates need to establish a leadership position in their chosen fields. Objectives of the program are accomplished through the completion of a formal program of study, successful completion of a statistics core, preparation and completion of two examination manuscripts, and dissertation research. Students with assistantships may also be required to teach.

Students are expected to have a fulltime presence on campus. Applications to the PhD program must complete an Auburn University Graduate School application. For full consideration, applications must be received no later than February 1, prior to the Fall term.

Information concerning specific program requirements may be obtained by visiting https://harbert.auburn.edu/degrees-programs/graduate/ms-information-systems/index.html (https://harbert.auburn.edu/degrees-programs/graduate/ms-information-systems/).

Information Systems Management — MS

Code	Title	Hours
MS Information Systems Management Non-Thesis (on-campus/online)		
ISMN 7830	Database Development and Design	3
ISMN 7660	Information Systems Analysis and Design	3
ISMN 7980	MSIS Project	3
Select 21 Credits from any approved ISMN 6000-7999 or BUAL 6000-7999		21
Total Hours		**30**

Business - Information Systems Management — PhD

Code	Title	Hours
PhD Business - Information Systems Management		
ISMN 8990	Research and Dissertation	10
50 Credits in @ 6000-8999		50
Total Hours		**60**

The PhD in Business requires 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990, and must include at least 10 hours of 8990. Up to 30 hours (if less than half of the total number of hours) of applicable master's level course work may be used to satisfy part of these requirements with advisor approval.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of 8990. Enrollment in 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.

Business Analytics — Graduate Certificate

This graduate certificate will help develop working skills in building data models used in business decision making and business applications, basic data analytics techniques for the business setting;

Managing, governing, extracting, merging, and preparing large data sets for analysis; and data management, emphasizing loading and cleansing data for analysis.

Students must take the two required courses listed below. The remaining 6 hours may come from any BUAL course at the 6000 level or higher, ISMN 6290, or ISMN 6650. Current Auburn University graduate students may substitute one of their program courses for 3 of the 6 hours of electives with approval from the certificate-granting department advisor.

Code	Title	Hours
BUAL 6610	Predictive Modeling for Business Decisions	3
BUAL 6650	Business Data Management and Acquisition	3

Management Information Systems — Graduate Certificate

This graduate certificate is designed to develop an individual's skills in database development and administration, security and information assurance, systems analysis and design, and business analysis. This certificate is targeted for current students and working professionals to specialize in management information systems knowledge and skills.

This certificate program has one required course. Students may select either ISMN 7660 (Information Systems Analysis and Design) or ISMN 7830 (Database Design and Development) to satisfy this requirement. The remaining 9 hours may be chosen from any ISMN courses at the 6000 level or above. Current Auburn University graduate students may substitute one of their program courses for 3 of the 9 hours of electives with approval from the certificate granting department advisor.

Mechanical Engineering Tribology — Graduate Certificate

This graduate certificate prepares individuals to advance their level of understanding in the area of tribology engineering. Tribology engineering is the science and engineering of interacting surfaces in relative motion and includes the study and application of friction, lubrication, and wear principles.

All of the following courses must be completed:

Code	Title	Hours
MECH 6230	Friction, Wear and Lubrication	3
MECH 6240	Boundary and Full-Film Lubrication	3
MECH 6250	Multiscale Contact Mechanics	3

Doctor of Veterinary Medicine — DVM

P1

Fall	Hours	Spring	Hours
VMED 9000 Orientation to Veterinary Medicine	0	VMED 9121 Veterinary Anatomy II	3
VMED 9200 Veterinary Parasitology I	3	VMED 9141 Organology of Domestic Animals	2
VMED 9111 Veterinary Anatomy I (Small Animal)	4	VMED 9150 Diagnostic Imaging	2
VMED 9780 Clinical Concepts & Professional Development	1	VMED 9151 Veterinary Neurosciences	4
VMED 9130 Genetic and Cellular Basis of Animal Disease	1	VMED 9210 Veterinary Parasitology II	2
VMED 9110 Physiology I	5	VMED 9301 Physical Diagnoses of Large and Small Animals	2
VMED 9131 Basic Microanatomy/Domestics Animals	3	Electives	0-3
VMED 9180 Veterinary Ethology	2	VMED 9120 Physiology II	4
VMED 9050 Professional Development and Business Fundamentals	1	VMED 9190 Introduction to Veterinary Pharmacology	1
VMED 9010 Veterinary Jurisprudence	1	VMED 9780 Clinical Concepts & Professional Development	1

P2

Fall	Hours	Spring	Hours
VMED 9260 Veterinary Pharmacology	3	VMED 9510 Hemolymphatic System	1
VMED 9250 Virology & Prions	2	VMED 9160 Veterinary Public Health	3
VMED 9280 Bacteriology & Mycology	3	VMED 9490 Spectrum of Care Series: Emerging Technology	1
VMED 9230 Veterinary Clinical Pathology	4	Electives	0-3
VMED 9220 Principles of Veterinary Pathology	3	VMED 9530 Respiratory System	3
Electives	0-3	VMED 9540 Small Animal Alimentary System	2
VMED 9380 Physical Diagnosis II	1	VMED 9640 Large Animal Alimentary System	2
VMED 9240 Principles of Veterinary Immunology	3	VMED 9700 Introduction to Anesthesia	3
VMED 9520 Cardiovascular System	2	VMED 9310 Introduction to Surgery	2
VMED 9480 Spectrum of Care Series: Information Literacy	1	VMED 9580 Nervous System	2

P3

Fall	Hours	Spring	Hours
VMED 9410 Applied Clinical Imaging	2	VMED 9360 Production and Preventative Medicine	3
VMED 9311 Surgical Practicum	0	VMED 9370 Oncology	1
VMED 9550 Urinary System	2	VMED 9320 Large Animal Nutrition ***or*** 9420 Small Animal Nutrition	2
VMED 9560 Endocrine System	2	VMED 9311 Surgical Practicum	1
VMED 9570 Theriogenology	4	VMED 9330 Exotic Companion Animal Medicine	2
VMED 9590 Musculoskeletal System	3	VMED 9340 Emergency Medicine and Critical Care	2
VMED 9500 Spectrum of Care Series: Public Speaking and Social Media in Medical Practice	1	VMED 9621 Clinical Rotations in Veterinary Medicine	2
Electives	0-3	VMED 9621 Clinical Rotations in Veterinary Medicine	2
VMED 9350 Veterinary Toxicology	2	VMED 9621 Clinical Rotations in Veterinary Medicine	2
VMED 9810 Integumentary System	2	VMED 9670 Ophthalmology	1
		VMED 9170 Professional Communication Skills	1

SUMMER

Summer	Hours
VMED 9621 Clinical Rotations in Veterinary Medicine (total of 12 hours of VMED 9621)	2

P4

Fall	Hours	Spring	Hours
VMED 9621 Clinical Rotations in Veterinary Medicine (total 18 hours of VMED 9621)	2	VMED 9621 Clinical Rotations in Veterinary Medicine (total of 14 hours of VMED 9621)	2
		VMED 9801 Preceptorship	3
		VMED 9950 Spectrum of Care Series: Capstone Presentation	1
		UNIV 4AA0 Achieve the Creed	0
		VMED 9900 DVM Graduation Course	0

TOTAL HOURS - 171

Students are required to have 3 hours of elective credit in the pre-clinical curriculum (semesters 2-5), but may have more. In spring of year 3 (semester 6), students are required to take EITHER VMED 9320 or VMED 9420, but may take both, if their schedule allows.

Most clinical rotations are two weeks long with rare 3-week exceptions. Each student must complete 13 core clinical rotations and 9 elective rotations, which are selected from a pre-approved list.

Veterinary Social Work Certificate

The Auburn University Veterinary Social Work (VSW) Certificate is a **Social Work Graduate level Certificate** completed by Master of Social Work (MSW) students at Auburn University.

The Certificate, which is imbedded within the MSW program at Auburn, is designed to increase the number of graduate level social workers educated in how human-animal interactions impact the human experience.

MSW Students develop knowledge and skills as they think critically about the core content areas of Veterinary Social Work which include:

- The Human Animal Relationship
- Compassion Fatigue and conflict management
- Animal related grief and bereavement
- The link between human-animal violence
- Animal Assisted Interventions

Certificate Completion Process

1. Application. Admitted MSW students may submit an application in the form of a letter of intent to the MSW Program Director. This application should be completed in 750 words or less.

2. Complete Course Credits as specified in this table.

Code	Title	Hours
SOWO 7600	Veterinary Social Work Practice	3
SOWO 7040	Social Work Practice in the Health Care Field	3
SOWO 7950	Integrative Seminar	3
Total Hours		**9**

3. In addition to completing the courses above, the student will:

- Include a Veterinary Social Work Concept in the Advanced Field Placement Learning Plan.
- Participate in the Veterinary Social Work oath ceremony.

Water Environmental Modeling — Graduate Certificate

The overall objective of the program is to provide interdisciplinary graduate#level education for those seeking advanced professional knowledge and skills in water environmental modeling, who are not enrolled in a graduate degree program.

This Graduate Certificate Program is built on top of the successful Engineering Online Program at Samuel Ginn College of Engineering, which was ranked highly in U.S. News and World Reports for Best Online Engineering Programs. It is an on#campus equivalent education program that combines traditional instruction with modern delivery methods to offer graduate studies beyond Auburn's campus.

The program is structured to advance the working engineer's knowledge and skills in the rapidly changing field of water environmental modeling. It deals with the flow, water quality, and ecological modeling studies and consists of a vast field that focuses on water quality, its applications in human activities and its interactions with the water environment such as rivers, lakes, reservoirs, estuaries, groundwater, and watersheds. Typical problems include:

- The transport and diffusion of pollutants in the runoff and aquatic systems.
- The modeling of sediment, heat, and contaminant transport/chemical/biological processes in rivers, lakes, reservoirs, and estuaries, and in the groundwater system.
- The interaction between the hydrologic cycle and nutrient and energy cycles in terrestrial ecosystems.

At a Glance

- The program requires students to take four related graduate courses (12 credit hours).
- Students attending courses online have the same professors as their on#campus peers.
- Students can access lectures online through a live feed or at their convenience via streaming video.
- The online schedule allows for flexibility to maintain a career while completing the program.

Faculty

Water environmental modeling courses are taught by Auburn's outstanding civil and environmental engineering faculty.

Water Resources Engineering — Graduate Certificate

The overall objective of the program is to provide interdisciplinary graduate#level education for those seeking advanced professional knowledge and skills in water resources engineering, who are not enrolled in a graduate degree program.

This Graduate Certificate Program is built on top of the successful Engineering Online Program at Samuel Ginn College of Engineering, which was ranked highly in U.S. News and World Reports for Best Online Engineering Programs. It is an on#campus equivalent education program that combines traditional instruction with modern delivery methods to offer graduate studies beyond Auburn's campus.

The program is structured to advance the working engineer's knowledge and skills in the rapidly changing field of Water Resources Engineering, which deals with hydraulic and hydrologic studies and consists of a vast field that focuses on water resources, its applications in human activities and its interactions with the environment. Rooted in fluid mechanics, water resources (hydraulics and hydrology) engineers focus on problems that include:

- Conveyance of water in the urban environment, with applications on water supply and wastewater and stormwater collection and management.
- The motion of water in the overland flows, rivers, aquifers, coastal environments, etc.
- Sediment, heat, and contaminant transport processes in rivers, lakes, reservoirs, and estuaries, and in the groundwater system.
- Hydraulic structures such as reservoirs, dams, canals, etc.
- The interaction between the hydrologic cycle and nutrient and energy cycles in terrestrial ecosystems.

At a Glance

- The program requires students to take four related graduate courses (12 credit hours).
- Students attending courses online have the same professors as their on#campus peers.

- Students can access lectures online through a live feed or at their convenience via streaming video.
- The online schedule allows for flexibility to maintain a career while completing the program.

Faculty

Water resources engineering courses are taught by Auburn's outstanding civil and environmental engineering faculty.

Wildlife Sciences — MS, PhD

Degree Programs:

- Wildlife Sciences — MS (p. 1796)
- Wildlife Sciences — PhD (p. 1796)

Wildlife Sciences graduate programs are available for both MS and PhD degrees. Admission requirements parallel those for Forestry graduate programs. In addition to meeting Graduate School admission requirements, applicants are evaluated and recommended for admission by the graduate faculty of the College of Forestry, Wildlife and Environment based on examination of scores on the TOEFL tests for international students, previous academic records, experience, and recommendations. While exceptions may be made, the faculty generally expect a minimum GPA of 3.0 in previous academic course work.

Degrees offered:

Master of Science (**MS**) which requires a minimum of 30 hours beyond the bachelor's degree at the graduate level, 21 hours of which must be in the major. A minimum of 4 but not more than 6 hours in Research and Thesis (WILD 7990) is required. All MS students are required to take Research Methods (FORY 7510) and Graduate Seminar (FOWS 7950). A research proposal and thesis based on original research are required components for the MS degree.

Doctor of Philosophy (PhD) degree requires 60 semester hours beyond the bachelor's degree. There must be a minimum of 30 semester hours in graded coursework at the 7000-level or above. Of the remaining 30 semester hours, 10 hours must be Research and Dissertation (WILD 8990) and 20 hours of 6000-level or above. While some of these 60 hours can be from previous graduate work, such as a MS degree, the majority of hours of graded coursework at the 6000-level or above must be completed at Auburn. All PhD students are required to take Research Methods (FORY 7510) and Graduate Seminar (FOWS 7950). A research proposal and dissertation based on original research are required as major components of the PhD degree program. Oral and written preliminary exams are required for advancement to candidacy and must be completed no less than two academic terms prior to graduation. The written and oral preliminary examinations for PhD students will normally consist of questions from each committee member regarding technical competency and other related issues.

Wildlife Sciences — MS

Code	Title	Hours
Wildlife Sciences (MS)		
FORY 7510	Research Methods	2
FOWS 7950	Graduate Seminar	1
WILD 7990	Research and Thesis	4
Select 23 Credits in @ 6000-8999 (Electives)		23
Total Hours		**30**

Wildlife Sciences — PhD

Code	Title	Hours
Wildlife Sciences (PhD)		
FORY 7510	Research Methods	2
FOWS 7950	Graduate Seminar	1
WILD 8990	Research and Dissertation	10
Select 47 Credits in @ 6000-8999		47
Total Hours		**60**

Wireless Engineering — Graduate Certificate

Complete a total of four courses (12 hours), with two (2) courses from the electromagnetics group and two (2) courses from the communications group.

Code	Title	Hours
Electromagnetics (select any 2 courses)		**6**
ELEC 6130	RF Devices and Circuits	
ELEC 6310	Design of Antennas and Antenna Systems	
ELEC 6340	Microwave and RF Engineering	
ELEC 6350	Radar Principles	
Communications (select any 2 courses)		**6**
ELEC 6120	Telecommunication Networks	
ELEC 6220	Information Networks and Technology	
ELEC 7440	Wireless Communication Theory	
Total Hours		**12**

Post-Masters Healthcare Simulation — Graduate Certificate

The purpose of the post-master's simulation graduate certificate program is to provide the essential components of simulation as a teaching strategy for healthcare educators. The program enables learners to use evidence-based principles and best practices to facilitate learning in the simulation environment. This graduate certificate academically prepares individuals who are interested in healthcare simulation development, practice, design, implementation and evaluation.

Fall Semester:

Foundational Concepts in Healthcare Simulation (3 credit hours)

(No clinical component)

Spring Semester:

Evidence-based Application of Technology and IPE in Healthcare Simulation (3 credit hours)

(2 didactic, 1 clinical = 3 credit hours)* 60 Clinical Hours

Summer Semester:

Healthcare Simulation Capstone Course (4 credit hours)

(2 didactic, 2 clinical = 4 credit hours)* 120 Clinical Hours

Code	Title	Hours
NURS 7000	Foundational Concepts in Healthcare Simulation	3
NURS 7010	Evidence-Based Application of Technology and IPE in Healthcare Simulation	3
NURS 7020	Healthcare Simulation Capstone	4
Total Hours		**10**

Graduate Minors

- Advanced Manufacturing
- Agricultural Economics (GMAE)
- Community Planning (p. 1798)
- Critical Studies in Education (p. 1650)
- Ecology (p. 1798)
- Economic Development (p. 1799)
- Entomology (p. 1799)

- Environmental Studies (p. 1799)
- Golf Course Design (p. 1799)
- Plant Pathology (p. 1800)
- Psychology of Learning (p. 1800)
- Rural Sociology (p. 1800)
- Sport Management (p. 1800)
- Statistics (p. 1801)
- Women's and Gender Studies (p. 1801)

Advanced Manufacturing Minor

Alabama Industry, the Department of Commerce and the Department of Defense have identified a lack of manufacturing process knowledge as a critical element in the development of the next generation of manufacturing engineers and workers.

This minor, like manufacturing in general, is open to all majors within the College of Engineering and the Auburn University community.

Students will take the following five required courses (17 hours).

Code	Title	Hours
INSY 6700	Digital Drawings, Geometric Tolerances, and Metrology for Industry 4.0	4
INSY 6710	Basic Concepts of 21st Century Manufacturing Processes	3
INSY 6720	Advanced Concepts of 21st Century Manufacturing Processes	3
INSY 6730	Concepts of Computer Numerical Controls	4
INSY 6740	Concepts of Industry 4.0	3
Total Hours		**17**

Three of the five classes include engineering laboratories using the new equipment within the Interdisciplinary Center for Advanced Manufacturing Systems (ICAMS). ICAMS is largely funded by the Department of Defense as part of their workforce development program

Agricultural Economics Minor

A Graduate Minor in Agricultural Economics (GMAE) is offered for nonmajors wishing to obtain training in the application of economic principles to problems affecting rural communities and households. The GMAE requires 12 credit hours of graduate-level coursework in agricultural economics (6 hours must be at the 7000 level or above). The student’s graduate committee must include a faculty member from the agricultural economics department, and the student must demonstrate competence in the application of economic principles to problems in research. The latter requirement is typically met via a chapter or section in the student’s thesis or dissertation.

Community Planning Minor

The Community Planning minor is open to graduate students in any discipline. This minor affords students with interests in planning, development and urban design the opportunity to explore the discipline. Students must complete 9 credit hours of Community Planning coursework and notify the director of the community planning program that they are completing the Planning minor. The Community Planning minor is housed in the Department of Political Science.

Ecology Minor

Ecology is an academic minor administered by the Graduate School in cooperation with faculty and departments that participate in the Auburn University Ecology Group. The Ecology minor is open to graduate students whose thesis or dissertation research will benefit from a broader and enriched perspective in the fundamentals and applications of the ecological sciences. For more information, students should contact any of the following coordinators.

Coordinator	Contact Info
Agricultural Economics and Rural Sociology, Bo Nelson	
Animal Sciences, Russ Muntifering	Upchurch 108
Biological Sciences, Matt Wolak	Rouse 101
Entomology and Plant Pathology, Kira Bowen	Rouse 209

Fisheries, Aquaculture, and Aquatic Sciences, Alan Wilson	Swingle 203; wilson@auburn.edu
Forestry and Wildlife Sciences, Ed Loewenstein	F&WS 4431
Horticulture, Kathry Piefelice	
Veterinary Medicine, Amy Wright	

Economic Development Minor

The economic development graduate minor provides a specialization in the theories and practice of economic development, primarily within the U.S and Alabama. It is an interdisciplinary minor offered by the faculty of participating departments (Agricultural Economics and Rural Sociology, Community Planning, Economics, and Political Science) and is administered by the Master of Public Administration program.

Students may attach the economic development graduate minor to their degrees in agricultural economics (MS and PhD), business administration (MBA), community planning (MCP), economics (MS), public administration (MPA), public administration and public policy (PhD), and rural sociology (MS). To earn the graduate minor, students must complete the program's basic course, Economic Development and Competition (POLI 7700), two elective courses selected from an approved list, and a one week non-credit economic development training course sponsored by the Economic and Community Development Institute. Contact the Master of Public Administration program for more information.

Entomology Minor

A Graduate Minor in Entomology (ENTM) is offered for non-majors wishing to obtain training in entomology for promoting public health, ensuring safer food, and creating healthier communities. The ENTM graduate minor requires 9 credit hours of graduate-level coursework in entomology (9 hours must be at the 6000 level or above). The student's graduate committee must include a faculty member from the entomology department, and the student must demonstrate competence in the application of entomology principles and research problems. The latter requirement is typically met via a chapter or section in the student's thesis or dissertation.

Environmental Studies Minor

This is an interdisciplinary academic minor administered by the Graduate School in cooperation with participating departments. It is open to any graduate student whose thesis or dissertation is in the environmental area. Participating departments include Aerospace Engineering, Agricultural Economics, Biosystems Engineering, Crop, Soil and Environmental Sciences, Animal Sciences, Architecture, Biological Sciences, Chemical Engineering, Civil Engineering, Entomology, Fisheries and Allied Aquacultures, Forestry, Geography, Geology, Horticulture, Landscape Architecture, Pathobiology, Physiology and Pharmacology, Plant Pathology, Psychology and Sociology.

Basic guidelines are:

1. The minor is open to any graduate student whose thesis or dissertation is environmentally oriented.
2. The student's department retains primary control over the student's program.
3. One committee member must be from outside the student's department and this member must be involved in environmental research.
4. Each student must take BIOL 3060 or the equivalent, and CSES 5000 (Soils & Environmental Quality) or an equivalent.
5. Each student must take at least three hours of environmental-related course work from outside the student's "broad group discipline."
6. Each student must take at least three hours of environmental-related course work from outside of the student's home department but within the student's "broad group discipline."
7. Each student must meet the degree requirements of the student's home department.
8. At the discretion of the student's advisory committee, graduate-level courses required for this program also may be counted towards the completion of other degree requirements.

For more information, contact Dr. John Beasley, Department of Crop, Soil and Environmental Sciences, 202 Funchess Hall.

Golf Course Design Minor

The graduate minor in Golf Course Design is open to graduate students in Landscape Architecture, Agronomy and Soils, and Landscape Horticulture, or others with permission. This minor provides students with additional coursework and field experience in

landscape form and function for golf course construction. Specifically, the minor requires 19 credit hours in Landscape Architecture and Agronomy, including courses in Soil Resources and Conservation, Advanced Turfgrass Management, Landscape Construction, and Landscape Ecology. The minor is administered through the Department of Agronomy and Soils. For specific information students should contact Dr. Beth Guertal in Agronomy and Soils, eguertal@acesag.auburn.edu.

Plant Pathology Minor

A Graduate Minor in Plant Pathology (PLPA) is offered for non-majors wishing to obtain training in a broad range of both basic and applied plant pathology course material promoting more plentiful food and fiber while protecting our natural ecosystems.The PLPA graduate minor requires 9 credit hours of graduate-level coursework in plant pathology (9 hours must be at the 6000 level or above). The student's graduate committee must include a faculty member from the plant pathology department, and the student must demonstrate competence in the application of plant pathology principles and research problems. The latter requirement is typically met via a chapter or section in the student's thesis or dissertation.

Psychology of Learning Minor

Code	Title	Hours
Take 12 credit hours from the following courses:		
EPSY 7100	Learning & Wellness in Later Life	
EPSY 7400	Ed Psych & Educational Implica	
EPSY 7410	The Individual in the Teaching-Learning Process	
EPSY 7420	Learning Theory and Educational Practice	
EPSY 7430	Motivation and Achievement	
EPSY 8410	Learning in the Social Context	
EPSY 8440	Ed Psych Apprent Seminar	

Rural Sociology

Rural Sociology (RSOC) is an academic minor open to graduate students whose degree program will benefit from a broader and enriched understanding of the livelihoods, social organization, and social processes that characterize rural communities in the U.S. and internationally. The minor consists of 15 credits of RSOC graduate courses. For more information students should contact the graduate coordinator for Rural Sociology in the Department of Agricultural Economics and Rural Sociology in the College of Agriculture.

Sport Management

The purpose of the sport management minor is to provide master's degree students with the specialized knowledge of the sport industry and to prepare those students to work in sport organizations as administrators and managers. The minor is administered by the Graduate School. Participating units include the School of Kinesiology and the Department of Educational Foundations, Leadership and Technology. Students selecting the minor must satisfy the degree requirements for a master's degree program in one of these units. For additional information, please contact the school director or department head of the participating units.

The Sport Management graduate minor requires completion of 15 hours of courses as follows:

Code	Title	Hours
KINE 6820	Sport Management	3
KINE 7750	Advanced Sport Psychology	3
or KINE 7970	Special Topics	
HIED 7400	Sport Marketing and Public Relations	3
HIED 7410	Sport Ethics	3
HIED 7910	Practicum	3
Total Hours		**15**

Degree seeking students who intend to add the graduate minor to their current degree program must notify the coordinator before completion of their degree program.

Statistics Minor

Auburn University offers a graduate academic minor in Statistics administered by the Graduate School in cooperation with the Department of Mathematics and Statistics. The objective of the minor is to provide education and training for students whose graduate research includes a substantial amount of statistical methodology and/or data analysis. Students are required to complete 12 hours of graduate level statistics (STAT) graded course work. Courses that count towards the graduate minor in Statistics are only those designated with the STAT prefix.

For verification of graduate minor completion and other inquiries, please contact the Statistics Program Coordinator in the Department of Mathematics and Statistics.

Women's and Gender Studies Minor

The Women’s and Gender Studies Program offers an interdisciplinary graduate minor in Women’s and Gender Studies, open to any graduate student. The minor provides students with specific coursework in women’s and gender studies and a teaching practicum that helps prepare them to teach an introductory women’s and gender studies course. The minor is recommended for students who seek positions in women’s and/or gender studies departments or joint positions for which part of the responsibility is to women’s and/or gender studies.

Students are required to complete 10 hours of graduate-level coursework, including WMST 6980 (Feminist Theory; 3 hours) and WMST 7910 (Teaching Practicum; 1 hour). Students fulfill the remaining hours with graduate courses cross-listed with Women’s and Gender Studies; these must be from outside of the student’s home department. See the Women’s and Gender Studies Program website for a full listing of course offerings. https://cla.auburn.edu/womens-gender-studies/.

For more information, contact the director of the Women’s and Gender Studies Program.

Alabama Agricultural Experiment Station

- ABBASI, MEHRNAZ, Assistant Professor
- ADHIKARI, SUSHIL, Professor and Director, 2008, BS Tribhuvan, MS Asian Institute of Tech Thailand, PhD Mississippi State
- ALEXANDER, HEATHER, Associate Professor
- AN, LI, Professor
- APPEL, ARTHUR G., Associate Dean and Associate Director, 1985, BA UCLA, MS PhD California-Riverside
- BAKER, BETHANY, Assistant Professor
- BALKCOM, KRIS, Assistant Extension Professor
- BARTLEY, PAUL, Assistant Professor
- BARTOL, FRANK, Associate Dean for Research and Graduate Studies
- BATCHELOR, WILLIAM D., Professor, 2010, BS Florida, MS PhD Georgia
- BECKMANN, JOHN, Assistant Professor, 2018, BA PhD Univ. of Minnesota
- BELK, ARIEL, Assistant Professor
- BELSARE, ANIRUDDHA, Assistant Professor
- BISCAIA RIBEIRO DA SILVA, ANDRE, Assistant Professor & Extension Specialist
- BLERSCH, DAVID, Associate Professor, 2013, BS Notre Dame, MS PhD Maryland
- BOURASSA, DIANNA, Associate Professor & Extension Specialist
- BOWEN, KIRA L., Professor, 1987, BS Penn St., MS Minnesota, PhD Illinois
- BRANDEBOURG, TERRY, Associate Professor, 2008, BS Purdue, PhD Oregon State
- BRANTLEY, EVE, Director, Water Resources Center
- BRUCE, TIMOTHY, Assistant Professor
- BULLARD, ASH, Professor, 2008, BS South Carolina, MS Southern Miss, PhD Southern Miss
- BUTTS, IAN, Assistant Professor
- CATALANO, MATTHEW, Associate Professor
- CHAMORRO, MANUEL, Associate Professor
- CHATTARAMAN, VEENA, Professor
- CHEN, CHARLES, Professor
- CHEN, HAO, Assistant Professor
- CHIBA, LEE I., Professor, 1990, BS MS PhD Nebraska
- CHO, SUNGEUN, Assistant Professor
- COLEMAN, JEFFREY, Associate Professor, 2014, BS Bloomsburg, PhD Arizona
- CONEVA, ELINA, Extension Spec and Professor, 2006, BS MS PhD Agrarian
- COUNTERMAN, BRIAN, Associate Professor
- CRIADO, MIRIA, Assistant Professor
- CRISTAN, RICHARD, Extension Spec & Asst Professor, BS Tennessee, MS Tennessee, PhD Virginia Tech
- CUFFEY, JOEL, Assistant Professor, BA Illinois, MS Illinois, PhD Minnesota
- DA SILVA DINIZ, WELLISON, Assistant Professor
- DANIEL, MARISSA JO, Assistant Professor
- DAVIS, D. ALLEN, Professor, 1999, BS Northern Arizona, MS PhD Texas A&M
- DAVIS, JEREMIAH, Professor/Director NTPC, 2015, BS Texas A&M, MS Kentucky, PhD Iowa State
- DE LA FUENTE, LEONARDO, Professor, 2008, BS MS Univ of the Republic (Uruguay), PhD Washington State
- DEVRIES, DENNIS R., Professor, 1990, BS Purdue, MS PhD Ohio St
- DILLARD, SANDRA, Associate Professor/Extension Spec
- DING, CHEN, Assistant Professor
- DITCHKOFF, STEPHEN S., Ireland Professor, 2001, BS Michigan State, MS Maine, PhD Oklahoma State
- DOUGHERTY, MARK, Associate Professor, 2004, BS Texas Tech, MS PhD Virginia Tech
- DOZIER, WILLIAM, Professor & Extension Specialist

- DUKE, JOSHUA, Department Head and Professor
- DUNHAM, REX A., Professor, 1981, BS Illinois, MS PhD Auburn
- DYCE, PAUL, Associate Professor
- ECKHARDT, LORI, Professor, 2005, BS Maryland, PhD LSU
- El SHEIKH, MONA, Leonard Peterson Professor, 1990, BA American (Egypt), MA PhD West Virginia
- ERATH, STEPHEN A., Associate Dean and Professor, 2008, BS Texas A&M, MS PhD Penn State
- FAIN, GLENN, Associate Professor, 2007, BS MS PhD Auburn
- FALKENBERG, SHOLLIE, Associate Professor and Coordinator
- FAN, ZHAOFEI, Associate Professor
- FASINA, OLADIRAN, Department Head and Professor
- FENG, YUCHENG, Professor, 1998, BS Beijing, MS PhD Penn St
- FOSHEE, WHEELER, Dwight and Ruth Bond Assoc. Professor, 2003, BS MS PhD Auburn
- FRANCISCO, EROS, Assistant Professor and Extension Specialist
- FULLER-ROWELL, THOMAS E., Professor, 2013, BA Colorado, MA PhD Cornell
- GAMBLE, AUDREY, Associate Professor
- GARLOCK, TARYN, Assistant Professor and Extension Specialist
- GILLIS, BRIAN, Assistant Professor
- GITZEN, ROBERT, Associate Professor
- GOERTZEN, LESLIE R., Assoc. Professor, PhD Texas
- GORDON, WENDY P., Professor
- GRAHAM, SCOTT H., Extension Specialist Assistant Professor, 2020, BS MS Mississippi State, PhD Tennessee
- GREENE, LAWRENCE, Department Head and Professor
- GREENE, MICHAEL W., Professor
- HAGUE, STEVEN, Department Head and Professor
- HANLON, CHARLENE, Assistant Professor
- HARDY, NATE B., Associate Professor, 2013, BS Cornell University, PhD University of California, Davis
- HARTARSKA, VALENTINA, Professor, 2002, BA UNWE, MA Essex, MA PhD Ohio State
- HELD, DAVID, Professor and Chair, 2008, BS MS PhD Kentucky
- HIGGINS, BRENDAN, AssociateProfessor, 2016, BS Northwestern, MS PhD UC Davis
- HILL, GEOFFREY, Professor, BS Indiana, MS New Mexico, PhD Michigan
- HINNANT, BEN, Associate Professor, 2015, BS Clemson, MS PhD UNC-Greensboro
- HOANG, THAM, Associate Professor
- HOOD, WENDY, Professor, BA UCSC, MA PhD Boston U
- HU, XING PING, Extension Specialist and Professor, 2000, BS MS Shandong Agri, PhD Massachusetts
- HUBER, LAURA, Assistant Professor
- HUSEYNOV, SAMIR, Assistant Professor
- JACOBSON, ALANA, Associate Professor, 2014, BS NMSU, MS Purdue, PhD North Carolina St
- JEGANATHAN, REMESH, Professor, 2010, BS MS PhD Madras
- JOHNSTON, CAROL E., Professor, 1997, BS Columbus, MS PhD Auburn
- JONES, DANIEL, Assistant Professor
- KALIN, LATIF, Professor, 2006, BSCE Middle East Tech Univ, MSCE PhD Purdue
- KANG, SUNG HWAN, Assistant Professor
- KELLY, ANITA, Extension Prof, 2019, BS Iowa, MS PhD SIU
- KNAPPENBERGER, THORSTEN, Associate Professor
- KOEBERNICK, JENNY, Associate Professor
- KUMAR, SANJIV, Assistant Professor, B. Tech Indian Institute of Tech, MS PhD Purdue Univ
- KWON, WI-SUK, Professor, BS Seoul National, MS Iowa State, PhD Ohio State
- KYRIAKIS, KONSTANTINOS, Assistant Professor

- LAMBA, JASMEET, Associate Professor, 2015, BS Punjab, MS Auburn, PhD Wisconsin-Madison
- LAWRENCE, KATHY S., Professor, 1999, BS New Mexico, MS PhD Mississippi St
- LAYNE, DESMOND, Department Head and Professor
- LEE, YOUNG-A, Professor and Head, 2018, MA PhD Michigan State
- LI, WENYING, Assistant Professor
- LI, XIAO, Associate Professor
- LINHOSS, ANNA, Associate Professor
- LINHOSS, JOHN, Assistant Professor
- LIU, NANNAN, Professor
- LIU, NANNAN, Professor, 1997, PhD Cornell, BS China Agriculture
- LUCIER-GREER, MALLORY, Professor, 2017, BA BS Georgia, MS PhD Auburn
- MAGGARD, ADAM, Extension Spec/Asst Professor, 2017, BA MSM Florida, PhD Oklahoma State
- MAITY, ANIRUDDHA, Assistant Professor
- MARTIN, KATHLEEN, Assistant Professor, 2019, BS Nevada, MS Arizona, PhD Kentucky
- MCCREARY, ALLIE, Assistant Professor
- McDONALD, T. P., Professor, 2002, BS MS Clemson, PhD Purdue
- McELROY, SCOTT, Professor, 2008, BS MS Auburn, PhD NC State
- MENDONCA, MARY T., Alumni Professor, 1991, BS Rutgers, MS Cent. Florida, PhD California-Berkeley
- MIAO, RUIQING, Associate Professor
- MICHAELSON, DAWN, Assistant Professor
- MOLAISON, ELAINE, Professor and Department Head
- MOREY, AMIT, Associate Professor, 2015, MS Alaska Fairbanks, PhD Auburn
- MORSE, WAYDE, Professor, 2007, BS New Mexico, MS Colorado State, PhD Idaho
- MOSS, ANTHONY, Assoc. Professor, BA Johns Hopkins, PhD Boston
- MULLENIX, KIM, Assoc. Professor
- MULVANEY, DON, Assoc. Professor, 2006, BS Illinois, MS PhD Michigan State
- NADOLNYAK, DENIS, Professor, 2009, BA Ukraine, MA Hungary, PhD Ohio State
- NARINE, LANA, Assistant Professor
- NOEL, ZACHARY, Assistant Professor, 2021, BS Univ. of Vermont, PhD Michigan State University
- NOVAK, JOSH, Associate Professor, 2019, BS Anderson, MS Texas Tech, PhD BYU
- OLSHANSKY, YANIV, Assistant Professor
- ORTIZ, BRENDA, Extension Spec and Professor, 2009, PhD Georgia, BS Universidad Nacional de Colombia-Universidad del Valle
- PACHECO, WILMER, Associate Professor/Ext Spec, 2015, MS PhD North Carolina State
- PARK, SANG WOOK, Associate Professor, 2014, PhD Colorado State
- PATTERSON, PAUL, Dean & Director AAES, 2009, BS Auburn, MS PhD Purdue
- PENG, YUCHENG, Assistant Professor, 2020, MS Mississippi State, PhD Maine
- PENICK, CLINT, Assistant Professor
- PENICK, CLINT, Assistant Professor, 2023, PhD Arizona State University, BS Florida State University
- PERESIN, MARIA SOLEDAD, Associate Professor, 2016, BS MS PhD North Carolina
- PICKENS, JEREMY, Assistant Extension Professor
- POTNIS, NEHA, Associate Professor, 2016, BS MS Pune, PhD Florida
- POWERS, ALICIA, Director, HSI
- PRASAD, RISHI, Associate Professor and Extension Specialist
- PRICE, STUART, Assoc. Professor, 1990, BS OK State, PhD Oklahoma
- RABINOWITZ, ADAM, Associate Professor and Extension Specialist
- RASHOTTE, AARON M., Asst. Professor, BS FSU, PhD Arizona
- ROBINSON, CAROLYN, Associate Professor, 2006, BS Auburn, MS Florida, PhD Texas A&M
- ROCHELL, SAMUEL, Associate Professor

- RODNING, SOREN, Extension Spec and Professor, 2006, BS MS PhD Auburn
- RODRIGUES, CAMILA, Assistant Professor and Extension Specialist
- ROGERS, STEPHANIE, Assistant Professor
- ROY, LUKE, Ext. Prof, 2017, BS Samford, MS California Riverside, PhD Auburn
- RU, SUSHAN, Assistant Professor
- RUDAR, MARKO, Assistant Professor
- RUSSELL, DAVID, Assistant Extension Professor
- SALAZAR-GUTIERREZ, MELBA, Assistant Professor
- SAMEK, DIANA R., Associate Professor, 2012, BA MA PhD University of Minnesota-Minneapolis-St Paul
- SANDLIN, TYLER, Assistant Extension Professor
- SANZ SAEZ DE JAUREGUI, ALVARO, Assistant Professor
- SAWADGO, WENDIAM, Assistant Professor and Extension Economist
- SAWYER, JASON, Associate Professor, BS Kansas State, MS Oklahoma State, PhD Arkansas
- SHARMA, AJAY, Assistant Professor
- SHEARMAN, TIM, Assistant Professor
- SMITH, MICHAEL, Assistant Professor
- SMITH, WILLIAM B., Assistant Professor
- SPIERS, JAMES, Associate Professor, 2008, BS MS Miss State, PhD Texas A&M
- SRIKUMAR, SHABARINATH, Assistant Professor
- STARKEY, JESSICA, Associate Professor
- STEURY, TODD, Assoc. Professor, 2008, BS Colorado, MS Idaho, PhD Indiana State
- STEVISON, LAURIE, Associate Professor
- STOECKEL, JAMES, Assoc. Professor, 2007, BS Northern KY, MS Ohio State, PhD Miami Ohio
- STRAYER-SCHERER, AMANDA, Assistant Professor/Extension Plant Pathologist, 2019, BS MS PhD Univ. of Florida
- SZEDLMAYER, STEPHEN, Extension Specialist & Professor, 1990, BA Millersville, MS S. Florida, PhD William & Mary
- TARNECKI, ANDREA, Assistant Extension Professor
- TAYLOR, MYKEL, ALFA Eminent Scholar
- THANGIAH, GEETHA, Associate Professor
- THOMSON, RYAN, Assistant Professor
- TIAN, DI, Associate Professor
- TOMASSO, JOSEPH, Director and Professor
- TRANDEL, MARLEE, Assistant Professor
- VIA, BRIAN, Regions Bank Professor, 2008, BS MS Virginia Tech, PhD LSU
- VINSON, EDGAR, Assistant Extension Professor
- WADA, HARUKA, Associate Professor
- WALZ, PAUL, Professor & Head, 2004, MS PhD Michigan State
- WANG, CHENGMING, Professor
- WANG, DUNGJUN, Assistant Professor
- WANG, XU, Associate Professor
- WANG, YIFEN, Professor, 2004, BS Shanghai Fisheries, MS Washington, PhD Washington State
- WATERS, MATTHEW, Associate Professor
- WELLS, DANIEL, Associate Professor
- WEST, RACHEL, Assistant Professor
- WILEY, ANGELA, Professor & Head
- WILLIAMS, GEOFFREY, Associate Professor, 2016, BS Univ. of Alberta Canada, PhD Dalhousie Univ. Canada
- WILLOUGHBY, JANNA, Assistant Professor
- WILSON, ALAN, Professor, 2007, BA UNC - Chapel Hill, MS Michigan State, PhD Georgia Tech
- WOLFE, MARNIN, Assistant Professor

- WON, SUNJAE, Assistant Professor
- WOROSZ, MICHELLE, Professor, 2008, BS MS PhD Michigan State
- WOWER, JACEK, Professor, 1997, BS PhD Poznan
- WRIGHT, RUSSELL, Assoc. Professor & Extension Specialist, 1997, BA North Carolina, MS North Carolina St., PhD Wisconsin
- YANG, ZUTAO, Assistant Professor
- ZHANG, DAOWEI, George Peake Professor & Associate Dean for Research, 1994, BS South Central Forestry, MS Beijing Forestry, PhD British Columbia
- ZHANG, YAOQI, Professor, 2003, BS Fujian Ag Forestry China, MS Chinese Academy of Forestry Beijing China, PhD Helsinki Finland

AAES REGIONAL LEADERSHIP

- FARR, JANE, East-Central - Regional Director, AAES
- HARKINS, H. DAVID, North - Regional Director, AAES
- JONES, JARROD R., South - Regional Director, AAES
- PATE, GREG, Director, Experiment Station Research Operations
- YEAGER, JAMIE, West-Central - Regional Director, AAES

AAES RESEARCH OPERATIONS

NORTH REGION ALABAMA RESEARCH

SAND MOUNTAIN RESEARCH & EXTENSION CENTER

CROSSVILLE, DEKALB COUNTY

- McELMOYL, CLINT, Associate Director

TENNESSEE VALLEY RESEARCH & EXTENSION CENTER

BELLE MINA, LIMESTONE COUNTY

- KEY, CODY, Associate Director

UPPER COASTAL PLAIN AGRICULTURAL RESEARCH CENTER

WINFIELD, FAYETTE COUNTY

- FALKENBERG, SHOLLIE, Associate Professor & Coordinator

EAST-CENTRAL REGION ALABAMA RESEARCH

E.V. SMITH RESEARCH CENTER

SHORTER, MACON COUNTY

- BURDETTE, LANCE, Associate Director, Beef Unit, Research/Extension Ctr.
- FUST, CODY, Associate Director, Field Crops Unit
- SPARKS, ANDREW, Associate Director, Farm Services Unit
- STOCKDALE, NICHOLAS, Associate Director, Plant Breeding Unit

PIEDMONT RESEARCH CENTER

CAMP HILL, TALLAPOOSA COUNTY

- DITCHKOFF, STEVE, William R. & Fay Ireland Distinguished Professor

PLANT SCIENCE RESEARCH CENTER

AUBURN UNIVERSITY, LEE COUNTY

- ARMSTRONG, JESSICA, Associate Director

SOUTH REGION ALABAMA RESEARCH

BREWTON AGRICULTURAL RESEARCH UNIT

BREWTON, ESCAMBIA COUNTY

- MILLER, BRAD, Director

GULF COAST RESEARCH & EXTENSION CENTER

FAIRHOPE, BALDWIN COUNTY

- FRANK, TODD, Associate Director

ORNAMENTAL HORTICULTURE RESEARCH CENTER

SPRING HILL, MOBILE COUNTY

- OWSLEY, KYLE, Associate Director

WIREGRASS RESEARCH & EXTENSION CENTER

HEADLAND, HENRY COUNTY

- PARKER, CHRISTOPHER, Associate Director

WEST-CENTRAL REGION ALABAMA RESEARCH

BLACK BELT RESEARCH & EXTENSION CENTER

MARION JUNCTION, DALLAS COUNTY

- BOVIS, MICHAEL, Associate Director

CHILTON RESEARCH & EXTENSION CENTER

CLANTON, CHILTON COUNTY

- PRICE, MATTHEW, Director, Research/Extension Ctr.

PRATTVILLE AGRICULTURAL EXPERIMENT RESEARCH UNIT

PRATVILLE, AUTAUGA COUNTY

- CANTERBURY, JOSH, Associate Director

Alabama Cooperative Extension System

DIRECTOR'S OFFICE

- BRANTLEY, EVE – Associate Director
- DAVIS, CAMILLE – Executive Assistant
- PHILLIPS, J. MIKE – Extension Director

ACES BUSINESS OFFICE

- BOONE, DANA – Director, Financial Services
- CHEN, JING – Accountant
- HATCHER, PAMELA – Assistant Director, Financial Services
- IRVIN, BRIAN – Accountant
- MATTHEWS, ALEX – Accountant
- WILLIAMS, TIFFANY – Financial Assistant

ACES HUMAN RESOURCES

- BENNETT-WATSON, BETTY – HR Generalist II
- BUMPERS, CHRISTY – HR Manager
- CLEVELAND, BETHANY – Instructional Designer
- CROSS, ABBIE – Generalist I
- FAULK, JACKSON – HR Generalist I
- MCCLENDON, CHRIS – Director, HR & Strategic Initiatives

ACES COMMUNICATIONS, STRATEGIC MARKETING, & CLIENT RELATIONS

- BARSE, MARGARET – Producer/Director
- CLARDY, MIKE – Director, Communications, Strategic Marketing, & Client Relations
- DUPREE, BRUCE – Manager, Communications & Marketing
- ELLISON, ABBY – Specialist, Media Production
- FICHTNER, KEVIN – Producer/Director
- FREEMAN, GLENDA – Communications Editor
- HALL, ASHLEE – Specialist, Communications & Marketing
- LEWIS, AIMEE – Manager, Communications & Marketing
- MCELROY, LANEY – Specialist, Communications & Marketing
- MILLER, JUSTIN – Specialist, Communications & Marketing
- NICHOLS, KATIE – Manager, Communications & Marketing
- PADGETT, RACHEL – Coordinator I, ACES Creative Services
- REEVES, BETH – Specialist, Communications & Marketing
- SMITH, MELANIE – Specialist, Media Production
- WATSON, KACEY – Specialist III, Communications & Marketing
- WILSON, MARY – Specialist III, Communications & Marketing

INFORMATION TECHNOLOGY

- BOWERSOCK, JONAS – Associate Director, Information Technology
- CAHALIN, WILLIAM – Applications Systems Analyst
- DAVIS, JONATHAN – Director, Information Technology
- FUKAI, JAMES – Manager, Information Technology
- HARTLEY, JOHN – Senior Application Systems Analyst
- HATHCOCK, CHRISTOPHER – Network Engineer
- HELMS, JAMES – Applications Systems Analyst
- MADORE, KAREN – Applications Systems Analyst
- MOORE, SANTWAYLA – Applications Systems Analyst
- MOSIER, HEATH – Audio Visual Systems Engineer
- SNYDER, SCOTT – Senior Endpoint Support Analyst
- THOMAS, JACOB – Applications Systems Analyst
- WALKER, KERRY – Senior Technician Support Analyst
- WOODS, CHRISTOPHER – Endpoint Support Analyst

GRAHAM FARM & NATURE CENTER

- NEMATI, JONATHAN – Administrator I, Land & Facilities
- SANDS, DONNA – Agent Assistant
- SIMS, THEMIKA – Director

4-H and YOUTH DEVELOPMENT STATE OFFICE

- ALEXANDER, NANCY – Extension Specialist
- DOMINGUEZ, MONA – Research Associate
- JONES, EARNESTINE – Executive Support Assistant
- KEASAL, DOYLE – Extension Associate
- MCCREA, BRIGID – Extension Specialist
- NICHOLS, EMILY – Extension Specialist
- SCOTT, JOY – Extension Specialist
- STORY, NATALIE – Administrative Support Specialist

ALABAMA 4-H CENTER

- ABRAMS, KRISTY – Director, Alabama 4-H Center
- ATKINS, CHRISTINE – Building Specialist I
- BLANKENSHIP, DAKOTA – Maintenance Mechanic
- BURCHFIELD, LEVI - Cook I
- CARBONE, AMY – Administrator, Outreach Programs
- CLECKLER, JOSEPH – Construction Technician
- DAVIS, ANDREW – Manager, Facilities
- DYE, ERIN – Coordinator, 4-H Program Support
- KELLER, AMANDA – Groundskeeper
- KELLER, CHERYL RENEE, Building Specialist
- LAWSON, DOVIE – Supervisor, Food Services
- MARSHALL, KAREN – Assistant Custodian Supervisor
- MARTIN, RACHEL – Administrative Support Assistant
- MCDONALD, DENA – Cook I
- MONROE, MARK – Food Service Manager
- PAUL, ASHTON – Building Specialist
- PHILLIPS, SHANNON – Administrative Support Specialist

- PORTER, ANNE – Cook II
- RAY, LATASHA – Cook II
- SMITH, DARLENE – Supervisor, Food Services
- TAYLOR, BESSIE – Specialist 4-H Animal Care

AGRICULTURE, FORESTRY, & NATURAL RESOURCES EXTENSION

- BARLOW, BECKY – Assistant Director, AFNR and Associate Dean for Extension
- POPE, CONNIE – Executive Support Assistant

AGRICULTURAL ECONOMICS & RURAL SOCIOLOGY

- RABINOWITZ, ADAM – Associate Professor/Extension Specialist
- RUNGE, MAX – Extension Professor
- RUSSELL, KELLI – Assistant Extension Processor
- SAWADGO, WENDIAM – Assistant Professor/Extension Economist

ANIMAL SCIENCES & FORAGES

- DILLARD, LEANNE – Assistant Professor/Extension Specialist
- GREENE, WAYNE – Animal Sciences Department Head & Professor
- HAMBERLIN, LAWRENCE – Accountant
- HEATON, COURTNEY – Equine Extension Specialist
- LINO, SARAH – Research Assistant IV
- MULLENIX, KIM – Department Head & Professor
- RODNING, SOREN – Professor/Extension Specialist
- WILBORN, BARNEY – Associate Director, Ag Research/Extension Center

BIOSYSTEMS ENGINEERING

- CAMPBELL, JESSE – Assistant Extension Professor, National Poultry Technology Center
- DAVIS, JEREMIAH – Associate Professors & Director, National Poultry Technology Center
- FASINA, OLADIRAN – Department Head & Alumni Professor

CROP, SOIL, & ENVIRONMENTAL SCIENCES

- BALKCOM, KRIS – Assistant Extension Professor
- BUCHANAN, DEBORAH – Administrative Support Assistant
- COOLEY, LAURA – Outreach Programs Administrator
- CURL, JESSICA – Outreach Programs Administrator
- FRANCISCO, EROS – Assistant Professor & Extension Grain Crops Agronomist
- HAN, DAVID – Associate Professor/Extension Specialist
- LI, STEVE – Associate Professor
- NEWBY, ADAM – Research Associate
- ORTIZ, BRENDA – Professor/Extension Specialist
- PRASAD, RISHI – Assistant Professor/Extension Specialist
- SANDLIN, TYLER – Assistant Extension Professor
- STANFORD, KENT – Associate Extension Professor/Extension Specialist (Sand Mountain Research & Extension Center)

ENTOMOLOGY & PLANT PATHOLOGY

- APPEL, ARTHUR – Associate Dean Research/Associate Director AAES
- BRUCKNER, SELINA – Assistant Extension Professor
- CONNOR, KASSIE – Extension Specialist, Plant Diagnostic Lab

- GIMINEZ CREMONEX, PAULO – Assistant Professor & Extension Specialist
- GRAHAM, FUDD – Visiting Professor
- GRAHAM, SCOTT – Assistant Professor/Extension Specialist
- HAGAN, AUSTIN – Visiting Professor
- HU, XING PING – Extension Specialist Professor
- SHRADER, MEREDITH – Entomology Diagnostician
- SIKORA, EDWARD – Extension Specialist Professor
- SMITH, RONALD – Visiting Professor
- STRAYER-SCHERER, AMANDA – Assistant Professor/Extension Plant Pathologist

SCHOOL OF FISHERIES, AQUACULTURE, & AQUATIC SCIENCES

- CLINE, DAVID – Associate Extension Professor
- GARLOCK, TARYN – Assistant Professor, Extension Specialist
- GRICE, RUSSELL – Outreach Programs Administrator (AU Shellfish Lab)
- JONES, CAROLYN – Assistant II, Financial
- KELLY, ANITA – Extension Professor (Alabama Fish Farming Center)
- PARTYKA, MELISSA – Assistant Extension Professor
- ROY, LUKE – Associate Extension Professor (Alabama Fish Farming Center
- TARNECKI, ANDREA – Assistant Extension Professor (AU Shellfish Lab)
- WRIGHT, RUSTY – Associate Professor/Extension Specialist

HORTICULTURE

- CONEVA, ELINA – Professor/Extension Specialist
- DA SILVA, ANDRE – Assistant Professor/Extension Specialist
- KEMBLE, JOE – Visiting Professor
- LAYNE, DESMOND – Professor/Department Head
- NABORS, JOHN – Outreach Programs Administrator (Alabama Green Industry Training Center)
- PICKENS, JEREMY – Assistant Extension Professor (Ornamental Horticulture Research Center)
- RODRIGUES, CAMILA – Assistant Professor/Extension Specialist
- SMITH, KERRY – Outreach Programs Administrator

POULTRY SCIENCE

- BOURASSA, DIANNA – Assistant Professor/Extension Specialist
- DOZIER, WILLIAM, Professor, Extension Specialist
- PACHECO, WILMER – Associate Professor
- THOMPSON, MAGGIE – Assistant Professor, Extension Specialist
- WEESE, JEAN – Visiting Professor

COLLEGE OF FORESTRY, WILDLIFE, AND ENVIRONMENT – EXTENSION PROFESSIONALS

- ABRAHAMS, ANNAKAY – Assistant Professor & Extension Specialist in Forest Health
- ANDERSON, WESLEY – Assistant Professor/Extension Specialist
- ARSENIOU, GEORGIOS – Assistant Professor / Extension Specialist
- BRODBECK, BEAU – Assistant Director, Field Operations, Community Forestry & Arboriculture Extension Specialist (Gulf Shores Educational Complex)
- CRISTAN, RICHARD – Assistant Professor/Extension Specialist
- GILBERT, SUANNE – Administrative Support Specialist
- KNOWLES, KELLY – Specialist, Media Production
- MAGGARD, ADAM – Assistant Professor/Extension Specialist
- SMITH, MARK – Professor, Forestry, Wildlife & Natural Resources

CHILTON REGIONAL RESEARCH & EXTENSION CENTER

- ELMORE, JOSHUA – Regional Extension Agent (Animal Sciences & Forages)
- ELMORE, MICHELLE – Associate Extension Professor (Animal Sciences & Forages)
- LAWRENCE, DAVID – Regional Extension Agent (Commercial Horticulture)
- MCCULLOUGH, LISA – Administrative Support Associate
- VINSON, EDGAR – Assistant Extension Professor (Commercial Horticulture)

GULF COAST RESEARCH & EXTENSION CENTER

- ROWE, JACK – Extension Agent, Forestry, Wildlife & Natural Resources

C. BEATY HANNA HORTICULTRE & ENVIRONMENTAL CENTER

- EASLICK, JULIET – Administrative Support Associate II
- JACOBI, JIM – Extension Specialist
- ROWAN, CAROLINE – Lab Technician

TENNESSEE VALLEY RESEARCH & EXTENSION CENTER

- NASH, TANJIE – Administrative Support Associate
- RUSSELL, DAVID – Assistant Extension Professor

WIREGRASS RESEARCH & EXTENSION CENTER

- HUDSON, RICKEY – Regional Extension Agent (Animal Sciences & Forages)
- JONES, MEGAN – Extension Agent, Home Grounds, Gardens & Home Pests
- KELLY, NEIL – Regional Extension Agent (Commercial Horticulture)
- MACK, SEDERICK – Regional Extension Agent (Agronomic Crops)

HUMAN SCIENCES EXTENSION

- DOWNEY, LAURA – Associate Dean & Assistant Director, Human Science Extension
- WALTON, CATUNDRA – Executive Support Assistant

HUMAN SCIENCES EXTENSION PROFESSIONALS

- BROCK, RUTH – Extension Specialist (Thriving Communities)
- CONNELL, CAROL – Extension Specialist
- DUKE, ADRIENNE – Associate Professor (Human Development & Family Studies)
- HALL, JANICE – Extension Specialist
- JOHNSON, PORTIA – Assistant Professor/Extension Specialist (Financial Resource Management & Workforce Development)
- O'NEILL, MARTIN ANTHONY – Bruno Professor & Department Head
- VILCHES, SILVIA – Assistant Professor/Extension Specialist (Human Development & Family Studies)
- WILEY, ANGELA RENEE, Professor & Department Head

FEDERAL NUTRITION PROGRAMS

- FUNDERBURK, KATIE – Assistant Director for Federal Nutrition Programs
- MAILEN, KELLY – SNAP-ED Executive Support Assistant
- MINCE, THERESA – EFNEP Extension Specialist
- REZNICEK, ERIN – SNAP-ED Extension Specialist
- SANCHEZ, SOFIA – SNAP-ED Extension Specialist
- SORTER, AMY – EFNEP Outreach Programs Administrator

COMMUNITY WORKFORCE, LEADERSHIP, & ECONOMIC DEVELOPMENT

- JOHNSON, PORTIA – Assistant Professor/Extension Specialist (Financial Resource Management & Workforce Development)

FIELD OPERATIONS

- BECKER, CHRISTOPHER – Assistant Director, Northeast SET
- BRODBECK, BEAU – Assistant Director, Southwest SET
- CLARK, LEE ANN – Assistant Director, Central SET
- DOUGHERTY, SYDNEY – Executive Support Assistant
- HAYNES, SHARON – Assistant Director, West Central SET
- LOGAN, ALLIE – Assistant Director, Southeast SET
- MITCHELL, AMELIA – Assistant Director, Northwest SET
- NELSON, CALLIE – Assistant Director, East Central SET

AUTAUGA COUNTY – AUTAUGAVILLE

- JOHNSON, KIMBERLY – Administrative Support Associate II
- KELLEY, MALLORY – Regional Extension Agent (Home Grounds, Gardens, & Home Pests)
- LOWE, RUSSELL – Extension Agent, Financial Resource Management & Workforce Development
- POWELL, KACEY – Extension Agent, Alabama 4-H
- SHARPE, DARRUE – County Extension Coordinator
- WRIGHT, SHONDA – Urban SNAP-ED Educator

BALDWIN COUNTY – BAY MINETTE

- BANNING, CATHY – Administrative Support Associate
- BUTTERWORTH, SARAH – 4-H Youth Development Coordinator
- EZEKIEL, TYRA – AU Affiliated
- FLAMMINI, CARMEN – Regional Extension Agent
- KELLEY, KEN – Regional Extension Agent (Farm & Agribusiness Management)
- MITCHELL, RYAN – Regional Extension Agent (Forestry, Wildlife, & Natural Resources)
- ROBERTS, CHARLOTTE – 4-H Agent Assistant
- SHEPARD, KATHERINE – County Extension Coordinator
- SIMMONS, ALEXIA MINGO – Regional Extension Agent

BARBOUR COUNTY – EUFAULA

- CLAYTON, MITZI – County Extension Coordinator
- KOHEN, ELIZABETH – Agent Assistant I
- LOGAN, ALLIE – Assistant Director, Field Operations
- PUCKETT, MICHELLE – Regional Extension Agent (SNAP-ED)
- ROBINSON, MERRI – Administrative Support Associate
- WACHS, JILL – 4-H Youth Development Coordinator

BIBB COUNTY – CENTREVILLE

- CARBONE, SIMON – 4-H Youth Development Coordinator
- GIBSON, SARA – Administrative Support Associate
- GIDDENS, MICHELLE – County Extension Coordinator
- HALLS, HOLLY – Extension Agent, Alabama 4-H

BLOUNT COUNTY – ONEONTA

- ALLISON, KELLI – Agent Assistant
- BATEMON, ANGIE – Administrative Support Associate
- BROTHERS, DENNIS – Associate Extension Professional (Farm & Agribusiness Management)
- BURGESS, AMY – County Extension Coordinator
- GRAVES, NANCY – 4-H Youth Development Coordinator

- O'REAR, BETHANY – Extension Agent, Commercial Horticulture, Home Grounds, Gardens & Home Pests
- SMITH, SARA – Agent Assistant

BULLOCK COUNTY – UNION SPRINGS

- ELSTON, CARLA – County Extension Coordinator
- GREEN, KIMBERLY – 4-H Youth Development Coordinator
- HURRY, DOMINGUEZ – SNAP-ED Agent Assistant
- JACKSON, ANNIE – Administrative Support Associate
- TARVER, TARA – EFNEP Agent Assistant

BUTLER COUNTY – GREENVILLE

- BRIGGS, SHARLEAN – County Extension Coordinator
- DAVENPORT, HANNAH – EFNEP Agent Assistant
- FIELDS, TERRONDA – SNAP-ED Agent Assistant
- TURNER, RACHEL – Administrative Support Associate

CALHOUN COUNTY – ANNISTON

- DAVIS, CARMELITA – Administrative Support Assistant
- FELTON, ANNETTI – SNAP-ED Educator
- HALL, TAMMY – SNAP-ED Agent Assistant
- HEGEMAN, AMY – Alabama 4-H Administrator I
- HURST, DYLAN – Agent Assistant I
- JACKSON, HAYES – Urban Regional Extension Agent
- MARABLE, KYLE – Extension Agent Forestry, Wildlife, & Natural Resources
- MCPHERSON, CRYSTAL – 4-H Youth Development Coordinator
- SCHMIDT, JENNA – Extension Agent Animal Science & Forages
- WEST, DAVID – County Extension Coordinator
- WOOD, VANESSA – EFNEP Agent Assistant

CHAMBERS COUNTY – LAFAYETTE

- ALLDAY, CANDACE – Agent Assistant
- HALL, KARA – Agent Assistant I SNAP-Ed
- HILL, KATIE – 4-H Youth Development Coordinator
- MEADOWS, REGINA – Regional Extension Agent
- REIFF, ANGELA – Administrative Support
- SLEDGE, LEAH – Administrative Support Specialist I
- SNODDY, RACHEL – County Extension Coordinator
- WARD, DEBRA – Administrative Support Specialist I

CHEROKEE COUNTY – CENTRE

- COOPER, ALEXIS – Agent Assistant II, SNAP-Ed
- MACKEY, JENNIFER – Administrative Support Associate
- MARKS, LANDON – County Extension Coordinator
- SEWELL, ELIZABETH – Extension Agent, Alabama 4-H
- THOMPSON, MEAGHANNE – SNAP-ED Agent Assistant

CHILTON COUNTY – CLANTON

- CARTER, SHERRY – SNAP-ED Agent Assistant
- CHILDRESS, Brandy – Administrative Support Associate
- ELLINGTON, LUCY – County Extension Coordinator
- VAITH, KRYSTAL – 4-H Agent Assistant

CHOCTAW COUNTY – BUTLER

- GIBSON, BRITTANY – EFNEP Agent Assistant
- HARRELL, NICK – County Extension Coordinator
- LEWIS, LEANNE – 4-H Youth Development Coordinator
- STURDIVANT, CAROLYN – Administrative Support Associate

CLARKE COUNTY – GROVE HILL

- JOHNSON, JENNIFER – Administrative Support Associate
- PADGETT, WENDY – 4-H Youth Development Coordinator
- PAUL, ROBIN – County Extension Coordinator

CLAY COUNTY – ASHLAND

- EAST, CHIP – Regional Extension Agent (Commercial Horticulture)
- GAGLIANO, RAEDEN – Extension Agent, Alabama 4-H
- JONES, AMANDA – Administrative Support Associate
- ROBERTSON, MEAGHAN – SNAP-ED Agent Assistant
- WILLIS, MELISSA – County Extension Coordinator

CLEBURNE COUNTY – HEFLIN

- BAIN, MICHELLE – Administrative Support Associate
- COURTWRIGHT, COREY – Extension Agent, Aquatic Resources
- FAUGHN, STEPHEN – County Extension Coordinator
- SHEALY, KAYLA – Extension Agent, Alabama 4-H

COFFEE COUNTY – NEW BROCKTON

- DREWERY, NIKKI – Administrative Support Associate
- KEEFOVER, CAITLIN – 4-H Youth Development Coordinator
- MAULDIN, GAVIN – County Extension Coordinator
- MONROE, CALEN – Regional Extension Agent (Farm & Agribusiness Management)
- PEEPLES, BRANDY – 4-H Agent Assistant
- RIOS, SUHEILY – EFNEP Agent Assistant
- WISMER, EMILY – Extension Agent, Home Grounds, Gardens & Home Pests

COLBERT COUNTY – TUSCUMBIA

- CALVERT, JEFFREY – 4-H Outreach Programs Administrator
- CROW, KAREN – County Extension Coordinator
- PILKILTON, ANNA – Administrative Support Associate
- SOFTLEY, ELAINE – Regional Extension Agent (Human Nutrition, Diet, & Health)
- SMITH, MELINDA – Extension Agent, Alabama 4-H
- STEEDLEY, KERRY – Regional Extension Agent (Forestry, Wildlife, & Natural Resources)

CONECUH COUNTY – EVERGREEN

- BEVERLY, DEBBIE – SNAP-ED Agent Assistant
- BLEDSOE, STEPHANIE – Outreach Programs Administrator
- JONES, LISA – EFNEP Agent Assistant
- MURPHY, JAMIE – Extension Agent, Alabama 4-H
- ROBINSON, KARLA – County Extension Coordinator

COOSA COUNTY – ROCKFORD

- DAVIS, SHANNON – County Extension
- GLASSBURN, TABATHA – SNAP-ED Agent Assistant
- TUCK, CORNELIA – Administrative Support Associate

COVINGTON COUNTY – ANDALUSIA

- BRANNON, BRIDGETTE – Regional Extension Agent (Food Safety & Quality)
- DALTON, TARA – Agent Assistant, Alabama 4-H
- GILMORE, AMY – EFNEP Administrative Support Specialist
- HELMS, STEPHANIE – EFNEP Extension Specialist
- LEE, KATIE – 4-H Youth Development Coordinator
- RAMER, TARA – EFNEP Outreach Programs Coordinator
- SIMON, CHARLES – County Extension Coordinator
- WISE, MELISSA – Administrative Support Associate

CRENSHAW COUNTY – LUVERNE

- EVANS, AMANDA – County Extension Coordinator
- PETRE, CHARLOTTE – Extension Agent, Alabama 4-H
- POWELL, JAYDEN – Administrative Support Associate
- SANDERS, KRISTEN – SNAP-ED Agent Assistant

CULLMAN COUNTY – CULLMAN

- AKERS=CAMPBELL, HOLT – Extension Agent, Commercial Horticulture
- BRAMLEY, DELLA – SNAP-ED Agent Assistant
- GILBERT, DYLAN – Extension Agent, Animal Sciences & Forages
- GLASSCOCK, BETH – Administrative Support Associate
- MCCLELLAN, ROBERTA – 4-H Agent Assistant
- MCGRIFF, EDDIE – Regional Extension Agent (Agronomic Crops)
- ROBERTS, KERRI – 4-H Youth Development Coordinator
- SIMS, KIRA – County Extension Coordinator

DALE COUNTY – OZARK

- FOSS, ZANDI – Administrative Support Associate
- MOORE, APRIL – 4-H Agent Assistant
- STANLEY, MADISON – Extension Agent, Alabama 4-H
- VOYNICH, MELISSA – County Extension Coordinator

DALLAS COUNTY – SELMA

- DANIEL, DAVID – County Extension Coordinator
- GRENN-JOHNSON, COURT – Extension Agent, Animal Sciences & Forages
- KING, KISHA – 4-H Youth Development Coordinator
- LANTON, BLAKE – Regional Extension
- LUMPKIN, LATHOSIA – Administrative Support Associate
- PHILLIPS, BARBARA – EFNEP Agent Assistant

DEKALB COUNTY – FORT PAYNE

- MADDOX, HANNAH – Extension Agent, Alabama 4-H
- ROBERTS, VANESSA – County Extension Coordinator
- TRAYLOR, ALLISON – Administrative Support II

ELMORE COUNTY – WETUMPKA

- BEASLEY, KATIE – Administrative Support Associate
- CARDWELL, ANGELA – Agent Assistant (Human Sciences)
- GRANT, SHARAN – Agent Assistant
- HENSON, BRENDA – 4-H Agent Assistant
- LANTZ, STEPHANIE – Agent Assistant
- MITCHELL, KATRINA – County Extension Coordinator

ESCAMBIA COUNTY – BREWTON

- BROWN WALKER, MICHELLE – Administrative Support Associate II
- CREWS, LINDA – Agent Assistant, Alabama 4-H
- KIRKLAND, KATIE – Agent Assistant II, SNAP-Ed
- MCDONALD, SHELIA – 4-H Agent Assistant
- MINAYA, CAMILLE – Regional Extension Agent, SNAP-Ed
- MURPHREE, MILLIE – County Extension Coordinator

ETOWAH COUNTY – GADSDEN

- BURGESS, AMY – County Extension
- DRUMMOND, CHISTINA – Agent Assistant
- ENNIS, TORIE – SNAP-ED Regional Extension Agent
- JONES, DARLENE – 4-H Agent Assistant
- MENDOZA, CHRISTY – Regional Extension Agent (Food Safety & Quality)
- SCHAVEY, ERIC – Regional Extension Agent (Commercial Horticulture)
- STRAWN, JENNIFER – 4-H Youth Development Coordinator
- WOODFIN, APRIL – Administrative Support Assistant

FAYETTE COUNTY – FAYETTE

- BAGGETT, KRISTI – EFNEP Agent Assistant
- BRASHER, RONNI RENE – County Extension Coordinator
- ELLISON, TRACY – Administrative Support Associate
- MCPEEK, CHASITY – 4-H Youth Development Coordinator

FRANKLIN COUNTY – RUSSELLVILLE

- COLE, KATERNIA – County Extension Coordinator
- COCKERHAM, VICKIE – Agent Assistant
- GOTCHER, ALEXANDRA – Regional Extension Agent (Animal Sciences & Forages)
- HOOD, GWENDOLYN – Agent Assistant
- JIMENEZ, SHIRLEY – EFNEP Agent Assistant
- ROSSIN, KRISTINA – Administrative Support Associate

GENEVA COUNTY – GENEVA

- KILPATRICK, MARY – 4-H Youth Development Coordinator

GREENE COUNTY – EUTAW

- COCKRELL, KASHAYA – Administrative Support Associate
- FULGHUM, DOUG – County Extension Coordinator
- SERMON, IRIS – Administrative Support II
- SUMMERVILLE, ROSHANDA – Agent Assistant I
- TAYLOR, DYLAN – Regional Extension Agent (Forestry, Wildlife, & Natural Resources)

HALE COUNTY – GREENSBORO

- BURRELL, FRANCHESCA – Agent Assistant I, EFNEP
- HAMBRIGHT, FRANCHESCA – Agent Assistant
- HAMILTON, SHALONG – SNAP-ED Agent Assistant
- LEWIS, JOVITA – County Extension Coordinator
- MOORE, POLLY – Administrative Support Associate
- TUBBS, LATARSHA – Administrative Support Specialist I
- WOODS SHORTNACY, LAUREN – Urban Regional Extension Agent

HENRY COUNTY – ABBEVILLE

- JONES, JIMMY – County Extension Coordinator
- JONES, MEGAN – Regional Extension Agent (Home Grounds, Gardens, & Home Pests)
- KIRKLAND, TAWNYA – 4-H Youth Development Coordinator
- KOHEN, ELIZABETH – SNAP-ED Agent Assistant
- SIMS, MILISA – Administrative Support Associate

HOUSTON COUNTY – DOTHAN

- AGEE–CARROLL, MARILYN – Regional Extension Agent (Human Nutrition, Diet, & Health)
- COBB, NIKKI – Forestry, Wildlife & Natura Resources
- COOK, JULIE – Administrative Support Associate
- GALLOWAY, WHITNEY – 4-H Youth Development Coordinator
- HOFFMAN, EMILY – Agent Assistant
- JOHNSON, MICAH – County Extension Coordinator
- MINNIEFIELD, DARLENE – Urban Regional Extension Agent
- PHILLIPS, SHELBY – Research Assistant I
- SHERRER, WILLIAM – Administrative Support Assistant II
- WELLS, AARON – Regional Extension Agent
- WELLS, ANNA – EFNEP Outreach Programs Coordinator
- WOODALL, GRACIE – 4-H Agent Assistant

JACKSON COUNTY – SCOTTSBORO

- CAGLE, KIMBERLY – Administrative Support Associate
- HALEY, NORM – Regional Extension Agent (Forestry, Wildlife, & Natural Resources)
- MAHONEY, SAVANNAH – Extension Agent, Alabama 4-H
- SANDS, DONNA – Agent Assistant
- WEBB, MATTHEW – County Extension Coordinator
- WILSON, HALEY – Agent Assistant I

JEFFERSON COUNTY – BIRMINGHAM

- CARTER, MITCH – Family & Consumer Sciences Outreach Programs Administrator
- DRAKE, HELEN – Administrative Support Associate
- FLOWERS, SYNITHIA – Regional Extension Agent (Human Nutrition, Diet, & Health)
- HARRIS, BRIDGETT – 4-H County Extension Agent
- HUTCHERSON-BATES, DESIREE – SNAP-ED Regional Extension Agent
- JACOBSON, JON – Urban Regional Extension Agent
- JONES, LISA – County Extension Coordinator

- KING-PACE, ARKAYA – Agent Assistant
- MCNEALY, IZETTE – 4-H Youth Development Coordinator

LAMAR COUNTY – VERNON

- BARDER, SIERRA – 4-H Youth Development Coordinator
- ROGERS, SUSAN – Administrative Support Associate
- SMITH, JERRY – County Extension Coordinator
- WHITE, LESLIE – SNAP-ED Agent Assistant

LAUDERDALE COUNTY – FLORENCE

- GOTHARD, TIM – Administrator, Outreach Programs
- RICKS, MATORIUS – Agent Assistant, SNAP-Ed
- SMITH, PATRICIA – Regional Extension Agent (Financial Resource Management & Workforce Development)
- TILENIUS, HEIDI – County Extension Coordinator
- WASHINGTON, LARIE – Administrative Support Assistant
- WILCOXSON, WHITNEY – 4-H Outreach Programs Administrator

LAWRENCE COUNTY – MOULTON

- BLANKENSHIP, AUSTIN – Extension Agent, Alabama 4-H
- MURRAY, SHANNON – Administrative Support Associate
- PALMER, JENNIFER – SNAP-ED Agent Assistant
- SHANKLIN, DONNA – County Extension Coordinator
- SMITH, MELINDA – 4-H Youth Development Coordinator
- TERRY, MARSHA – 4-H Agent Assistant

LEE COUNTY – OPELIKA

- BAILEY, JACOB – Regional Extension Agent
- BARR, TARA – County Extension Coordinator
- CARROLL, DANI – Regional Extension Agent (Home Grounds, Gardens, & Home Pests)
- DEBARDELEBEN, B.J. – Veterans Outreach Programs Administrator
- HOLLOWAY, JASMINE – Administrator, Instructional Outreach Programs
- NIMMO, GINA – 4-H Agent Assistant
- PANNELL, TAMMY – Administrative Support Associate
- STEWART, DEBORAH – Extension Agent, Alabama 4-H

LIMESTONE COUNTY – ATHENS

- GREENE, CAMILLA – Administrative Support Associate
- LEWTER, AUSTIN – 4-H Youth Development Coordinator
- ROSALES AGUILAR, ROSHELL – Extension Agent, Farm & Agribusiness Management
- WILSON, CHLOE – County Extension Coordinator

LOWNDES COUNTY – HAYNEVILLE

- CLAY, SYREETA – EFNEP Outreach Programs Coordinator
- FAIR, BETH – 4-H Youth Development Coordinator
- HUNTER, AUDRIANNA – Administrative Support Associate
- SHEALEY, TANA – County Extension Coordinator

MACON COUNTY – TUSKEGEE

- BEDELL, MARY – EFNEP Agent Assistant
- GORDON, ALEXANDRIA – Administrative Support Associate
- SPARKS, ANDREW – Regional Extension Agent (Agronomic Crops)

- SULLEN, DANIEL – County Extension Coordinator
- THOMPSON, MELVIN – Extension Agent, Alabama 4-H

MADISON COUNTY – HUNTSVILLE

- DAVIS, LAYALE – Urban Regional Extension Agent
- GARNER, MARCUS – Urban Regional Extension Agent
- GARRICK, CHRISTINA – Administrative Support
- HYTER, NKENGE – Urban Regional Extension Agent
- JONES, THERESA – Regional Extension Agent (Financial Resource Management & Workforce Development)
- LOUNMALA, SINEAD – County Extension Coordinator
- OAKS, LILLY – Regional Extension Agent
- PATTON, DEANNA – Urban Regional Extension Agent, Alabama 4-H
- THOMPSON, TYLER – Extension Agent, Financial Resource Management & Workforce Development
- WOOD, SHAVITA – SNAP-ED Educator

MARENGO COUNTY – LINDEN

- AKINS, LEIGH – Regional Extension Agent
- DIAL, TAMIKA – County Extension Coordinator
- FRITTS, TERRI – EFNEP Agent Assistant
- GLASS, TAMMY – SNAP-ED Agent Assistant
- MOORE, ALICE – Regional Extension Agent (Food Safety & Quality)
- TIMMONS, KYONDRIA – Agent Assistant II SNAP-Ed
- YATES, ELIZABETH – 4-H Youth Development Coordinator

MARION COUNTY – HAMILTON

- BERRYHILL, JOSHUA – Agent Assistant
- DANLEY, REBECCA – 4-H Youth Development Coordinator
- EATMAN, GINGER – SNAP-ED Regional Extension Agent
- HOLLOWAY, MAKAHLA – Extension Agent, AFNR-Field
- LEWIS, CARLA – County Extension Coordinator
- WARNER, DEANA – Administrative Support Associate

MARSHALL COUNTY – GUNTERSVILLE

- BRAMLEY, DELLA – Agent Assistant
- BROWN, BRIAN – Regional Extension Agent (Home Grounds, Gardens, & Home Pests)
- CHRISTIAN, JUANI – Urban Regional Extension Agent
- JONES, AUDREY – 4-H Youth Development Coordinator
- ROBERSON, KRISTEN – County Extension Coordinator
- VINZANT, CAROL – Administrative Support Associate

MOBILE COUNTY – MOBILE

- ANTHONY, DIANE – Administrative Support Associate
- CATALENA, REBECCA – Regional Extension Agent (Food Safety & Quality)
- CHAPMAN, KIM – Urban SNAP-ED Educator
- CHARLEY, LA TANGA – Administrative Support
- EVANS, TAYLOR – Extension Agent, Animal Sciences & Forages
- HAMILTON, ANTIONETTE – SNAP-ED Regional Extension Agent
- IRBY, PAMELA – Urban Regional Extension Agent
- KELLEY, JACOB – Regional Extension Agent (Commercial Horticulture)
- KNOWLTON, CINDY – County Extension Coordinator

- LECROY, JACK – Extension Agent, AFNR-Field
- MCCASKILL, BERNADINE – SNAP-ED Agent Assistant
- POTTER, JOEL – Urban Regional Extension Agent
- QUINTANA, ADELINE – 4-H Youth Development Coordinator
- ROBARDS, ANDREA – Extension Agent, AFNR, Forestry, Wildlife & Natural Resources

MONROE COUNTY – MONROEVILLE

- POWELL, MISTY – Extension Agent, Alabama 4-H
- ROTHSCHILD, CAROLYN – SNAP-ED Agent Assistant
- STANLEY, ETHEL – Administrative Support Associate
- WIGGINS, ANTHONY – County Extension Coordinator

MONTGOMERY COUNTY – MONTGOMERY

- BIXLER, KAREN – Administrative Secretary
- BLACKMON, TRENICHA – Agent Assistant
- DICKINSON, LYNN – Regional Extension Agent (Forestry, Wildlife, & Natural Resources)
- GUNN, JOVONNA – EFNEP Agent Assistant
- MAXIE, GLORIA – SNAP-ED Regional Educator
- MCNEALY, BRENDEN – 4-H Youth Development Coordinator
- ROBINSON, ROOSEVELT – Urban Regional Extension Agent
- SMITHERMAN, JIMMY – County Extension Coordinator
- TYSON-BAILEY, LULA – Administrative Support Associate
- WHITE, CYNTHIA – Regional Extension Agent (Financial Resource Management & Workforce Development)

MORGAN COUNTY – HARTSELLE

- CROW, BRETT – County Extension Coordinator
- FIELDS, ERIN – Urban Regional Extension Agent
- GARDNER, NORMA – Administrative Support Associate
- MARKHAM, JULIANA – 4-H Youth Development Coordinator
- SHABEL, ALLYSON – Urban Regional Extension Agent

PERRY COUNTY – MARION

- EASLEY, KATRINA – County Extension Coordinator
- HOGUE, MELANIE – Administrative Support Associate
- JOHNSON, YANNA – Agent Assistant, SNAP-Ed

PICKENS COUNTY – CARROLLTON

- CREPPS, BRIDGET – Administrative Support Associate
- GANN, CHELSEY – 4-H Youth Development Coordinator
- GLENN, TERA – Regional Extension Agent (Human Nutrition, Diet, & Health)
- SMART, JED – County Extension Coordinator
- VINES, RENEE – Regional Extension Agent (Financial Resource Management & Workforce Development)

PIKE COUNTY – TROY

- BEASOCK, DONNA – Administrative Support Associate II
- BROWN, JENNIFER – 4-H Agent Assistant
- MARTIN, DONNA – Administrative Support Associate
- PETERS, ABBY – County Extension Coordinator
- PEOPLES, HILLARY – 4-H Youth Development Coordinator
- SANDERS, KAYLA – Agent Assistant
- STEEDLEY, KERRY – Extension Agent, ACES-AFNR-Field

RANDOLPH COUNTY – WEDOWEE

- HOWE, LAURIE – Administrative Support Associate
- MOORE, TIFFANY – County Extension Coordinator
- MULDER, SHERRI – SNAP-ED Agent Assistant
- WILLIAMS, SHEALISSA– Agent Assistant, EFNEP
- WILSON, AMBER – Extension Agent, Alabama 4-H

RUSSELL COUNTY – PHENIX CITY

- DAVIDSON, JENNIFER – County Extension Coordinator
- GARCIA, ELIZABETH – Administrator, Instructional Outreach Programs
- GONTERMAN, KATHY – Administrative Support Associate
- JOHNSON, JANET – Regional Extension Agent (Food Safety & Quality)
- KEARNS, MORGAN – 4-H Agent Assistant
- PAYNE, GENI – 4-H Youth Development Coordinator

SHELBY COUNTY – COLUMBIANA

- EVANS, JESSICA – Administrative Support Associate
- VANDERFORD, JOHN – County Extension Coordinator
- YOCOM, JULIE – 4-H Youth Development Coordinator

ST CLAIR COUNTY – PELL CITY

- ANDERSON, JAYME – Agent Assistant, Alabama 4-H
- EMBERY, VERHONDA – Administrative Support Associate
- HARPER, CINDY – SNAP-ED Agent Assistant
- JACKSON, ALAYNA – 4-H Youth Development Coordinator
- PERRY, BROOKE – 4-H Ctr Summer Camp Counselor
- TAYLOR, JOSH – Count Extension Coordinator

SUMTER COUNTY – LIVINGSTON

- HALE, SHERITA – SNAP-ED Agent Assistant
- MACK, TRENISHA – County Extension Coordinator
- MCKENZIE, TAMEKA – Administrative Support Associate
- THOMPSON, SANQUENETTA – Regional Extension Agent
- WILLIAMS, SHAKERIA – Administrative Support Specialist

TALLADEGA COUNTY – TALLADEGA

- EATON, ANNIE – Agent Assistant
- BAKER, WHITLEY – Agent Assistant
- GOOD, KIM – Extension Agent, Alabama 4-H
- ROBERSON, SAMUEL – County Extension Director
- STRICKLAND THOMPSON, ASHLEE – Administrative Support Associate
- TURNER, JACOB – Regional Extension Agent

TALLAPOOSA COUNTY – DADEVILLE

- CARBONI, TRENT – 4-H Youth Development Coordinator
- ENNIS, JAMIE – Agent Assistant
- HARRIS, SHANE – County Extension Coordinator
- HICKS, CHRISTY – Extension Agent, Agronomic Crops
- PHILLIPS, TONYA – Administrative Support Associate
- SMITH, DAWN – Community Workforce, Leadership & Economic Development Outreach Programs Administrator

- TAYLOR, ANGELA – Extension Agent, Financial Resource Management & Workforce Development
- TAYLOR, LATAWN – Agent Assistant, EFNEP

TUSCALOOSA COUNTY – TUSCALOOSA

- BENISON-SIMMONS, CHERYL – Administrative Support Associate
- FULLER, OLIVIA – Regional Extension Agent (Commercial Horticulture)
- HARGLE, NEAL – Regional Extension Agent (Home Grounds, Gardens, & Home Pests)
- HUFF, CHERI – SNAP-ED Agent Assistant
- MAKEMSON, CINDY – Administrative Support Associate
- MCNEALY, IZETTE – County Extension Director
- MILLER, LAURA – 4-H Youth Development Coordinator
- PAYNE, CASSANDRA – SNAP-ED Educator

WALKER COUNTY – JASPER

- BLACKWELL, PATRICIA – Administrative Support Associate
- CAIN, DANNY – County Extension Coordinator
- GRACE, CADE – Regional Extension Agent (Agronomic Crops)
- PERSONS, REBECCA – 4-H Youth Development Coordinator

WASHINGTON COUNTY – CHATOM

- BRYANT, ALEXIS – Extension Agent, Alabama 4-H
- CROUCH, JAMIE – Extension Agent, Financial Resource Management & Workforce Development
- ETHEREDGE, NICOLE – Administrative Support Associate
- FERGUSON, STACY – County Extension Coordinator

WILCOX COUNTY – CAMDEN

- CRAWFORD, LEEELLEN – Administrative Support Associate
- DAVIS, SHANICQA – Administrative Support Associate II
- HIVES, JACQUELINE – Agent Assistant
- JOHNS, SHAREKA – County Extension Director
- PHILLIPS, CAMILLA – 4-H Youth Development Coordinator
- ROTHSCHILD, CAROLYN – Agent Assistant, SNAP-Ed

WINSTON COUNTY – DOUBLE SPRINGS

- BRANNON, ZACK – County Extension Coordinator
- BRILEY, LAURA – Agent Assistant
- DENNY, KAYLIE – Agent Assistant II, SNAP-Ed
- HILL, SUSAN – Regional Extension Agent (Food Safety & Quality)
- ROBBINS, BETSY – Administrative Support Associate

Faculty

The following is a list of full-time teaching faculty at Auburn University. The date indicates the year of first appointment to any position in the institution.

A

AAKUR, SATHYANARAYANAN, Assistant Professor, 2024 (COMP)

ABBASI, MEHRNAZ, Assistant Professor, 2023, PhD Texas Tech University, MS BS Shahid Beheshti University of Medical Sciences, Tehran, Iran (NDHM)

ABBATE, ANTHONY, Assistant Research Professor, 2023, PhD Auburn University, MS University of Florida, BS High Point University (ENPL)

ABDEL-HADI, ALI, Lecturer, 2015 (MECH)

ABEBE, ASH, Department Chair, Professor, 2007, PhD Western Michigan, BS Addis Ababa (MATH)

ABIEDALLA, YOUNIS, Assistant Research Professor, 2023, PhD, MS Auburn (DRDD)

ACOSTA, YADRIANNA, Assistant Professor, 2022, PhD MSE University of Michigan, BS University of Puerto Rico – Mayagüez (INSY)

ADAIR, RUSTY, Professor of Practice, 2021 (MNGT)

ADAMS, GARRY, Associate Professor, 2003, PhD Florida State, MBA BS Southern Illinois (MNGT)

ADAMS, MARK L., Godbold Professor, AMNSTC Director, 2014, PhD MS California Institute of Technology, BEE Auburn University (ELEC)

ADAMS, LAUREN, Lecturer (CMJN)

ADAMS, STEPHEN, Lecturer, MS Auburn University, MM BS Stephen F. Austin State University, BM East Texas Baptist University (PHYS)

ADANUR, SABIT, Professor, 1992, PhD MS North Carolina State, BS Istanbul Tech (PFEN)

ADANUR, SABIT, Professor, 1992, PhD MS North Carolina State, BS Istanbul Tech (MECH)

ADHIKARI, SUSHIL, Alumni Professor and Director, CBB, 2008, PhD Mississippi State, MS Asian Institute of Tech Thailand, BS Tribhuvan (BSEN)

ADLER-BAEDER, FRANCESCA, Professor, 2001, PhD MS North Carolina-Greensboro, BA Pembroke (HDFS)

ADRIAN, MARK, Associate Research Professor, 2022, PhD The University of Alabama, Huntsville, MS BS The University of Iowa (PHYS)

AGHAZADEH, SARAH, Assistant Professor, PhD University of Maryland-College Park, MA BS San José State University (CMJN)

AGNE, ROBERT, Associate Professor, 2004, PhD University of Colorado-Bolder, MA BS University of Dayton (CMJN)

AGRAWAL, VINAMRA, Assistant Professor (AERO)

AHMED, ANWAR, Professor, 1998, PhD MS Wichita State, BS Peshawar (AERO)

AHNELL, SARA, Clinical Assistant Professor, 2024 (CTCH)

AISTRUP, JOSEPH, Professor (POLI)

AJEDA, ANN, Assistant Professor, 2019, PhD The University of Oklahoma, MS Texas AM University, BS Lyon College (GEOL)

AKINGBEMI, BENSON T., Alumni Professor, 2004, DVM PhD Ibadan University Nigeria (VMAP)

AL FAKIR, RAZAN, Assistant Professor, 2024 (SLHS)

ALABI, JAENA, Librarian II, 2011, MLIS MA BA Alabama ()

ALAVALAPATI, JANAKI, Emmett F. Thompson Dean, 2015 (FOWS)

ALBERT, TANESHIA, Associate Professor, MFA The Florida State University, BA Dillard University (CADS)

ALCEDO, KAREL, Assistant Professor, 2025 (BIOL)

ALEXANDER, HEATHER, Dwain G. Luce Endowed Associate Professor, 2021 (FOWS)

ALEXANDER, COURTNEY WATTS, Assistant Professor, 2020, PharmD Auburn, BS Alabama (PYPP)

ALEXANDER, SYMONE L., Assistant Professor, 2021, PhD Case Western Reserve University, BS Howard University (CHEN)

ALI, HANEEN, HADM Program Director and Associate Professor, 2024 (POLI)

ALLEN, BRENDON, Assistant Professor, 2021, PhD BS University of Florida, MS Brigham Young University (MECH)

ALLEN, JOHN, NTTF, Operations Manager (ARCH)

ALLEN, SCOTT, Visiting Assistant Professor, 2024 (ARCH)

ALLISON, LYDIA, Assistant Clinical Professor (SLHS)

ALMOND, GREGORY T., Associate Clinical Professor, 2002, DVM Tennessee, Diplomate American College of Veterinary Radiology (VMCS)

ALTINDAG, DUHA, Associate Professor, 2011, PhD MS Louisiana State, BA Bogazici (ECON)

AMIN, RAJESH H., Professor, 2009, PhD MS BS Wayne State (DRDD)

AN, MYOUNG, Associate Research Professor (COMP)

AN, LI, Solon Martha Dixon Endowed Professor, PhD MS Michigan State University, MS Chinese Academy of Sciences, BS Peking University, China (FOWS)

ANDERSON, J. BRIAN, Professor, Graduate Program Officer, Associate Chair for Research, 2010, PhD ME University of Florida, BS North Carolina State University (CIVL)

ANDERSON, CHRIS, Professor, 2008, PhD Ohio State University, MS University of South Florida, BS Virginia Tech (FOWS)

ANDERSON, WESLEY, Assistant Professor Extension Specialist, 2021, PhD University of Florida, MS Texas Tech University, BS Davidson College (FOWS)

ANDRUS, MIRANDA R., Clinical Professor, 2000, PharmD Samford University (PYPP)

ANDRZEJEWSKI, CAREY E., Emily R. Gerald S. Leischuck Endowed Professor for Educational Leadership, 2008, PhD MA Ohio State, MA Texas Woman’s, BS Berry (EFLT)

ANGELO, ADRIENNE, Professor, 2009, PhD Emory, BA Groucher (FLNG)

ANTIC, ALEKSANDER, Visiting Assistant Professor, 2023 (MECH)

APPEL, ART, Associate Dean for Research; Associate Director, Endowed Professor, 1985, PhD MS California-Riverside, BA UCLA (ENPL)

ARD, MADISON, Instructor and Child Life Practicum Coordinator, MSW BS Auburn University (HDFS)

ARIK, MEHMET, Associate Professor, 2022, PhD University of Minnesota, MS University of Miami, BS Istanbul Technical University (MECH)

ARMBRUSTER, JONATHAN W., Professor and Director-Auburn University Museum of Natural History, 1998, PhD BS Illinois (BIOL)

ARMSTRONG, CHANCE, Associate Clinical Professor, 2002, DVM MS Auburn University, Diplomate American College of Veterinary Theriogenologists (VMCS)

ARMSTRONG-WRIGHT, DEBRA, Pre-Law Program Coordinator, 2024 (POLI)

ARNOLD, CHRISTOPHER, Associate Professor, 2003, MCP Auburn, BInd Auburn (INDD)

ARNOLD, ROBERT D., Professor, 2012, PhD Buffalo-SUNY, BS Plattsburgh State-SUNY (DRDD)

ARSENIOU, GEORGIOS, Assistant Professor Extension Specialist, 2023, PhD Michigan State University, MS University of Applied Sciences of Stuttgart, Germany, BS Aristotle University of Thessaloniki, Greece (FOWS)

ASHURST, W. ROBERT, Uthlaut Family Professor and Associate Chair; Director, Design and Innovation Center, 2004, PhD California Berkeley, BS Auburn (CHEN)

AUAD, MARIA L., Charles Gavin Distinguished Professor and Associate Dean for Graduate Studies and Faculty Development, Samuel Ginn College of Engineering, 2006, PhD University of Mar del Plata, BS University of Mar del Plata (PFEN)

AUAD, MARIA L., Charles Gavin Distinguished Professor and Associate Dean for Graduate Studies and Faculty Development, Samuel Ginn College of Engineering, 2006, PhD University of Mar del Plata, BS University of Mar del Plata (CHEN)

AVILA-FLORES, ADRIANA, Associate Professor and Undergraduate Program Officer (BIOL)

AYALA LOPEZ, CHRISTIAN, Assistant Research Professor, 202510, MS Rice University, BAR Auburn University, BIA Auburn University (ARCH)

AYASOUFI, ANAHITA, Senior Lecturer, 2015 (MECH)

AYDELOTT, STEVE, Senior Lecturer, 2024 (BSCI)

AYOUN, BAKER M., Professor, 2007, PhD Oklahoma State, MBA Yarmouk Jordan, BBA Mu’tah Jordan (HOSP)

AZHAR, SALMAN, Professor and Chair, Graduate Programs, 2006, JD Alabama, PhD Texas AM, MBC Florida, BS Auburn (BSCI)

B

BABL, RYAN M., Assistant Professor, Physical Therapy, PhD University of Mississippi, DPT University of Alabama at Birmingham, MS University of Southern Mississippi, BS University of Nebraska (KINE)

BAGGETT, HANNAH C., Associate Professor, 2015, PhD North Carolina State, MAT BA University of North Carolina-Chapel Hill (EFLT)

BAGINSKI, MICHAEL E., Associate Professor, 1985, PhD MS BS Penn State (ELEC)

BAILEY, RICH, Instructor, 2024 (AVTN)

BAIRD, A. NICKIE, Associate Dean, Clinical Affairs, 2022, DVM Auburn University, MS Texas AM, BS NC State, Diplomate American College of Veterinary Surgeons (VMCS)

BAKER, LAKAMI, Russell Professor Associate Professor, 2008, PhD Texas-San Antonio, MS Texas, BS Prairie View AM (MNGT)

BAKER-COOK, BETHANY, Assistant Professor, 2021, PhD University of Saskatchewan, Canada, MSc. University of Glasgow, Scotland (POUL)

BALDWIN, STEWART, Professor, 1997, PhD BA Colorado (MATH)

BALKCOM, KRIS, Extension Specialist (CSES)

BALL, JESSICA, Assistant Clinical Professor, 2023, DVM Auburn University (VMCS)

BALLEN, CISSY J., Associate Professor (BIOL)

BALTUSKONIS, PHILIP, Assistant Professor, PhD MA University of Mississippi, BA D'Youville University (HIST)

BANERJEE, TANNISTA, Professor, 2011, PhD MA Purdue, BA Jadavpur (ECON)

BANERJEE, RAHUL, Assistant Professor (CHEM)

BANERJEE, PRIYANKA, Assistant Professor, 2024 (ANSC)

BANIYA, ROJAN, Assistant Professor, 2024 (HOSP)

BANNON, SUSAN, Associate Professor and Director, Learning Resources Center, 1985, EdD Louisiana State, MEd BS Auburn (EFLT)

BARGER, PRISCILLA, Assistant Research Professor, 2005, PhD BS Auburn University, MS University of West Georgia (VMPB)

BARKER, DANA, Part-time Instructor (GEOL)

BARNES, ROBERT W., Professor, Associate Chair for Undergraduate Studies, and Feagin Chair, 2000, PhD MSE Texas, BCE Georgia Tech (CIVL)

BARNETT, MARK O., Professor, 2000, PhD University of North Carolina, MS BS University of Tennessee (CIVL)

BARRY, NANCY H., Professor, 2007, PhD MME Florida State, BM Middle Tennessee State (CTCH)

BARTLEY, PAUL, Assistant Professor Landscape Environment Steward (HORT)

BARTO, RON, Lecturer, 2021 (SCMN)

BARTOL, FRANK F., Associate Dean for Research and Graduate Studies Alumni Professor, 1983, PhD MS Florida, BS Virginia Tech (VMAP)

BARTON, CALLIE, Lecturer (CHEM)

BASHIR, ADIL, Associate Professor (ELEC)

BASKIYAR, SANJEEV, Professor, 1999, PhD MSEE Minnesota, BE Indian Inst. of Science (COMP)

BASSAR, RON, Associate Professor, 2022, PhD University of California, Riverside; BA Prescott College (BIOL)

BATCHELOR, WILLIAM D., Dean and Professor, 2010, PhD Florida, MS BS Georgia (AGRI)

BATCHELOR, WILLIAM, Professor, 2015 (BSEN)

BAUGHMAN, REBECCA, Lecturer (AVTN)

BAUMANN, STEPHANIE, Lecturer and Coordinator of Undergraduate Internships, 2022, PhD MS Georgia State University, MA BA Virginia Tech (HDFS)

BAUMANN, JENNIE, Assistant Professor, 2024 (CTCH)

BAWEJA, HARSIMRAN S., Associate Professor and Director of Physical Therapy, 2023, PhD University of Florida, BPT Sardar Patel University, India (KINE)

BAXTER, ANGELA, Affiliate Faculty (CHEM)

BAYNE, JENNA, Associate Clinical Professor, 2021, DVM Western College of Veterinary Medicine, University of Saskatchewan; PhD Auburn University, Diplomate American College of Veterinary Medicine - Large Animal (VMCS)

BEARD, PHILLIP, Lecturer (ENGL)

BECKINGHAM, BRYAN S., Mary and John H. Sanders Associate Professor and Director, Center for Polymer and Advanced Composites, PhD MS Princeton University, BS Clarkson University (CHEN)

BECKINGHAM, LAUREN, Associate Department Chair, Ginn Faculty Fellow, and W. Allen and Martha Reed Associate Professor, 2016, PhD MS Princeton University, BS Michigan Technological University (CIVL)

BECKMANN, JOHN, Assistant Professor, 2018, PhD, BA University of Minnesota (ENPL)

BELK, AERIEL, Assistant Professor, 2022, PhD BS Colorado State University, MS Texas AM University (ANSC)

BELL, MACY, Lecturer, 2024 (CTCH)

BELSARE, ANIRUDDHA, Assistant Professor, 2023, PhD University of Missouri, BVSc AH Bombay Veterinary College (FOWS)

BELSARE, ANIRUDDHA, Assistant Professor, 2023, PhD University of Missouri, BVSc AH Bombay Veterinary College (VMPB)

BENEFIELD, JUSTIN, Professor, Walker Reynolds Bickerstaff Professor, 2012, PhD MA BS The University of Alabama (FINC)

BENNETT, W. ANDY, Assistant Clinical Professor, 2023, DVM University of Florida (VMCS)

BENSON, ELIZABETH, Assistant Professor, 2014, DMA City University of New York, MM New England Conservatory of Music, BA Occidental College (THEA)

BERGMAN, NOELLE, Assistant Clinical Professor, 2019, DVM Ross University, MS Auburn University, Diplomate American College of Veterinary Internal Medicine - Oncology (VMCS)

BERGQUIST, BRENDAN, Assistant Clinical Professor, 2019, DVM Ross University (VMCS)

BERK, CHRIS, Senior Lecturer (SOCY)

BERNAL, MOISES A., Assistant Professor (BIOL)

BERNARDI, RAFAEL, Associate Professor, 2020, PhD Federal University of Rio de Janeiro, MSc Brazilian Center for Research in Physics, BS State University of Londrina (PHYS)

BERTOLET, ANNA RIEHL, Associate Professor, 2007, PhD MA BA Illinois (ENGL)

BERTOLET, CRAIG E., Professor, 1997, PhD MA Pennsylvania State, BA Millersville (ENGL)

BETANZOS, LOURDES, Professor, 2001, PhD MA Tennessee, BA Rutgers (FLNG)

BEVLY, DAVID M., McNair Professor, 2001, PhD MS MIT Stanford, BS Texas AM (MECH)

BEZDEK, ANDRAS, Professor, 1997, PhD Eotvos, PhD Ohio State (MATH)

BHUIYAN, NADIA, Associate Clinical Professor, 2016, PhD MS Florida, BA Auburn University (PSYC)

BIAN, MORRIS L., Professor, 1998, PhD Washington, MA NE Normal, BA Mudanjiang (HIST)

BIANCARDI, VINICIA C., Associate Professor, 2016, MS PhD Federal University of Sao Paulo (VMAP)

BIAZ, SAAD, Professor, 2001, PhD Texas AM, PhD MS BS Université Henri Poincaré (COMP)

BIDLEMAN, DALTON, Lecturer, 2025 (MATH)

BILBAO, ERNESTO, Assistant Professor, 2021, PhD The University of Texas at Austin, MArch Rice University, BArch Universidad San Francisco de Quito (ARCH)

BILENKER, LAURA, Assistant Professor, 2018, PhD University of Michigan, MS University of California, Riverside, BS University of Maryland (GEOL)

BILLINGSLEA, WILLIE, Lecturer (AVTN)

BILLOR, NEDRET, Professor, 1992, PhD Sheffield, MS BS Turkey (MATH)

BIRD, RICHARD C., Professor, 1985, PhD Toronto (VMPB)

BIRD, GORHAM, Assistant Professor, 2019, MS University of Michigan, BArch BIntArch Auburn University (ARCH)

BIRDSONG, JAMES, Assistant Professor and Interim Director, School of Aviation, 2014 (AVTN)

BLACK, CHRISTOPHER, Instructor (ENGL)

BLACK, PAUL, Assistant Professor (ACCT)

BLAINE, SARA, Associate Professor, 2019, PhD Colorado at Boulder, MS New Mexico, BA Cornell (PSYC)

BLAIR, MELISSA, Professor and Department Chair, 2015, PhD MA University of Virginia, BA University of Kentucky (HIST)

BLANKENSHIP, JUSTIN, Associate Professor, Associate Director of Journalism, PhD University of North Carolina at Chapel Hill, MA The University of Alabama, BA University of South Alabama (CMJN)

BLERSCH, DAVID, Associate Professor, 2013, PhD MS Maryland, BS Notre Dame (BSEN)

BLUMBERG, ANGELA, Postdoctoral Teaching Fellow (ENGL)

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BOCK, DORA, Department Chair and Kerry and Laura Bradley Professor, 2015, PhD Louisiana State University, BS University of Wisconsin-La Crosse (MKTG)

BODEWITS, DENNIS, Professor, 2018, PhD MSc MSc University of Groningen (PHYS)

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BORNIER, EVELYNE, Professor, 2012, PhD Louisiana State University, MA Universite de Franche-Comte (FLNG)

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BOURDEAU, BRIAN, Professor, 2005, PhD MS BSBA Florida State (MKTG)

BOVELAND, SHANNON D., Clinical Professor, 2017, DVM Tuskegee University, Diplomate American College of Veterinary Ophthalmology (VMCS)

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BOWEN, KIRA L., Professor, 1988, PhD Illinois, MS Minnesota, BS Penn State (ENPL)

BOWERS, BENJAMIN, McCartney-Chase Highway Engineering Distinguished Associate Professor (CIVL)

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BRANDEBOURG, TERRY, Associate Professor, 2008, PhD Oregon State, BS Purdue (ANSC)

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BRASHER, JORDAN, Part-time Instructor (GEOL)

BRAXTON-LLOYD, KIMBERLY, Gilliland Professor and Associate Dean, 1998, PharmD BSPharm Auburn (PYPP)

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BREWER, SHANNON K., Research Professor, 2020, PhD MS University of Missouri, BS Missouri Western State University (FISH)

BRIGGS, TERI, Curator-Donald E. Davis Arboretum (BIOL)

BRIGGS, JOE, Assistant Professor, 2021, PhD Carnegie-Mellon University, MMath BA University of Cambridge, UK (MATH)

BRIGGS, LEEANNE, Affiliate Faculty (CHEM)

BRINGARDNER, CHARLES, Professor and Associate Provost for Academic Affairs, 2009, PhD University of Texas, BA Davidson (THEA)

BRINK-ROBY, DAVID, Lecturer, 2020, PhD University of Rochester, BA Carleton College (GEOL)

BRITNELL, RICHARD E., Bauhaus Professor, 1991, MID BSED BFA Auburn (INDD)

BROCK, SHERI J., Professor, 2002, PhD Alabama, MS BS Troy State (KINE)

BROFFITT-KUNZER, VIRGINIA, Professor, 2021 (MUSI)

BROOKS, JENNIFER E., Professor, 2006, PhD Tennessee, BA Massachusetts-Boston (HIST)

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BROWN, M. MITCHELL, Curis O. Liles III Professor, 2006, PhD MA Maryland, MA George Washington, BA Meredith (POLI)

BROWN, STEVEN P., LAWJ Program Director and Morris Savage Professor, 1998, PhD MA Virginia, BA Brigham Young (POLI)

BROWN, ONIKIA, Associate Professor, 2012, PhD Iowa State, RD Utah State, S North Carolina AT State, BS Fort Valley State (NDHM)

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BROWN, STEVEN, Assistant Professor/Extension Specialist (CSES)

BROWN, MICHAEL, Assistant Professor (MATH)

BROWN, TIFFANY, Associate Professor, 2021, PhD Florida State University (PSYC)

BRUCE, TIMOTHY J., Assistant Professor, 2021, PhD South Dakota State University, MS Purdue University-Fort Wayne, BMSc University of Western Ontario (FISH)

BRUMBAUGH, BARBARA, Lecturer (ENGL)

BRUMBELOE SCHWECK, KELLY, Assistant Clinical Professor, 2006, PhD MS BS Auburn University (SERC)

BRUNNER, BRIGITTA R., Alumni Professor; Associate Director, School of Communication Journalism, 2002, PhD Florida, MA Auburn, BA Juniata (CMJN)

BRUNSON, BRANDON L., Director, Student Services Senior Lecturer, 2012, DVM PhD Auburn University (VMAP)

BRUNSON, MICHAEL, Professor of Practice, PhD Kansas State University, MA Prescott College, BS Northern Arizona University (FOWS)

BRUSH, CHRISTOPHER J., Assistant Professor, 2025, PhD Rutgers University, BS Rutgers University (KINE)

BRYANT, JASON, Associate Clinical Professor and Director, Truman Pierce Institute, 2016, PhD Auburn, EdS MSEd BSEd Troy (EFLT)

BUBASH, CONNIE, Instructor (ENGL)

BUBB, ROBERT, Lecturer, 2011, MS BS Brigham Young (HDFS)

BUCHANAN, MEGHAN, Associate Professor (SOCY)

BUCHANNON, CHENETRA, Visiting Clinical Assistant Professor , 2024, PhD Auburn University, MAE, BS University of Alabama at Birmingham (SERC)

BUCKLEY, KATHERINE M., Associate Professor (BIOL)

BUGG, ALAN, Associate Professor, Service Learning Chair, MBC MBA BS Auburn University (BSCI)

BULLARD, STEPHEN A., Professor, 2008, PhD MS University of Southern Mississippi, BS University of South Carolina (FISH)

BULLOCH, MARILYN N., Associate Clinical Professor, 2009, PharmD Rutgers (PYPP)

BURCH, THOMAS E., Senior Lecturer, 1992, PhD Louisiana State, MS BS Auburn (MECH)

BURCH, HUNTER, Assistant Professor and Co-Graduate Program Officer, PhD MS University of Florida, BEE Auburn University (ELEC)

BURDY, HENRY B., Professor Emeritus, 2016 ()

BURKHOLDER, ERIC, Assistant Professor, 2021, PhD MS California Institute of Technology, BA Cornell University (PHYS)

BURNS, EMILY, Associate Professor, 2013, PhD Washington University (ARTS)

BURNSED, ANNETTE, Senior Lecturer, 2021 (CADS)

BURQUE, ANGELA D., Clinical Professor, 1992, MSW Florida State, BSSW Alabama (SOCY)

BURRIS, GREGORY, Lecturer (GEOL)

BURT, RICHARD, Professor and School Head, 2000, PhD MS Texas AM (BSCI)

BURTON, MEGAN E., Professor, 2012, PhD Alabama, MEd Kennesaw State, BS Auburn (CTCH)

BUSH, BENJAMIN, Associate Professor, 2017, MId BId Auburn University (INDD)

BUTLER, AMANDA, Instructor and Director of Child Life Programs, 2015 (HDFS)

BUTLER, ASHLEY, Lecturer (THEA)

BUTTS, IAN, Associate Professor, 2017, PhD MS BS University of New Brunswick, Canada (FISH)

BYAHUT, SWETA, Associate Professor (POLI)

C

CABIROU, LATIFAT, Assistant Professor, 2020, PhD Loyola University Chicago, MA Benedictine University, BS University of Illinois (SERC)

CAIN, LAURA ANNA, Professor of Practice, 2025, DVM BS Auburn University (VMCS)

CALDERON, ANGELA I., Associate Professor, 2008, PhD Laussane, MS Illinois-Chicago, BPharm Panama (DRDD)

CALDWELL, FRED J., Professor, 2005, DVM Auburn, MS BS Kentucky, Diplomate American College of Surgeons and American College of Sports Medicine and Rehabilitation (VMCS)

CALHOUN, CATE, Librarian II, 2012, MALS Missouri, MA North Carolina State, BA Wake Forest ()

CALLAHAN, MELISSA, Collections Manager, 2025 (BIOL)

CAMPBELL, ANNIE, Associate Professor, 2016, MFA Indiana University, BFA Virginia Commonwealth University (ARTS)

CAMPBELL, ELLEN, Instructor (ENGL)

CAMPBELL, ANTHONY, Assistant Professor (SOCY)

CAMPBELL, JESSE C., Associate Extension Professor, National Poultry Technology Center, 2001, PhD MS BS Auburn University (BSEN)

CAMPBELL, JESSE C., Associate Extension Professor, National Poultry Technology Center, 2001, PhD MS BS Auburn University (POUL)

CAMUS, MELINDA S., Professor Associate Dean for Academic Affairs, DVM Louisiana State University, Diplomate American College of Veterinary Pathologists (VMPB)

CAO, YANZHAO, Professor, Logan Endowed Chair and GPO, 2008, PhD Virginia Tech, MS BS Julin (MATH)

CAPONETTO, ROSETTA, Associate Professor, 2009, PhD University of Connecticut-Storrs, MA Bari, BA Bologna (FLNG)

CARDULLO, VICTORIA, Professor, 2013, EdD MEd BS University of Central Florida (CTCH)

CARPENTER, LU ANN, Director, Student Program Assessment and Administration, 2003, PhD Auburn University, MS BSIE Georgia Tech (INSY)

CARPENTER, MARK, Professor, 2003, PhD MS Louisiana-Lafayette, MS BS South Alabama (MATH)

CARR, TESSA, Associate Professor Department Chair, 2013, PhD University of Texas at Austin, MA Louisiana State University, BA Lees-McRae College (THEA)

CARROLL, ALICIA J., Professor Department Chair, 1998, PhD CUNY, MA Columbia, BS Skidmore (ENGL)

CARROLL, DANA G., Clinical Professor, 2006, PharmD BSPharm Auburn (PYPP)

CARTER, DAVID C., Associate Professor, 2000, PhD Duke, BA North Carolina (HIST)

CARTER, TONI M., Librarian II, 2009, MLIS MA Alabama, BS North Alabama ()

CARTER, WILLIAM MATTHEW, Lecturer (ENGL)

CARTER, SHANA, Assistant Clinical Professor (KINE)

CATALANO, MATTHEW, Associate Professor, 2012, PhD University of Florida, BS Miami University (FISH)

CAUDLE, DANA M., Librarian III, 1992, MLIS Texas, BA Rice ()

CEGIELSKI, CASIMER G, J.W. Woodruff, Sr. Professor, 2000, PhD Mississippi, MAc BA Alabama (AVSC)

CERIOTTI, SERENA, Clinical Lecturer, 2023, PhD DVM University of Milan (Italy), MS Auburn University, Diplomate of the American College of Veterinary Internal Medicine (VMCS)

CEYHAN, ELVAN, Associate Professor (MATH)

CEYNOWA, WAYNE, Chief Flight Instructor (AVTN)

CHAKRABORTY, IMON, Assistant Professor (AERO)

CHAKRABORTY, DEBOLINA, Assistant Research Professor (BSEN)

CHALMIN, RONAN, Associate Professor, 2021 (FLNG)

CHAMORRO ORTEGA, MANUEL FELIPE, Associate Professor, 2019, PhD Auburn University, DVM National University of Colombia, Diplomate American College of Veterinary Internal Medicine (VMCS)

CHAMORRO ORTEGA, ERIN, Assistant Clinical Professor, 2019, DVM Auburn University (VMCS)

CHANDLER, SARAH, Assistant Professor, 2016 (THEA)

CHANG, XIAO, Lecturer, 2021 (MATH)

CHAPMAN, RICHARD, Associate Professor, 1993, PhD MS Cornell, BA Oxford (COMP)

CHARLES, JULIA S., Assistant Professor (ENGL)

CHARVET, CHRISTINE, Assistant Professor, PhD University of California-Irvine, BA University of California-Los Angeles (VMAP)

CHATTARAMAN, VEENA, Human Sciences Professor, 2006, PhD Ohio State, Master of Design Cincinnati, BBA Madras (CADS)

CHEN, CHARLES, Professor, 2012, PhD The University of Illinois at Urbana-Champaign, MS The Graduate School of Chinese Academy of Agricultural Sciences, BS Beijing Agricultural University (CSES)

CHEN, YU, Lecturer (MATH)

CHEN, LE, Assistant Professor, 2021, PhD Swiss Federal Institute of Technology, Lausanne (MATH)

CHEN, PENGYU, Francis Family Associate Professor, 2023 (MECH)

CHEN, HOA, Assistant Professor, 2023 (FOWS)

CHEN, JASON, Assistant Professor, 2023, PhD Drexel University, MSc The Chinese University of Hong Kong, BCom BSc University of New South Wales (FINC)

CHEN, XI, Assistant Research Professor, PhD State University of New York at Buffalo (DRDD)

CHEN, SANCHUAN, Assistant Professor, 2024 (COMP)

CHENG, ZHONG YANG, McWane Professor, 2002, PhD MS BA Xi'an Jiaotong University (MECH)

CHESSER, RUSS, Lecturer (AVTN)

CHIAFELE, ANNA, Associate Professor, 2012, PhD University of Toronto, MA University of Virginia (FLNG)

CHIDUME, TIFFANI, Associate Clinical Professor, Simulation Coordinator (NURS)

CHO, SUNGEUN, Assistant Professor (POUL)

CHOE, SONG YUL, Reed Professor, 1991, PhD Technische Universität Berlin, BS Hanyang (MECH)

CHOI, WONIL, Lecturer, 2025 (BIOL)

CHON, MYOUNG-GI, Associate Professor, Graduate Program Director (CMJN)

CHRISTOPHER, DISHOP, Assistant Professor (PSYC)

CHUNG, ALLISON M., Associate Clinical Professor, 2002, PharmD Missouri-Kansas City, BS California-San Diego (PYPP)

CHUNG, EUNJI (ANGIE), Associate Professor, PhD Syracuse University, MS Northwestern University, BA Ewha Womans University (CMJN)

CHUNG, JONG HYUN, Assistant Professor (ECON)

CHUNG, TOM, Professor of Practice, 2022 (ARCH)

CICERO, DAVID, Associate Professor, Bray Distinguished Professor (FINC)

CLARK, MIRIAM M., Associate Professor, 1989, PhD MA North Carolina, AB Missouri (ENGL)

CLARK, C. RANDALL, Gilliland Professor, 1973, PhD Mississippi, BS Berry (DRDD)

CLARK, JAMES A., Associate Professor and Director, Institutional Research and Assessment, 1982, PhD Yale, MA BA North Carolina (ENGL)

CLARK, MARK, Lecturer, 2021 (SCMN)

CLARK-PRICE, STUART C., Professor, 2017, DVM, Ross University, MS Kansas State University, Diplomate American College of Veterinary Internal Medicine and American College of Veterinary Anesthesia and Analgesia (VMCS)

CLARY, MATT, Senior Lecturer (POLI)

CLEMONS, CHRISTOPHER, Associate Professor, 2016, PhD MS BS Southern Illinois University (CTCH)

CLIFFORD, JANICE E., Associate Professor, 1999, PhD MA BA SUNY-Buffalo (SOCY)

CLINE, DAVID, Associate Extension Professor, 1994, PhD MAq Auburn University, BA Colgate University (FISH)

COBINE, PAUL A., Professor and Chair, 2002, PhD BS Queensland (BIOL)

COHEN, GWEN, Assistant Professor, 2022, MLA University of Virginia, BFA Rhode Island School of Design (ARCH)

COHEN, ISSAC, Assistant Professor, BA Vassar College, MLA University of Virginia (ARCH)

COLE, ROBERT C., Professor, 2012, DVM Auburn University, Diplomate American College of Veterinary Radiology and Equine Diagnostic Imaging (VMCS)

COLE, DUSTIN, Assistant Professor, 2021 (SCMN)

COLEMAN, JEFF, Associate Professor, 2014, PhD University of Arizona, BS Bloomsburg University (ENPL)

COLEMAN, SARAH, Assistant Professor, MLA The Ohio State University, BFA The Maryland Institute College of Art (ARCH)

COLLINS, WESLEY, Associate Professor, PhD Arizona State University, MTM MBA Bowling Green State University, BS East Carolina University (BSCI)

COLQUITT, LEE, Professor and Chair, 1995, PhD MBA Georgia, BSBA Auburn (FINC)

COMES, RYAN, Associate Professor, 2016, PhD University of Virginia, BS Carnegie Mellon University (PHYS)

CONEVA, ELINA D, Professor and Extension Specialist, 2006, PhD MS BS Agrarian University Plovdov Bulgaria (HORT)

CONNELL, CAROL, Instructor and Extension Specialist, 2023, PhD The University of Southern Mississippi, MS BS Auburn University (NDHM)

CONNELLY, BRIAN, Luck Eminent Scholar Professor, 2008, PhD Texas AM, MBA Indiana, BSEE Rutgers (MNGT)

COOK, MICHAEL, Professor, 2016, PhD Clemson University, MEd North Carolina State University, BS Appalachian State University (CTCH)

COOK, BRIAN, Postdoctoral Teaching Fellow (ENGL)

CORDIE, LESLIE A., Associate Professor, 2014, PhD Colorado State University, MBA The University of Texas at Austin, BSN University of Wisconsin-Milwaukee (EFLT)

CORNISH, MARILYN, Associate Professor, 2014, PhD (SERC)

CORREIA, CHRISTOPHER J., Professor and Department Chair, 2002, PhD MS Syracuse, BS Scranton (PSYC)

CORRIGAN, DANIELLE, Lecturer, 2025 (MKTG)

COUNTERMAN, AMY, Professor of Practice, 2023 (FOWS)

COUNTERMAN, BRIAN, Associate Professor, 2025 (BIOL)

COVAS, HOLLY, Affiliate Faculty (CHEM)

COVINGTON, ELIZABETH W., Associate Clinical Professor, 2023, PharmD Auburn, BS Furman (PYPP)

COX, DWAYNE D., Archivist III and Head Emeritus, 1986, PhD Kentucky, MA Louisville, BA Kentucky Wesleyan ()

CRAIG, KATE, Associate Professor, 2015, PhD MA University of California Los Angeles, BS California Institute of Technology (HIST)

CRAIG, KEVIN, Assistant Professor (AVSC)

CRAWFORD, ALLEAH, Associate Dean and Professor (HOSP)

CRAWFORD, ALLEAH, Associate Dean and Professor (HUSC)

CREMASCHI, LORENZO, Burt Professor (MECH)

CREMASCHI, SELEN, B. Redd and Susan W. Redd Eminent Scholar Chair Professor and Department Chair, 2016, PhD Purdue University, MS BS Bogazici University (CHEN)

CRISOSTOMO, DAVID A., Senior Lecturer (CHEM)

CRISTAN, RICHARD, Assistant Professor Extension Specialist, PhD Virginia Tech, MS BS University of Tennessee (FOWS)

CSERE, PAIGE, Assistant Professor, 2024, PHD Emory University, MAcc BSBA Auburn University (ACCT)

CUFFEY, JOEL, Associate Professor (AGEC)

CULLEN, THOMAS, Assistant Professor (GEOL)

CUMMINGS, REBECCA, Professor of Practice (PROF)

CURTIS, AMY, Associate Clinical Professor, 2011, MSN BSN Auburn University (NURS)

D

DA SILVA, ANDRE LUIZ BISCAIA RIBEIRO, Assistant Professor, 2022 (HORT)

DAGG, CHRISTIAN, Associate Professor, 2000, MArch Harvard University, BS Northeastern University (ARCH)

DAI, SIYUAN, Assistant Professor (MECH)

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DANIEL, MARISSA JO, Assistant Professor, PhD MBA Auburn University, MS BA BA University of Missouri (FOWS)

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DAVID, ALLAN E., John W. Brown Professor and Associate Dean for Research, Samuel Ginn College of Engineering, 2012, PhD BS Maryland (CHEN)

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DAVIDSON, JAMES S., Professor, 2007, PhD MS BCE Auburn (CIVL)

DAVIS, VIRGINIA A., Daniel F. and Josephine Breeden Professor, 2005, PhD Rice, MS BS Tulane (CHEN)

DAVIS, DONALD A., Professor, 1999, PhD MS Texas AM, BS Northern Arizona (FISH)

DAVIS, JEREMIAH D., Professor Director of National Poultry Technology Center, 2015, PhD Iowa State, MS Kentucky, BS Texas AM (BSEN)

DAVIS, EDWARD W, Associate Professor, 2007, PhD Akron, MS BS Tulane (MECH)

DAVIS, JON, Senior Lecturer, 2017, MS BS Auburn University (BSEN)

DAVIS, ASHLEE, Assistant Clinical Professor (SOCY)

DAVIS-SRAMEK, BETH, Gayle Parks Forehand Professor and Department Chair (SCMN)

DE LA FUENTE, LEONARDO, Professor, 2008, PhD Washington State, MS BS Univ of the Republic, Uruguay (ENPL)

DE MARCHI, LETICIA, Lecturer, 2022, PhD MS Auburn University, BS University of Campinas (GEOL)

DE VRIES, JOYCE, Professor, 2003, PhD MA Illinois, BA Calvin (ARTS)

DEAN JR., ROBERT N., McWane Endowed Professor, 2007, PhD MS BEE Auburn (ELEC)

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DELEKTA, EMMY, Collections Manager, 2025 (BIOL)

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HUANG, HUAJUN, Associate Professor, 2010, PhD Yale (MATH)

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HUNT, STACEY L., Associate Professor, 2009, PhD Rutgers, BA Gustavus Adolphus (POLI)

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ROBINSON, CAROLYN W., Associate Professor, 2006, PhD Texas AM, MS Florida, BS Auburn (HORT)

ROBINSON, JENNIFER, Professor, 2012, PhD MA Case Western Reserve (PSYC)

ROBINSON, STACEY , Jean Howard Lowe Associate Professor, 2025 (MKTG)

ROCCAPRIORE, ASHLEY, Assistant Professor, 2023, PhD University of Tennessee, MBA MS University of Texas at Dallas, BS Auburn University (MNGT)

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RODEKOHR, DONN, Instructor (GEOL)

RODNING, SOREN P., Professor and Extension Specialist, 2006, DVM MS BS Auburn University (ANSC)

RODRIGUES, CAMILA, Assistant Professor, 2022 (HORT)

RODRIQUES, JANELLE, Assistant Professor (ENGL)

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ROHRBAUGH, GUY, Professor, 2003, PhD MA UCLA, BA Pomona (PHIL)

ROLLINS, FROST, Visiting Assistant Professor, 2024 (ARCH)

RONG, JIAN, Senior Lecturer (AGEC)

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ROSS, DEREK, Associate Professor, 2008, PhD Texas Tech University (ENGL)

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RUDAR, MARKO, Assistant Professor, 2021 (ANSC)

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RUEDA-BENAVIDES, JORGE, David Dixon Associate Professor, 2016, PhD MS Iowa State, BS Universidad de Santander (CIVL)

RUIZ-JUNCO, NATALIA, Associate Professor, 2014, PhD MA Kentucky, BA Universidad Complutense (Spain) (SOCY)

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RUMPH, PAUL F., Professor Emeritus and Visiting Professor, 1997, DVM MS Auburn University (VMAP)

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RUSH, KATHERINE, Assistant Professor, 2023, PhD University of Michigan, BS University of Tennessee (CHEM)

RUSHING, KELSEY, Lecturer and Dietetic Internship Director, 2025 (NDHM)

RUSSELL, MELODY L., Alumni Professor, 2002, PhD Georgia, MS Nebraska, BS North Carolina Agricultural and Technical State (CTCH)

RUSSELL, JARED, Associate Dean for Academic and Faculty Affairs, 2002, PhD MA Georgia (KINE)

RUSSELL, DAVID, Assistant Extension Professor (CSES)

RUSSELL, BARRY, Lecturer, 2021 (SCMN)

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RYAN, JAMES EMMETT, Liles Professor, 2000, PhD MA North Carolina, BA Pennsylvania (ENGL)

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SADI, MEHDI, Assistant Professor, PhD University of Florida, MS University of California-Riverside, BS Bangladesh University of Engineering and Technology (ELEC)

SAGONG, HAE, Assistant Professor (NURS)

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SALERNO, ALLEN, Lecturer (ENGL)

SALISBURY-GLENNON, JILL D., Professor, 1997, PhD MS Penn State, BS Suny-Oswego (EFLT)

SALMAN, AMNA, Assistant Professor, 2016, PhD (ABD) MCP MPA Auburn University, BArch University of Engineering and Technology (BSCI)

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SAMOLESKY, JEREMY, Ike Rhonda Scott Endowed Professor, 2007, DMA Eastman School, MM Washington, BM Manitoba (MUSI)

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SANCHEZ-LONDONO, ALFREDO, Associate Clinical Professor, 2019, DVM, Universidad de La Salle, Bogota, Colombia, Diplomate American College of Veterinary Internal Medicine (VMCS)

SANDAGE, MARY, Associate Professor (SLHS)

SANDEY, MANINDER, Associate Professor, 2013, PhD Auburn University, DVM, University of Agricultural Sciences, MVSc Indian Veterinary Research Institute, Diplomate American College of Veterinary Anatomic Pathologist (VMPB)

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SANDS, KENNETH, Assistant Professor, PhD Virginia Tech, MS BS Florida International University, AA College of the Bahamas (BSCI)

SANZ SAEZ DE JAUREGUI, ALVARO, Assistant Professor (CSES)

SARDINAS, RODRIGO, Senior Lecturer (COMP)

SATTINENI, ANOOP, Associate Professor and Chair, Executive Programs, 1996, MS Auburn, BSE Osmania (BSCI)

SAWADGO, WENDIAM, Assistant Professor, 2020, PhD Iowa State University, BS Washington State University (AGEC)

SAWHNEY, GARGI, Associate Professor, 2019, PhD Old Dominion, MS Illinois Institute of Technology, BA Northeastern Illinois (PSYC)

SAWYER, JASON, Professor (ANSC)

SCARBOROUGH, DAVID, Associate Professor (AERO)

SCHAFFER, WILLIAM R., Associate Professor, 1998, DMA North Carolina-Greensboro, MM Illinois State, BME Indiana (MUSI)

SCHALL, MARK, Professor, 2015, PhD MS BS University of Iowa (INSY)

SCHALL, KARA, Clinical Instructor (SLHS)

SCHENCK, HAL, Kopel Brown Chair, Professor (MATH)

SCHINDLER, ANTON K., Mountain Spirit Professor and Director, Highway Research Center, 2002, PhD MSE Texas, BSE Pretoria (CIVL)

SCHMIDT, GREGORY J., Librarian III, 2008, MLIS Alabama, MS BS Auburn ()

SCHMIDT, JOHN, Assistant Clinical Professor, 2023, PhD MA University of Houston, MA Fielding Graduate University (PSYC)

SCHMIDT, JOHN, Adjunct Instructor, 2024 (AVTN)

SCHMITT, JOHN C., Assistant Research Professor (PHYS)

SCHMITZ, CECILIA M., Librarian III, 1988, MLS BA Arizona ()

SCHULZ, ZACHARY, Lecturer, PhD Purdue University, EdS Auburn University (HIST)

SCHULZE, KYLE, Assistant Professor (MECH)

SCHWARTZ, DEAN D., Associate Professor, 1993, PhD Houston, BS Stonehill (VMAP)

SCHWARTZ, TONIA S., Associate Professor (BIOL)

SCHWARTZ, ELIZABETH, Professor and Assistant Dean for Biomedical Sciences, 2012, PHD Emory University, BS Auburn University (BIOL)

SCHWARTZ, ANDREW, Assistant Professor, 2021 (THEA)

SEALS, CHERYL, Charles W. Barkley Professor, 2003, PhD MS Virginia Tech, BS Grambling State (COMP)

SEALS, RICHARD A., Associate Professor, 2010, PhD MA BS Middle Tennessee State (ECON)

SEALS, SARA, Lecturer (ECON)

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SEIBENHENER, MICHAEL L., Assistant Research Professor (BIOL)

SEIFRIED, JONATHAN, Lecturer (CMJN)

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SENER, KADIR, Assistant Professor (CIVL)

SENGUPTA, ADITI, Associate Professor, 2011, PhD MA Southern Methodist, BS Univ of Calcutta (ECON)

SEO, MINJUNG, Lecturer, 2021 (MUSI)

SERAFINI, AMY M., Associate Professor, EdD The University of Texas at El Paso, MEd Bucknell University, BS Lock Haven University of Pennsylvania (EFLT)

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SESEK, RICHARD, Tim Cook Professor, 2009, PhD MPH University of Utah, MS BSGE University of Illinois (INSY)

SETH, MCKELVEY, Instructor (ENGL)

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SHAFFER, CHARLES, Senior Lecturer (COMP)

SHAH, SAYED FAWAD ALI, Assistant Professor (CMJN)

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SHAKIBA, NILA, Assistant Professor (HDFS)

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SHARMA, AJAY, Assistant Professor, 2023 (FOWS)

SHARMA, NEHA, Assistant Professor (CIVL)

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SHEN, WENXIAN, Professor and Logan Endowed Chair, 1997, PhD Georgia Tech, MS Beijing, BS Zhejiang (MATH)

SHEN, JIANZHONG, Professor, 2008, PhD Missouri, MMed DiplPharm Zhejiang (DRDD)

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SHU, TAO, Associate Professor, PhD University of Arizona, MS BS South China University of Technology (COMP)

SHULER, KRISTRINA A., Associate Professor, 2007, PhD Southern Illinois, MA Southern Mississippi, BA South Carolina (SOCY)

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SIKORA, EDWARD, Extension Specialist Professor, 1992, PhD MS University of Illinois, BS Eastern Illinois University (ENPL)

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SIMKINS, W. SCOTT, Senior Lecturer, 2006, PhD University of Southern Mississippi (ENGL)

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SMITH, ANDREA, Assistant Clinical Professor, 2020 (NURS)

SMITH, MICHAEL L., Assistant Professor (BIOL)

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SMITH, MISSIE, Assistant Professor, 2024, PhD Virginia Tech, MS, BS, Mississippi State (INSY)

SMITHGALL, SEAN E., Associate Clinical Professor, 2016, PharmD East Tennessee State (PYPP)

SMOKE, JACQUELINE, Lecturer, 2024 (POLI)

SNIDER, CLINT, Assistant Professor, 2023 (ELEC)

SOCARRÁS, GILDA M., Associate Professor, 2006, PhD MAT Georgetown, BA Puerto Rico (FLNG)

SOLOMON, DEBORAH, Assistant Professor (ENGL)

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SOMERS, JENNIFER, Assistant Professor, 2024 (PSYC)

SONGER, MICHAEL, Affiliate Faculty (CHEM)

SONIK, KAREN, Associate Professor, 2014, PhD University of Pennsylvania, MA BA University of British Columbia (ARTS)

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SPELL, CARRIE, Senior Lecturer, 2008, PhD MA Southern Mississippi, BA Cornell (ENGL)

SPIERS, JAY D., Associate Professor, 2008, PhD Texas AM, MS BS Mississippi State (HORT)

SPRAY, GREGORY, Assistant Professor, 2024 (SLHS)

SPRINGALL, DREW, Assistant Professor (COMP)

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SPURLIN, ADAM C., Professor Associate Director of Bands, 2007, DMA Louisiana State, MA BS Alabama (MUSI)

SRIKUMAR, SHABARINATH, Assistant Professor, 2023, PhD Karnataka Veterinary, Animal Sciences and Fisheries University, MFSc University of Agricultural Sciences, BFSc Kerala Agricultural University (POUL)

STAGG, MACKENZIE M., Assistant Research Professor (ARCH)

STALTER-PACE, SUNNY, Hargis Associate Professor of American Literature, 2007, PhD Rutgers, BA Loyola (ENGL)

STAMM, PAMELA L., Associate Professor, 1997, PharmD South Carolina, BSPharm St. Louis Coll Pharm (PYPP)

STANLEY, JONATHAN D., KPMG Professor and Director, 2009, PhD MAcc BS The University of Alabama (ACCT)

STARKEY, JESSICA, Associate Professor, 2014, PhD Connecticut, MS BS Kansas State (POUL)

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STERN, LILIANA, Associate Professor, 2006, PhD MA Indiana, MA EERC BS Ternopil State (ECON)

STERN, MICHAEL L., Associate Professor, 2004, PhD MA Indiana, BS Purdue (ECON)

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STEURY, KELLEY, Lecturer and Co-Director PAOH, 2021, DVM Texas AM, MPH University of Alabama at Birmingham, BS University of Colorado, Diplomate American College of Veterinary Preventive Medicine (VMPB)

STEVENSON, T. LYNN, Associate Clinical Professor, 2007, PharmD BSPharm Auburn (PYPP)

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STOECKEL, JAMES A., Associate Professor, 2007, PhD Miami, MS Ohio State, BS Northern Kentucky (FISH)

STOVER, JOSEPH, Lecturer (FINC)

STRAW, ROBERT, Instructor, 2021 (SCMN)

STRAYER-SCHERER, AMANDA, Assistant Professor Extension Plant Pathologist, 2019, PhD MS BS University of Florida (ENPL)

STRICKLAND, DAVID, Lecturer (SCMN)

STROM, PARIS S., Professor, 2001, PhD MA BFA Arizona State (EFLT)

STRUTCHENS, MARILYN E., Emily R. and Gerald S. Leischuck Endowed Professor and Mildred Chesire Fraley Distinguished Professor, 2000, PhD MEd BS Georgia (CTCH)

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SUHLING, JEFFREY C., Quina Professor and Chair, 1985, PhD MS BS Wisconsin (MECH)

SUKHTAIEV, SELIM, Assistant Professor (MATH)

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SURRY, DANIEL W., Professor and Associate Dean, 2014, EdD Georgia, MS South Alabama, BA Alabama (HORP)

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Schmidt, Paul ()

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TAHERI, EHSAN, Assistant Professor (AERO)

TAO, YA-XIONG, Professor, 2004, PhD Chinese Acad Science, MSc Zhongshan (VMAP)

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TATUM, MARK, Associate Professor, 1981, MS BS Auburn (BSCI)

TAURITZ, DANIEL, Associate Professor; Interim Director, Auburn Cyber Research Center (COMP)

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TAYLOR, MARGIE, Assistant Clinical Professor, 2018, PhD MEd Auburn University, BS Asbury College (SERC)

TAYLOR, JONATHAN, Associate Professor (EFLT)

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TEEL, JANE B., Associate Clinical Professor, 2005, PhD MA BS Auburn University (EFLT)

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THAKUR, SAIKAT, Associate Research Professor, 2020, PhD West Virginia University, MSc Indian Institute of Technology, BSc Calcutta University (PHYS)

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THOMAS, CHIPPEWA, Professor, 2005, PhD MEd Auburn, BA Tuskegee (SERC)

THOMAS, JAKITA, Philpott-West Point Stevens Associate Professor (COMP)

THOMAS, JOYCE, Assistant Professor, 2018, Executive Masters Northwestern University, MFA University of Illinois at Urbana-Champaign, BFA Rochester Institute of Technology (INDD)

THOMAS, TODD M., Associate Clinical Professor, 2018, DVM Auburn University, Diplomate American College of Veterinary Surgeons - SA (VMCS)

THOMAS, JR, EDWARD E, Admin Professor Dean, 1999, PhD Auburn, MS MIT, BS Florida Inst. Tech (PHYS)

THOMES, PAUL, Associate Professor, PhD MSc University of Madras (VMAP)

THOMPSON, EARLE, Senior Lecturer and UAS Program Manager (AVTN)

THOMPSON, CLAIRE, Associate Clinical Professor (NURS)

THOMPSON, PATRICK, Curator-Donald E. Davis Arboretum (BIOL)

THOMPSON, CARL, Senior Lecturer, MS Central Michigan University, BS Auburn University (AVTN)

THOMPSON, MAGGIE, Assistant Professor, Extension Specialist, 2024, MAM University of Georgia, DVM BS Auburn University, Diplomate American College of Poultry Veterinarians (VMPB)

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THORNTON, LINDA L., Librarian Emeritus, 2014, MSLS Clarion, BS SUNY-Oneonta ()

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THORNTON, KATE, Director of Global Education (HUSC)

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THUROW, BRIAN S., W. Allen and Martha Reed Professor and Department Chair, 2005, PhD MS BS Ohio State (AERO)

TIAN, DI, Assistant Professor (CSES)

TIAN, TINA, Senior Lecturer, 2024 (COMP)

TIDWELL, DAVID, Lecturer and Undergraduate Program Officer, MS Air University, BS Auburn University (AVTN)

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TIPPUR, HAREESH V., McWane Professor, 1990, PhD SUNY, ME Indian Inst, BE Bangalore (MECH)

TIRADO, JESÚS, Associate Professor (CTCH)

TODT, MOLLIE, Assistant Clinical Professor (PSYC)

TOLLERSON, RODNEY, Assistant Professor, 2025 (BIOL)

TOMASELLO, CRYSTAL, Instructor (CMJN)

TOMASSO, JOSEPH, Professor Director, 2015, PhD University of Memphis, MS Middle Tennessee State University, BS University of Tennessee at Martin (FISH)

TORABI, ALI REZA, Research Assistant Professor, 2023 (MECH)

TORDELLA-WILLIAMS, KRISTEN, Associate Professor, 2021, MFA Alfred University New York State College of Ceramics, 2010 University of Massachusetts-Dartmouth (ARTS)

TORRES, AIMEE, Lecturer (CTCH)

TOWNS, JORDAN, Assistant Clinical Professor, 2025, PhD, DVM, BS Auburn University, Diplomate American College of Veterinary Pathologists (VMPB)

TRAYNOR, MARK, Associate Professor and Director of Culinary Science Program, 2019, PhD BA Cert. Dublin Institute of Technology (HOSP)

TREHUB, AARON, Assistant Dean and Head, 2009, MA Johns Hopkins SAIS, MSLIS Illinois, BA, McGill ()

TRIGGS, ELDON, Senior Lecturer, 2014, PhD Tuskegee University, MS BS Auburn University (AERO)

TRIPP, L. OCTAVIA, Professor, 2002, EdD MS Oklahoma State, BS Wesleyan (CTCH)

TRISSEL, LUKE, Instructor, 2025 (AVTN)

TROOP GORDON, WENDY, Professor, 2017, PhD MA Illinois, BA Michigan (HDFS)

TSAI, PAO-FENG, Professor and Associate Dean for Research (NURS)

TSOLAS, NICHOLAS, Associate Professor (MECH)

TU, YAZHOU, Assistant Professor, 2024 (COMP)

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TUGGLE, FELICIA, Assistant Professor (SOCY)

TUGNAIT, JITENDRA K., James B. Davis Professor, 1989, PhD Illinois, MSEE Syracuse BSc Punjab (ELEC)

TURNER, CASEY G., Assistant Professor, 2025, PhD Georgia State University, MS Georgia State University, BS Georgia College and State University (KINE)

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TZENG, SHU-WEN, Associate Professor, 2008, MID Auburn, BInd Nat'l Cheng Kung (INDD)

U

UDDIN, ASHRAF, Professor, 1999, PhD Florida State, MS Hawaii, MS Dhaka (GEOL)

UPTON, JASON, Associate Professor (BIOL)

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VACHULA, RICHARD, Assistant Professor, 2022, PhD ScM Brown University, BA BS University of Illinois at Urbana-Champaign (GEOL)

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VARDISHVILI, IA, Assistant Professor (ECON)

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VENDRELL, XAVIER, Professor (ARCH)

VERGARA, DANIEL, Associate Professor, 2021 (FLNG)

VIA, BRIAN, Regions Professor, 2008, PhD Louisiana State, MS BS Virginia Tech (FOWS)

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VINEL, ALEKSANDR, Associate Professor, 2015, PhD University of Iowa, MS BS Moscow Institute of Physics and Technology (INSY)

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WADA, HARUKA, Professor (BIOL)

WADE, KIM, Professor of Practice (AVTN)

WADSWORTH, DANIELLE, Professor, 2005, PhD Mississippi, MS Baylor, BS Lenoir-Rhyne (KINE)

WAKELAND, CATHLEEN, Lecturer, 2024 (CADS)

WALDEN, JEREMY, Senior Lecturer, 2008, MA Auburn, BA Faulkner (CMJN)

WALKER, ALAN, Associate Professor, 2008, PhD Bowling Green State, MA Western Kentucky, BA Auburn (MNGT)

WALKER, III, HARVELL (JACK), CE Smith Professorship and Professor, 2012, PhD MBA Auburn, BS Georgia Tech (MNGT)

WALSH, ZACHARY, Assistant Professor, 2025 (MATH)

WALTERS, FRANKLIN D., Associate Professor, 1991, PhD Northern Illinois, MA BS Duquesne (ENGL)

WALZ, PAUL H., Professor, 2004, PhD DVM MS Michigan State University, Diplomate American College of Veterinary Internal Medicine - Large Animal (VMPB)

WALZ, HEATHER, Clinical Professor, 2018, DVM Kansas State University, BS University of Kansas, Diplomate American College of Veterinary Pathologists (VMPB)

WANG, YIFEN, Professor, 2004, PhD Washington State, MS Washington, BS Shanghai Fisheries (BSEN)

WANG, JIN, Walt and Virginia Woltosz Professor, 2006, PhD MS University of Texas at Austin, BS Tsinghua (CHEN)

WANG, WEI, School Head, 1999, MFA Louisiana Tech, BFA Utah State, BA Shenzhen (INDD)

WANG, CHENGMING, Professor, 2016, DVM Anhui Science Technology University, PhD MS Auburn University (VMPB)

WANG, XU, Associate Professor, 2017, PhD Cornell University, BS Fudan University (VMPB)

WANG, XUEYI, Research Professor, 1998, PhD Chinese Academy of Sciences, MS University of Science and Technology of China, BS Anhui Education Institute (PHYS)

WANG, CHIH-HSUAN, Professor, 2013, PhD MPS Auburn University, MS Oklahoma State University, MS National Cheng-Chi University, BS National Cheng-Chi University (EFLT)

WANG, YEN-YAO, Assistant Professor (AVSC)

WANG, ALBERT, Associate Professor, J. Stanley Mackin Distinguished Professor (FINC)

WANG, LIZ, Assistant Professor (FINC)

WANG, TINGTING, Assistant Professor, 2021 (FLNG)

WANG, RONGXUAN, Assistant Professor, 2023, PhD Virginia Tech (INSY)

WANG, JINQUAN, Assistant Research Professor, 2024, Ph.D. Poultry Science, University of Georgia, GA (POUL)

WARD, DEVON, Assistant Professor, Master of Biological Art The University of Western Australia, BGD The University of Florida (INDD)

WARE, KATILYA, Associate Professor, 2016, PhD The University of Alabama, MSN BSN Jacksonville State University (NURS)

WARNER, DANIEL, Associate Professor (BIOL)

WATERS, MATT, Assistant Professor (CSES)

WATERS, PHILLIP, Associate Extension Professor, 2002, PhD MS BS Auburn University (FISH)

WATERS, KATELYN M., Assistant Clinical Professor, 2022, DVM BS Auburn University, Diplomate American College of Theriogenologists (VMCS)

WATKINS, G. MICHAEL, Professor and Chair, 1994, PhD Ohio State, MA BA Tennessee (PHIL)

WATSON, GWENDOLYN PAIGE, Assistant Professor, 2023 (PSYC)

WATTS, IVAN E., Associate Professor, 1999, EdD Cincinnati, MS SUNY-Buffalo, BA Ohio State (EFLT)

WATTS, SARAH, Associate Professor, 2015, PhD Mercer, MSN BSN Samford (NURS)

WATTS, KELLI, Associate Clinical Professor (SLHS)

WATTS, DONOVAN, Assistant Professor, 2024 (POLI)

WEAVER, GREG S., Associate Professor and Chair, 1997, PhD Nebraska, MA Central Florida, BS Auburn (SOCY)

WEAVER, AURORA, Assistant Professor (SLHS)

WEAVER, JOSH, Lecturer, 2022 (HORT)

WEBB, JILLA, Professor of Practice, 2021 (MUSI)

WEBER, PETER, Associate Professor, PhD Indiana University, MFA Florida State University, Laurea Quadriennale University of Bologna (CADS)

WEBER, MARIAH, Director of the Harris Early Learning Center, 2021, PhD University of Alabama at Birmingham (HDFS)

WEHRS, DONALD R., Hargis Professor of English Literature, 1988, PhD MA Virginia, BA Williams (ENGL)

WEI, YUSHANG, Lecturer (ECON)

WEIGEL, ROBERT G., Professor and Auburn Global Academic Director, 1993, PhD MA New York-Albany (FLNG)

WEIMAR, WENDI H., Professor, 1996, PhD Auburn, MEd Virginia, BS Castleton State (KINE)

WEISHBROAD, ELIZABETH J., Librarian II, 1990, MSLIS Illinois, MM Notre Dame, BM Missouri ()

WELHAUSEN, CANDICE, Assistant Professor (ENGL)

WELLS, DANIEL E., Assistant Professor (HORT)

WELLS, JULIE, Associate Clinical Professor, MSW Florida State University, BSW Troy State University (SOCY)

WELLS, KEVIN, Instructor, 2021 (SCMN)

WERNEKE, DAVID, Collections Manager, 2005, MS BS Auburn (BIOL)

WERNER, DANILEA, Associate Professor, 2009, PhD MSW MPH St. Louis, BA Huntingdon (SOCY)

WESSON, LIESL, Lecturer, 2020, MS Texas AM, BBA Baylor (MNGT)

WESSON, MICHAEL, Professor, Chair, and Associate Dean for Graduate and Executive Programs, 2019, PhD Michigan State, MS Texas AM, BBA Baylor (MNGT)

WEST, RACHEL, Assistant Professor, 2021, PhD Colorado State University, MS BS University of Georgia, (VMAP)

WESTRICK, SALISA C., Sterling Professor and Head, 2005, PhD Wisconsin-Madison, MS Illinois State, BS Chulalongkorn (HORP)

WETZEL, ERIC, Associate Professor, 2016, PhD Virginia Tech, MBC Auburn University, BS Western Kentucky University (BSCI)

WEYHENMEYER, JAMES, Professor, 2019, PhD Indiana University, BA Knox College (VMAP)

WHALEY, PAMBANISHA L., Librarian III, 1990, MLS North Texas, BA Oklahoma City ()

WHEELES, MELISSA, Assistant Clinical Professor, 2025 (NURS)

WHELAN, NATHAN, Assistant Research Professor, 2018, PhD University of Alabama, BS Truman State University (FISH)

WHITE, AMELIA G., Clinical Professor, 2014, DVM University of Georgia, MS University of Illinois at Champaign-Urbana, Diplomate American College of Veterinary Dermatology (VMCS)

WHITE, PETER, POLI Program Director and Associate Professor (POLI)

WHITE, KEVIN, Assistant Clinical Professor (SERC)

WHITING, CAROLINE, Adjunct Instructor, Research Engineer, Samuel L Ginn College of Engineering (AVTN)

WHITLEY, HEATHER P., Clinical Professor, 2006, PharmD Med Univ of South Carolina, BS Clemson (PYPP)

WHITT, THOMAS, Lecturer (MATH)

WHITTEMORE, STEWART, Associate Professor, 2008, PhD Michigan State, MA Georgia State, BA University of the South (ENGL)

WICKMAN, KATHRYN OLSEN, Senior Lecturer, 2007, PhD, MA Oregon, BA Winthrop (ENGL)

WICKMAN, CHAD, Hargis Associate Professor of Writing Studies, 2009, PhD Kent State University (ENGL)

WILBANKS, SHARON, Director of the Auburn Early Learning Center and Instructor, 2015, MS Auburn University (HDFS)

WILBORN, ROBYN R., Professor, 2005, DVM MS BS Auburn, Diplomate American College of Theriogenologists (VMCS)

WILBURN, CHRISTOPHER, Associate Clinical Professor, 2017, PhD MEd Auburn, BA Morehouse (KINE)

WILDER, BARBARA F., Professor and Director of the Graduate Program, 1996, DSN MSN Alabama-Birmingham, MSN Troy State (NURS)

WILEY, ANGELA, Professor and Head, 2017, PhD MA Clark, BA Miami University (HDFS)

WILHITE, DEWEY R., Anatomy Laboratory Coordinator, 2007, PhD Louisiana State, MS Brigham Young, BA Alabama (VMAP)

WILLIAMS, RICHARD R., Senior Lecturer, 2015 (MECH)

WILLIAMS, GWENDOLYN, Associate Professor, 2015, PhD University of Georgia, MA Pennsylvania State University, BA Messiah College (CTCH)

WILLIAMS, GEOFFREY, R., Associate Professor (ENPL)

WILLIS, LAURA B., Clinical Professor, 2008, MCD Auburn (SLHS)

WILLIS, WHITNIE, Assistant Clinical Professor and Wellstar Joint Faculty Member, 2024 (NURS)

WILLOUGHBY, JANNA, Assistant Professor (FOWS)

WILSON, ADRIENNE, Associate Professor, 2009, MFA SUNY-Brockport, MM BM Ithica (THEA)

WILSON, ALAN E., Professor and Assistant Director, 2007, PhD Georgia Tech, MS Michigan State, BS North Carolina (FISH)

WINDHAM, JERROD, Associate Professor, 2008, MID BIND Auburn (INDD)

WINDHAM, COURTNEY, Associate Professor, 2012, MFA Savannah College of Art and Design, BFA Graphic Design (INDD)

WINTER, RANDOLPH, Associate Professor, 2022, PhD Auburn University, DVM Texas AM University, Diplomate American College of Veterinary Internal Medicine (VMCS)

WINTER, JONI, Assistant Clinical Professor, DNP University of South Alabama, MSN FNP BSN Troy University, AS Southern Union State Community College (NURS)

WITTE, MARIA M., Professor and Associate Dean, Graduate School, 1999, EdD South Florida, MPA Oklahoma, BA Maryland (EFLT)

WITTE, TRACY, Professor and Director of Clinical Program, 2010, PhD MS Florida State, BS Ohio State (PSYC)

WOHLEB, ELISHA C., Clinical Professor, 2007, PhD EdS MEd BS Auburn (CTCH)

WOHRLEY, ANDREW J., Librarian III, 1995, MSLS Indiana, BA Valparaiso ()

WOLAK, MATTHEW, Associate Professor (BIOL)

WOLF, SARA E., Associate Professor, 2000, PhD Arizona State, MEd Wright State, BSEd Ohio (EFLT)

WOLTER, JEREMY, Colonel George Phillips Privett Professor, 2013, PhD MS Florida State, BS Central Florida (MKTG)

WON, SUNJAE, Assistant Professor, 2021, PhD North Carolina State University, MA Boston University (AGEC)

WOOD, MATTHEW P., Associate Professor, 2007, DMA Texas, MM BM Missouri (MUSI)

WOOD, JENNIFER, Instructor (HDFS)

WOODS, LAUREN, Assistant Professor (ARTS)

WOODS-GROVES, SUZANNE, Associate Professor (SERC)

WOOLDRIDGE, ANNE A., Department Head and Professor, 2007, PHD Duke University, MS Louisiana State University, DVM BS Texas AM University, Diplomate American College of Internal Medicine - Large Animal (VMCS)

WORKMAN STOCKLER, JENNA, Assistant Clinical Professor, 2015, DVM Mississippi State University, BS West Virginia University, Diplomate American College of Internal Medicine - Large Animal (VMCS)

WORMS, JAMIE, Lecturer, 2019, PhD Louisiana State University, MA George Washington University, BS University of Maryland (GEOL)

WOROSZ, MICHELLE, Professor, 2006, PhD MS BS Michigan State (AGEC)

WORTHINGTON, DEBRA L., Professor; Director, School of Communication Journalism, 1999, PhD University of Kansas, MA Wichita State, BA Auburn University (CMJN)

WOWER, JACEK, Professor, 1997, PhD MS Mickiewicz (ANSC)

WRIGHT, RUSSELL A., Associate Professor and Extension Specialist, 1997, PhD Wisconsin, MS North Carolina State, BA North Carolina (FISH)

WRIGHT, AMY NOELLE, Professor Associate Dean of Instruction, 2002, PhD North Carolina State, MS BS Virginia Tech. (HORT)

WU, JIA, Assistant Professor, 2024 (CADS)

X

XU, PEI, Associate Professor (AVSC)

Y

YAMPOLSKIY, MARK, Associate Professor (COMP)

YANG, ZUTAO, Assistant Professor, PhD Michigan State University, MS Fudan University, BA Sun Yet-San University (FOWS)

YANKE, AMY B., Associate Professor, 2017, MS Perdue, DVM University of Georgia, Diplomate American College of Internal Medicine- Neurology (VMCS)

YANTIS, DREW, Senior Lecturer, BS Auburn University (BSCI)

YARNOLD, MATT, Director of the Advanced Structural Engineering Laboratory and Associate Professor (CIVL)

YILMAZ, LEVENT, Alumni Professor, 2003, PhD MS Virginia Tech, BS Bilkent University (COMP)

YORDY, MORGAN, Associate Professor, 2016, DNP MSN MSN University of South Alabama, BS Auburn University (NURS)

YOST, KEVEN E., Associate Professor, Synovus Fellow, 2003, PhD Purdue, BA Florida (FINC)

YOUNG, ANDREW, Lecturer (CMJN)

YOUNG, JORDAN, Visiting Assistant Professor, 2024 (ARCH)

YOUNG, CRISTOPHER A., Professor of Practice, 2022, MPH Western Kentucky, DVM Auburn University, Diplomate American College of Veterinary Preventative Medicine (VMAD)

YOUNGBLOOD, ED, Professor, Associate Director of Film Media Studies, 2008, PhD Texas Tech, MA Texas State, BA Southwestern (CMJN)

YOUNGBLOOD, SUSAN, Associate Professor, 2008, PhD Texas Tech, BA Massachusetts-Lowell (ENGL)

YUE, ZONGLIANG, Assistant Research Professor, 2023, University of Alabama at Birmingham, MS Indiana University (HORP)

Z

ZABALA, MICHAEL, Auburn Alumni Engineering Council Associate Professor (MECH)

ZACHARY, MILES, Assistant Professor (MNGT)

ZALIK, RICHARD, Professor, 1985, DSc Technion, Lic Buenos Aires (MATH)

ZAMIELA, CHRISTIAN, Assistant Research Professor, 2024, PhD, MS Mississippi State, BS Millsaps College (INSY)

ZANZOT, JAMES, Senior Lecturer (BIOL)

ZENG, PENG, Associate Professor, 2010, PhD MS BS Purdue (MATH)

ZHAN, WEI, Professor, 2006, PhD Texas AM, MS Chinese Academy of Sciences, BS Lanzhou China (CHEM)

ZHANG, DAOWEI, Alumni and George W. Peake Jr. Professor Associate Dean for Research, 1994, PhD British Columbia, MS Beijing Forestry, BS South-Central Forestry (FOWS)

ZHANG, YAOQI, Alumni Professor, 2003, PhD Helsinki, MS Chinese Academy of Forestry, BS Fujian Agric. and Forestry (FOWS)

ZHANG, XINYU, Associate Professor, 2005, PhD University of Texas-Dallas, ME BE Tianjin University (PFEN)

ZHANG, XINYU, Alumni Professor (CHEN)

ZHANG, YUMING PAUL, Assistant Professor, PhD University of California Los Angeles, BS Fudan University (MATH)

ZHANG, WEI, Assistant Professor (PSYC)

ZHAO, HONG, Assistant Professor, 2021, PhD University of Colorado, BS Peking University (PHYS)

ZHENG, JINGYI (Ginny), Assistant Professor (MATH)

ZHONG, YIMIN, Assistant Professor (MATH)

ZHONG, YADI, Assistant Professor, 2025 (ELEC)

ZHOU, HUAGUO, Elton Z. and Lois G. Huff Professor, 2013 (CIVL)

ZHOU, YANG, Associate Professor (COMP)

ZIEBARTH, NICOLAS, Professor Department Chair, PhD Northwestern University (ECON)

ZORN, MICHELLE, Associate Professor (MNGT)

ZOU, HAIBO, Professor, 2008, PhD Florida State, MS BS Nanjing (GEOL)

ZOU, SHIQIANG, Assistant Professor (CIVL)

ZUGAZAGA, CAROLE, Associate Professor, 2002, PhD MSW Central Florida, BSW Florida State (SOCY)

ZUWIYYA, ZACHARY D., Professor, 1997, PhD University of California, Santa Barbara (FLNG)

Emeriti

The asterisk ('*') before the name indicates the individual is a member of the Graduate faculty.

A

ABELL, ELLEN E., Associate Professor and Extension Specialist Emerita, 1993, PhD MA Washington State, BA Illinois (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

*ABERNETHY, AVERY, Professor Emeritus, 1988, PhD South Carolina, BSBA North Carolina (MARKETING)

ACEVEDO, CHANTEL, Professor Emerita, 2006, MFA BA Miami (ENGLISH)

ADAMS III, OLIN L., Associate Professor Emeritus, 2000, PhD Ohio, MBA Mount St. Mary's, AB Centre (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

ADAMS JR, MURRAY C., Assoc. Professor Emeritus, 2003, PhD Kentucky, MA BA Mississippi (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

ADRIAN JR, JOHN L., Professor Emeritus, June 2011, PhD Tennessee, MS BAA Auburn (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

AGRAWAL, PRATHIMA, Professor Emerita, 2003, PhD Southern California, MS Rochester, ME BE Indian Institute of Science (ELECTRICAL AND COMPUTER ENGINEERING)

AGRAWAL, VISHWANI D., James J. Danaher Professor Emeritus, 2016, PhD University of Illinois Urbana-Champaign, ME Indian Institute of Science, BE Indian Institute of Technology-Roorkee (ELECTRICAL AND COMPUTER ENGINEERING)

AHYI, AYAYI CLAUDE, Professor Emeritus, 2007, PhD BS Universite des Sciences et Technologies de Lille France (PHYSICS)

*ALBRECHT, ULRICH F., Professor Emeritus, 1994, PhD New Mexico State, PhD Duisburg, MS BS Essen. (MATHEMATICS AND STATISTICS)

*ALDERMAN, CHARLES W., Dean and Professor Emeritus, 1977, DBA Tennessee, MBA BS Auburn (ACCOUNTANCY)

ALEXANDER, DAVID E., Associate Professor Emeritus, 2005, MM BM Texas (MUSIC)

ALEXANDER, MILTON J., Professor Emeritus, June 1993, DBA Georgia State, MBA St. Louis, BS Illinois (BUSINESS)

ALFORD, WILLIAM L., Professor Emeritus, 1991, PhD MS Cal. Tech, BA Vanderbilt (PHYSICS)

*ALLEN, BRENDA M., Associate Professor, Extension Specialist Emerita, 1978, PhD Auburn, MS BS Tuskegee (FORESTRY WILDLIFE SCIENCES)

ALLEN, WARD S., Hargis Professor Emeritus, 1987, PhD MA BA Vanderbilt (ENGLISH)

ALLEY, KELLY D., Alma Holladay Professor Emerita, 1991, PhD MA Wisconsin, BS Cornell (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

ALVAREZ, NICOLAS E., Professor Emeritus, 2004, PhD MA California-Berkeley, BA Puerto Rico (WORLD LANGUAGES, LITERATURES, AND CULTURES)

ALVERSON JR, WILLIAM J., Assistant Dean Emeritus, 2006, MEd BS Auburn (AGRICULTURE)

ANDERSON, GLENN A., Librarian and Assistant Dean Emeritus, August 2010, MLS Florida State, MA BA SUNY-Albany (UNIVERSITY LIBRARY)

ARMENAKIS, ACHILLES A., Professor Emeritus, July 2015, DBA Mississippi State, MBA BS Louisiana Tech (MANAGEMENT)

*ARMSTRONG, JAMES B., Professor Emeritus, 1990, PhD Virginia Tech, MS Abilene Christian, BS Freed-Hardeman (FORESTRY WILDLIFE SCIENCES)

ARMSTRONG, LEE, General Counsel Emeritus, 2018 (OFFICE OF GENERAL COUNSEL)

ASKEW, RAYMOND F., Professor Emeritus, 1995, PhD Virginia, BS Birmingham Southern (PHYSICS)

ATKINS, LEAH RAWLS, Director Emerita, September 1995, PhD MA BS Auburn (CENTER FOR ARTS AND HUMANITIES)

AVERY, ARTHUR W., Professor Emeritus, September 2011, PhD MS BA Penn State (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

B

*BACKSCHEIDER, PAULA R., Philpott-Stevens Eminent Scholar Emerita, 1992, PhD BA Purdue, MS Southern Connecticut State (ENGLISH)

BAGINSKI, THOMAS A., Professor Emeritus, 1984, PhD MSEE BSEE Penn State (ELECTRICAL AND COMPUTER ENGINEERING)

BAILEY JR, L. CONNER, Professor Emeritus, 1985, PhD Cornell, MA Ohio, BS Southern Oregon (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

BAIRD, SAMERA, Professor Emerita, 2005, PhD Texas, MA BS Tennessee (REHABILITATION AND SPECIAL EDUCATION)

BAIRD, WILLIAM E., Professor Emeritus, 2002, PhD Texas, MS BS Tennessee (CURRICULUM AND TEACHING)

BAKER, RICHARD A., Professor Emeritus, 1995, EdD Oklahoma State, MEd BS Auburn (VOCATIONAL AND ADULT EDUCATION)

BALINT, BRENDAN, Professor Emeritus, 2007, PhD Loyola University (ENGLISH)

BALL, DONALD M., Professor Emeritus, December 2010, PhD MS Auburn, BS Western Kentucky (AGRONOMY SOILS)

BANNON, JAMES S., Director Emeritus of the Outlying Units Alabama Agricultural Experiment Station (ALABAMA AGRICULTURAL EXPERIMENT STATION)

BARBAREE, JAMES M., Scharnagel Professor Emeritus, 1991, PhD Georgia, MS BS Southern Mississippi (BIOLOGICAL SCIENCES)

BARKER, LEWIS M., Professor Emeritus, 2000, PhD MA Florida State, BA Occidental (PSYCHOLOGICAL SCIENCES)

BARNES, PAT H., Vice President Emerita, September 1995, EdD MEd Auburn University, BS Texas Woman’s University (STUDENT AFFAIRS)

BARNETT, ANDY, Professor Emeritus, September 2000, BA MA PhD Virginia (ECONOMICS)

BARRY, MARY E., Assoc. Professor Emerita, June 1999, EdD MS BS Temple (CONSUMER AND DESIGN SCIENCES)

BARTELS, JAN E., Professor and Head Emeritus, 2001, DVM Washington State, MS Guelph, BS Oregon State (RADIOLOGY)

*BARTLETT, RANDALL N., Professor Emeritus, 1990, MPA Columbus State, BInd Auburn (SCHOOL OF INDUSTRIAL AND GRAPHIC DESIGN)

BAYNE, DAVID R., Professor Emeritus, September 2006, PhD MS Auburn, BA Tulane (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

*BEALE, DAVID G., Professor Emeritus, 1989, PhD MSE Michigan, BS Michigan Tech (MECHANICAL ENGINEERING)

BEARD, T. RANDOLPH, Professor Emeritus, 1988, PhD Vanderbilt, BA Tulane (ECONOMICS)

BEARD, ATHA A., Associate Professor Emerita, September 1995, MBA BS Auburn (ACCOUNTANCY)

*BEASLEY, JOHN P., Professor Emeritus, 2014, Ph.D. Louisiana State University, M.S. Oklahoma State University, B.S. Auburn University (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

BECK, DIANE E., Professor Emerita, 2004, PharmD BS Pharm Florida (CLINICLAL PHARMACY PRACTICE)

BECKER, THEODORE L., Professor Emeritus, 1988, Education PhD Northwestern, MA Marilyn, LLB Rutgers (POLITICAL SCIENCE)

BECKETT, SIDNEY D., Assoc. Dean Emeritus, 1994, PhD Missouri, DVM MS Auburn, BS Mississippi State (RESEARCH AND GRADUATE STUDIES, VETERINARY MEDICINE)

BECKWITH, GUY V., Associate Professor Emeritus, 1980, PhD California-Santa Barbara, BA California-Santa Cruz (HISTORY)

*BEHREND, ELLEN N., Professor Emerita, 1996, PhD Auburn, MS Colorado State, VMD Pennsylvania (CLINICAL SCIENCES)

BEIL JR, RICHARD O., Associate Professor Emeritus, 1988, PhD Texas AM, MS North Texas State, BBA Texas Tech (ECONOMICS)

BELL, LEONARD N., Professor Emeritus (POULTRY SCIENCE)

BELLAH, JAMIE R., Professor and Department Head Emeritus, 2003, DVM Colorado State (CLINICAL SCIENCES)

BENEFIELD, LARRY O., Dean and Professor Emeritus, July 2012, PhD Virginia Tech, MS BCE Auburn (ENGINEERING)

BENGTSON, GEORGE W., Assoc. Dean and Professor Emeritus, July 2001, PhD Yale, MF Duke, BS LSU (FORESTRY WILDLIFE SCIENCES)

BENNETT JR, DANIEL D., Professor Emeritus, 2000, MArch Rice, BArch Auburn (ARCHITECTURE)

*BERGEN, WERNER G., Professor Emeritus, 1995, PhD MS BS Ohio State (ANIMAL SCIENCES)

BERGER, BRUCE A., Professor & Department Head Emeritus, September 2009, PhD MS BSPharm Ohio State (PHARMACY CARE SYSTEM)

BERNARD, NANCY MASON, Director Emerita, 2018 (STUDENT CAREER SERVICES)

BEST, TROY L., Professor Emeritus, 1996, PhD MS Oklahoma, BS E. New Mexico (BIOLOGICAL SCIENCES)

*BHAVNANI, SUSHIL H., Professor Emeritus, 1987, PhD Iowa State, MS Indian Inst., BS Bangalore (MECHANICAL ENGINEERING)

BIGGS, LINDY B., Associate Professor Emerita, 2012, PhD MIT, MA BS Missouri (HISTORY)

BILGILI, SACIT F., Professor Emeritus, 1985, PhD Auburn, VMD Ankara, MS Oregon State (POULTRY SCIENCE)

BISHOP, BARBARA A., Associate Professor Emerita University Libraries, 1988, MALS BA South Florida (LIBRARY)

BLACK, J TEMPLE, Professor Emeritus, September 1998, PhD Illinois, MS W. Virginia, BS Lehigh (INDUSTRIAL AND SYSTEMS ENGINEERING)

BLACKBURN, JACK E., Assoc. Provost Emeritus & Professor Emeritus, September 1994, EdD New York, MA Peabody, BS Florida State (EDUCATION)

BLAKE, JOHN P., Professor Emeritus, 1989, PhD Virginia Tech, MS Maine, BS Pennsylvania State (POULTRY SCIENCE)

BLAKNEY, WILLIAM G., Assoc. Professor Emeritus, 1990, MSc Ohio State, BS Nova Scotia Tech (INDUSTRIAL AND SYSTEMS ENGINEERING)

BLASHFIELD, ROGER K., Professor Emeritus, 2010, PhD AM Indiana, BS Ohio State (PSYCHOLOGICAL SCIENCES)

BLAYLOCK, ROBERT E., Professor Emeritus, December 2003, MS Mississippi State (ANIMAL SCIENCES)

BLEVINS, WILLARD T., Assoc. Professor Emeritus, 1995, PhD MS North Carolina State, BS Appalachian State (MICROBIOLOGY)

*BLUMENTHAL, RIK, Associate Professor Emeritus, 1992, PhD Penn State, BS UCLA (CHEMISTRY AND BIOCHEMISTRY)

BLUMSACK, JUDITH T., Associate Professor Emerita, 2014, PhD Florida State. (SPEECH, LANGUAGE, AND HEARING SCIENCES)

*BOBROWSKI, PAULA E., Professor Emerita, 2005, PhD Syracuse, MBA BS Oregon (POLITICAL SCIENCE)

BOHANAN, DONNA J., Professor Emerita, 1982, PhD MA Emory, BA Hendrix (HISTORY)

BOLAND III, JOSEPH S., Professor Emeritus, June 2007, PhD Georgia Tech., MS BEE Auburn (ELECTRICAL AND COMPUTER ENGINEERING)

BOLTON, JONATHAN W., Professor Emeritus, 1996, PhD Maryland, MA CUNY-Brooklyn, BA Miami (ENGLISH)

BOND, EVELYN B., Assoc. Professor Emerita, June 1992, MEd Auburn, BS Berry (VOCATIONAL AND ADULT EDUCATION)

BONDY, BARB, Jane Dickson Lanier Professor Emerita, 2003, MFA Southern Illinois Carbondale, BFA University of Windsor, ON (ART AND ART HISTORY)

BOOSINGER, MARCIA L., Associate Dean and Librarian IV Emerita, 1986, MLS Alabama, MA BA Purdue (LIBRARY)

BOOTHE, HARRY W., Professor Emeritus, 2003, DVM Michigan State, MS Texas AM (CLINICAL SCIENCES)

BOUDREAUX, MARY K., Professor Emerita, 1986, PhD Cornell, DVM LSU (PATHOBIOLOGY)

BOWMAN, BRIAN L., Professor Emeritus, August 2010, PhD MS BS Wayne State (CIVIL ENGINEERING)

BOYD, CLAUDE E., Butler Cunningham Eminent Scholar and Professor Emeritus, 1971, PhD Auburn, MS BS Mississippi State (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

BOYD, ROBERT S., Alumni Professor, 1988, PhD California-Davis, MS BS Cal State Poly Technic (BIOLOGICAL SCIENCES)

BOYLES, WILEY R., Professor Emeritus, 1995, PhD Tennessee, BS Chattanooga (MANAGEMENT)

BOZACK, MICHAEL J., Professor Emeritus, June 2018, PhD Oregon, MS BS Michigan State, MA Western Baptist (PHYSICS)

BRABHAM, EDNA, Professor Emerita, 2014, PhD MS BA Florida State (CURRICULUM AND TEACHING)

BRADBARD, MARILYN R., Professor and Head Emerita, July 2006, PhD MS Georgia, BA New Hampshire (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

BRADBERRY, GEORGE L., Executive Director Emeritus, September 1985, BS Georgia (ALUMNI AND DEVELOPMENT)

*BRADEN, TIMOTHY D., Associate Professor Emeritus, 1994, PhD Colorado State, BS Oklahoma State (ANATOMY, PHYSIOLOGY PHARMACOLOGY)

BRADLEY, JAMES T., Professor Emeritus, June 2010, PhD Washington, BS Wisconsin (BIOLOGICAL SCIENCES)

BRADY, YOLANDA J., Associate Professor Emerita, 1984, PhD Auburn, MS Southern Mississippi, BS Mississippi (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

BRAMLETT, GENE A., Director Emeritus, September 1995, PhD MS Kentucky, BS Murray State (CENTER ON AGING)

BRANNON, EVELYN L., Associate Professor Emerita, PhD Tennessee, MS BS Auburn (CONSUMER AND DESIGN SCIENCES)

*BRAUND, KATHRYN, Hollifield Professor of Southern History Emerita, 2001, PhD Florida State, MA BS Auburn (HISTORY)

BRAUND, KYLE G., Professor Emeritus, 1999, PhD MVSc BVSc Sydney (VETERINARY MEDICINE)

BRAWNER JR, WILLIAM R., Ware Distinguished Professor Emeritus, 1975, PhD DVM Auburn, MS Florida (CLINICAL SCIENCES)

BREWER, JESSE W., Professor Emeritus, July 2006, PhD Purdue, MA BS Central Michigan (ENTOMOLOGY PLANT PATHOLOGY)

BREWER, ROBERT N., Department Head Professor Emeritus, 2002, PhD Georgia, MS BS Auburn (POULTRY SCIENCE)

BRINKER, RICHARD W., Dean Emeritus, 2011, PhD BS LSU, MBA Southern Mississippi (FORESTRY WILDLIFE SCIENCES)

BRINSON, SUSAN L., Professor Emerita, 1990, PhD MA Missouri, BA Cameron (SCHOOL OF COMMUNICATION AND JOURNALISM)

BROCK, KENNY V., Professor Emeritus, 1997, PhD Tennessee, DVM MS Auburn (PATHOBIOLOGY)

BROUGHTON JR, ROYALL M., Professor Emeritus, 2013, PhD MS BS North Carolina State (POLYMER AND FIBER ENGINEERING)

BROWER, H. TERRI, Professor Emerita, August 2000, EdD Nova, MA BSN Columbia (NURSING)

BROWN, MARY HELEN, Professor Emerita, 1983, PhD Texas, MA Kentucky, BA Centenary (SCHOOL OF COMMUNICATION AND JOURNALISM)

BROWN, ALFRED E., Professor Emeritus, 2008, PhD UCLA, BS Cal. State-Long Beach (BIOLOGICAL SCIENCES)

BROWN, ELTON R., Professor Emeritus, July 2007, PhD Texas AM, MS BS Mississippi State (CIVIL ENGINEERING)

BROWN, JAMES E., Professor Emeritus, 2010, PhD Illinois, MS Tuskegee, BS Ft. Valley State (HORTICULTURE)

BROWN, PHILLIP W., Extension Affirmative Action Officer Emeritus, December 2003, EdS MEd BS Tuskegee (ALABAMA COOPERATIVE EXTENSION SYSTEM)

BROWN JR., CLARENCE D., Professor Emeritus, August 2004, PhD Georgia, MEd Auburn, BS Troy St. (REHABILITATION AND SPECIAL EDUCATION)

BROWNING, PHILIP L., Professor Emeritus, September 2008, PhD Wisconsin, MA Texas Tech, BA Howard Payne (REHABILITATION AND SPECIAL EDUCATION)

BRUNNER, CINDY J., Associate Professor Emeritus, July 2007, DVM PhD BS Minnesota (EXTENSION 4-H)

BRYANT, KELLY V., Professor Emerita, 2002, BFA MA Syracuse (SCHOOL OF INDUSTRIAL AND GRAPHIC DESIGN)

BUCHANAN, ROBERT A., Associate Professor Emeritus, 2003, PhD PhD BS Wisconsin, MLS Buffalo-SUNY (LIBRARY)

BUCHANAN, ALICE, Associate Professor Emerita, 1997, PhD Texas AM, MEd Mississippi, BSEd The University of Texas at Austin (SCHOOL OF KINESIOLOGY)

BUCK, DONALD C., Associate Professor Emeritus, June 2009, PhD MA BA Texas (WORLD LANGUAGES, LITERATURES, AND CULTURES)

*BUCKHALT, JOSEPH A., Professor Emeritus, August 2019, PhD Vanderbilt, BA MS Auburn (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

BUFORD Jr, JAMES A., Extension Management Scientist Emeritus, September 1995, PhD Georgia, MS BS Auburn (COORDINATOR EMERITUS, MANAGEMENT DEVELOPMENT)

BULFIN, ROBERT L., Professor Emeritus, 2010, PhD MS BS Georgia Tech (INDUSTRIAL AND SYSTEMS ENGINEERING)

BURKHALTER, BETTYE B., Assoc. Provost and Vice President for Student Affairs and Professor Emerita, 2000, PhD EdD MA BS The University of Alabama (STUDENT AFFAIRS)

BURKHALTER, JOHN E., Professor Emeritus, PhD Texas, MSAE BAE Auburn (AEROSPACE ENGINEERING)

*BURKHART, BARRY R., Professor Emeritus, 1974, PhD MS BA Florida State (PSYCHOLOGICAL SCIENCES)

BURLESON, JAMES D., Professor Emeritus, 1986, MTheo Austin Seminary, MArch Rice, BED Texas AM (ARCHITECTURE)

BURNEY, SAMUEL M., Director Emeritus, 2009 (OUTREACH PROGRAM OFFICE)

BUSCH, RUTH C., Assoc. Professor Emerita, 1991, PhD Arizona, MA Utah State, AB Cornell (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

BUSCHLE-DILLER, GISELA, Professor Emerita, 1995, PhD MS BS Stuttgart (POLYMER AND FIBER ENGINEERING)

BUSKIST, WILLIAM F., Alumni Professor Emeritus, 1982, PhD BS Brigham Young (PSYCHOLOGICAL SCIENCES)

BUTLER, DANIEL, Associate Professor Emeritus, 1989, PhD South Carolina, MBA BSBA Central Florida (MARKETING)

BUXTON, DONALD, Professor Emeritus, 2002, DVM Auburn, PhD Florida (ANATOMY, PHYSIOLOGY PHARMACOLOGY)

BYRD, TERRY A., Bray Professor Emeritus, 2016, PhD South Carolina, BSEE Mass-Amherst (AVIATION AND SUPPLY CHAIN MANAGEMENT)

C

CADENHEAD, A. KENNETH, Professor Emeritus, June 1992, EdD Auburn, BS MEd Georgia (CURRICULUM AND TEACHING)

CALLAN Jr, ALLIE W., Assoc. Professor Emeritus, June 1986, MS George Washington, BS Maryland (AEROSPACE ENGINEERING)

*CAMMARATA, VINCENZO, Associate Professor Emeritus, 1991, PhD Massachusetts Institute of Technology, BS California Institute of Technology (CHEMISTRY AND BIOCHEMISTRY)

CAMPAGNA, KEITH D., Assoc. Professor Emeritus, 2003, PharmD BS Pharmacy Duquesne (PHARMACY PRACTICE)

CAMPBELL, L. CAINE, Professor Emeritus, July 1992, PhD MA Mississippi, BS Mississippi State (HISTORY AND JOURNALISIM)

CARINO, HONORIO F., Professor Emeritus, 2012, PhD Minnesota, MS BS Philippines (FORESTRY WILDLIFE SCIENCES)

CARLISLE III, W. HOMER, Associate Professor Emeritus, 1988, PhD MS BA Emory (COMPUTER SCIENCE AND SOFTWARE ENGINEERING)

CARNEY, JAMIE S., Professor Emerita, 1992, PhD Ohio, MS Youngstown State (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

CARR, HOUSTON H., Professor Emeritus, 2012, PhD Texas-Arlington, MBA M.MS Texas Christian, BSEE Virginia Military Inst. (AVIATION AND SUPPLY CHAIN MANAGEMENT)

CARRINGTON, THOMAS J., Professor Emeritus, 1994, PhD Virginia Tech, MS BS Kentucky (GEOSCIENCES)

CARVALHO, JOHN P., Professor Emeritus, 2003, PhD North Carolina, MA Cal State-Fullerton, BA Auburn (SCHOOL OF COMMUNICATION AND JOURNALISM)

CATTLEY, RUSSELL C., Tyler and Frances Young Endowed Chair Professor Emeritus, 2011, VMD PhD North Carolina State University (PATHOBIOLOGY)

CAUDILL, STEVEN B., Professor Emeritus, June 2009, PhD MA Florida, BA Ohio Wesleyan (ECONOMICS)

CAUSEY, M. KEITH, Professor Emeritus, August 2000, PhD MS BS LSU (FORESTRY WILDLIFE SCIENCES)

CAVENDER, A. RAY, Assoc. Director Emeritus, October 1993, PhD Wisconsin, BS MS Tennessee (ACES)

CAVENDER, DOROTHY H., Professor Emerita, June 2008, EdD Auburn, MS BS Kentucky (CONSUMER AND DESIGN SCIENCES)

CEBOLLERO, PEDRO, Associate Professor Emeritus (WORLD LANGUAGES, LITERATURES, AND CULTURES)

CENTRALLO, CAROL B., Associate Professor and Extension Specialist Emerita, 1992, PhD Minnesota, BS North Alabama (CONSUMER AND DESIGN SCIENCES)

CHAMBERS, ROBERT P., Professor Emeritus, 1976, PhD University of California-Berkeley, MS BS California Institute of Technology (CHEMICAL ENGINEERING)

CHAMBLISS, OYETTE L., Professor Emeritus, September 1995, PhD Purdue, MS BS Auburn (HORTICULTURE)

*CHAMPION, CECILIA, Lecturer Emeritus, 2001, PhD MS BA Auburn (MANAGEMENT)

CHANEY, PHILLIP L., Associate Professor Emeritus, 1998, PhD Louisiana State, MA BS Arkansas (GEOSCIENCES)

CHANG, KAI-HSIUNG, Professor Emeritus, 1986, PhD MS Cincinnati, Dipl Taipei Institute of Technology (COMPUTER SCIENCE AND SOFTWARE ENGINEERING)

*CHAPPELKA III, ARTHUR H., Professor Emeritus, 1987, PhD Virginia Tech, MS BS Florida (FORESTRY WILDLIFE SCIENCES)

CHIBA, LEE, Professor Emeritus (ANIMAL SCIENCES)

CHILDRESS, GEORGE B., Librarian Emeritus, 2009, MLS MA Alabama, BA Virginia Commonwealth (AUBURN UNIVERSITY LIBRARIES)

CHIN, BRYAN A., Professor Emeritus, PhD MS Stanford, BS Auburn (MECHANICAL ENGINEERING)

*CICCI, DAVID A., Professor Emeritus, 1987, PhD Texas, MS Carnegie Mellon, BS West Virginia (AEROSPACE ENGINEERING)

CLARK, CARL H., Professor Head Emeritus, 1992, PhD MS Ohio St., DVM BS Washington St. (PHYSIOLOGY AND PHARMACOLOGY)

CLARK, WAYNE E., Professor Emeritus, 2010, PhD Texas AM, MS BS Brigham Young (ENTOMOLOGY PLANT PATHOLOGY)

CLARK-LEWIS, SANDRA R., Professor Emerita, 2010, AuD Florida, MComm BS Auburn (COMMUNICATION)

CLAYTON, HOWARD R., Professor Emeritus, 2013, PhD MAM Georgia, BS Dipl West Indies (AVIATION AND SUPPLY CHAIN MANAGEMENT)

CLEM, MARY CATHERINE, Assoc. Professor Emerita, June 1998, MS BS Auburn (CONSUMER AND DESIGN SCIENCES)

CLONTS Jr, HOWARD A., Professor Emeritus, September 2000, PhD Virginia Tech, MS BS Auburn (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

COATES, MIDGE, Associate Professor Emerita, 2009, PhD UC-Riverside, MLS Buffalo-SUNY, MS Virginia, BS Richmond, BA SUNY-Empire (LIBRARY)

COBIA, DEBRA C., Professor Emerita, 2009, EdD Alabama, EdS MEd West Georgia (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

COCHRAN, ROBERT H., Senior Lecturer Emeritus, 2005, JD Cumberland, MA Webster College, BSBA Auburn (SCHOOL OF ACCOUNTANCY)

COCHRAN JR, JOHN E., Professor Emeritus, 2013, JD Jones Law, PhD Texas, MS BAE Auburn (AEROSPACE ENGINEERING)

CODY, REYNOLDS M., Assoc. Professor Emeritus, 1991, PhD MS Mississippi State, BA Tennessee (BOTANY AND MICROBIOLOGY)

*COLEMAN, ELAINE S., Associate Professor Emerita, 2001, PhD MS Auburn, DVM Ohio State (ANATOMY, PHYSIOLOGY PHARMACOLOGY)

COLEMAN, DALE A., Associate Professor Emeritus, 1984, PhD MS West Virginia, BS Colorado State (ANIMAL SCIENCES)

COMSTOCK, ALLYSON G., Professor Emerita, 1988, MFA Arizona State, BA Occidental (ART AND ART HISTORY)

CONNELL, LENDA JO, Under Armour Professor Emerita, June 2012, EdD Auburn, MS LSU, BS Louisiana Tech. (CONSUMER AND DESIGN SCIENCES)

*CONNER, DONALD E., Professor Emeritus, 1989, PhD MS BSE.H. Georgia (POULTRY SCIENCE)

CONNER, DIXIE F., Business Manager Emerita, June 1994, BA Auburn (ATHLETICS)

CONNER, PAUL C., Director Emeritus, November 1992, MEd BS Auburn (ATHLETICS)

COOK, ALAN R., Associate Professor Emeritus, 1979, MArch BArch Nebraska (ARCHITECTURE)

COOK, JAMES P., Assistant Dean Emeritus, July 2012, MAc BS Auburn (BUSINESS)

COOK, JOHN A. (TONY), Extension 4-H Specialist Emeritus (ALABAMA COOPERATIVE EXTENSION SYSTEM)

COOK JR, ROBERT B., Professor Emeritus, 2007, PhD MS Georgia, EM Colorado-Mines (GEOSCIENCES)

COOPER, JOHN R., Assoc. Professor Emeritus, 1994, PhD BEP Auburn, MS Ohio State (PHYSICS)

CORLEY, TOM E., Associate Dean Associate Director Emeritus, 1984, MS BS Auburn (AGRICULTURAL EXPERIMENT STATION)

CORNETT, JENNIFER, Senior Lecturer Emerita (SCHOOL OF ACCOUNTANCY)

COTTIER, JOHN W., Associate Professor Emeritus, 1976, PhD Missouri, MA Alabama, BS Auburn (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

COUTTS, DOUGLAS CASSON, Distinguished Visiting Professor Emeritus (INTERNATIONAL PROGRAMS)

COX, J. GRADY, Professor Emeritus, June 1992, PhD Purdue, MS BS Auburn (INDUSTRIAL AND SYSTEMS ENGINEERING)

CRAIG-SCHMIDT, MARGARET C., Professor Emerita, June 2012, PhD Wisconsin, BA Duke (NUTRITIONAL SCIENCES)

*CRANDELL, GEORGE W., Professor Emeritus, 1988, PhD MA Texas, BA North Carolina (ENGLISH)

CRAYTON, EVELYN F., Professor Emerita, 1977, EdD Auburn, MS St. Louis, BS Grambling State (NUTRITIONAL SCIENCES)

CRISS, ROBERT R., Assoc. Professor Emeritus, 1993, JD MBA BBA LLB Mississippi, LLM Alabama (ACCOUNTANCY)

CROCKER, RUTH C., Professor Emerita, 1988, PhD MA Purdue, BA Oxford (HISTORY)

CROCKER, MALCOLM J., Professor Emeritus, August 2011, PhD Liverpool, MS BS Southampton (MECHANICAL ENGINEERING)

CRONENBERG JR., ALLEN T., Assoc. Professor Emeritus, 2004, PhD Stanford, MA BA North Carolina (HISTORY)

CROSS II, JAMES H., Professor Emeritus, 1986, PhD Texas AM, MS Sam Houston State, BS Houston (COMPUTER SCIENCE AND SOFTWARE ENGINEERING)

CROWLEY, LARRY G., Associate Professor Emeritus, 1990, PhD BCSE Texas AM, MBA Texas Christian (CIVIL ENGINEERING)

CRUTCHLEY, CLAIRE E., Assoc. Professor Emerita, 1989, PhD MA BS Virginia Tech (FINANCE)

*CRYSTAL, JILL A., Professor Emerita, 1994, PhD MA Harvard, BA Cornell (POLITICAL SCIENCE)

CUMMINS, KEITH A., Professor Emeritus, 2014, PhD Virginia Tech, MS BS Washington State (ANIMAL SCIENCES)

CUNNINGHAM, DONALD H., Professor Emeritus, 2005, PhD MA BA Missouri (ENGLISH)

CUPP, EDDIE W., Professor Emeritus, 2006, PhD Illinois, BA Murray St. (ENTOMOLOGY PLANT PATHOLOGY)

CUPP, MARY S., Professor Emerita, 2006, PhD Cornell, BS New Orleans (ENTOMOLOGY PLANT PATHOLOGY)

CURTIS, CHRISTINE W., Professor Emerita, 2007, PhD MS Florida St, BS Mercer (CHEMICAL ENGINEERING)

CURTIS, LARRY M., Extension Specialist and Professor Emeritus, December 2003, MS BS Auburn (BIOSYSTEMS ENGINEERING)

CUTCHINS, MALCOLM F., Professor Emeritus, July 1999, PhD MS BS Virginia Tech (AEROSPACE ENGINEERING)

D

DANE, FENNECHIENA K., Professor Emeritus, 1985, PhD Colorado State, MS New Mexico State, BS Netherlands (HORTICULTURE)

DANE, JACOB H., Professor Emeritus, August 2008, PhD Colorado State, MS New Mexico State, BS Netherlands (AGRONOMY SOILS)

DARCH, CRAIG, Professor Emeritus, 1982, PhD Oregon (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

DARLING, CHARLES M., Professor and Associate Professor Emeritus, September 1995, PhD BS Mississippi (PHARMACAL SCIENCES)

DARON, CAROL F., Asst. Provost Emerita, July 1997, PhD Auburn, MA Florida St., BA Huntingdon (UNDERGRADUATE STUDIES)

DARONATSY, NANA, Assistant Clinical Professor, MSW Dir of Field Education Emerita, 2013, MSW Indiana University, BA Hanover College (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

DAVIES, WILLIAM D., Professor Emeritus, 1996, PhD North Carolina State, MS Ohio State, BS Purdue (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

*DAVIS, GERARD (JERRY) A., Professor Emeritus, 2001, PhD MEd MS Auburn, BSME South Carolina (INDUSTRIAL AND SYSTEMS ENGINEERING)

DAVIS, WILLIAM H., Professor Emeritus, 1966, PhD Rice, MA BA Abilene Christian (PHILOSOPHY)

DAVIS JR, KERMIT R., Professor Emeritus, 2008, PhD Georgia, MBA Mississippi State, BA Mississippi College (MANAGEMENT)

DAWSEY III, CYRUS B., Professor Emeritus, June 2008, PhD Florida, MA BS Florida State (GEOSCIENCES)

DAY, WILLIAM B., Associate Professor Emeritus, 1997, PhD MS BEE Rensselaer (COMPUTER SCIENCE AND SOFTWARE ENGINEERING)

DE SOUZA, GERALDO S., Professor Emeritus, June 2016, PHD State University of New York at Albany, MA University of Rochester, MS Federal University of Pernambuco (MATHEMATICS AND STATISTICS)

*DEFEE, CLIFF, Associate Professor and COB Advisory Council Research Fellow Emeritus, 2019, PhD Tennessee, MBA and BBA Texas AM (AVIATION AND SUPPLY CHAIN MANAGEMENT)

DELANEY, DENNIS, Professor Emeritus (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

DIENER, URBAN, Professor Emeritus, 1987, PhD North Carolina State, MA Harvard, BA Miami (Ohio) (PLANT PATHOLOGY)

DILLON, ALLEN R., Professor Emeritus, 1973, DVM Texas AM, MBA MS Auburn (CLINICAL SCIENCES)

DINIUS, SARA, Associate Professor Emerita, 1993, PhD MS Auburn, BS Northwestern (ACCOUNTANCY)

DIORIO, DOROTHY M., Professor Emerita, June 1993, PhD North Carolina, MA Middlebury, AB Bucknell (WORLD LANGUAGES, LITERATURES, AND CULTURES)

DOBIE, JAMES L., Professor Emeritus, October 1996, PhD MS Tulane, BS Centenary (ZOOLOGY WILDLIFE SCIENCES)

*DOBSON, F. STEPHEN, Professor Emeritus, 1988, PhD Michigan, MA AB UC Berkeley (BIOLOGICAL SCIENCES)

DONALD JR, JAMES O., Professor, Extension Specialist and Director Emeritus, 1976, MS BS Georgia (BIOSYSTEMS ENGINEERING)

*DOWNES, JEREMY M., Professor Emeritus, 1991, PhD MA Wisconsin, BA Chicago (ENGLISH)

DOZIER, LESEL A., Extension 4-H Specialist Emeritus, September 1995, PhD MEd BS Auburn ()

DOZIER JR, WILLIAM A., Professor Emeritus, 2012, PhD Virginia Tech, MS BS Auburn (HORTICULTURE)

DRAKE, JAMES B., Professor and Department Head Emeritus, September 1995, EdD MEd BS Auburn (VOCATIONAL AND ADULT EDUCATION)

DRAKE, DENNIS, Counselor Emeritus (DIVISION OF STUDENT AFFAIRS)

*DUFFY, PATRICIA A., Professor Emerita, 1985, PhD Texas AM, MA Auburn, BA Boston College (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

DUGAS, RAY, Professor Emeritus, 1974, MFA Georgia State, BFA LSA (SCHOOL OF INDUSTRIAL AND GRAPHIC DESIGN)

DUGGER Jr, FOWLER, Editor Emeritus, July 1987, MA Duke, BA Alabama ()

DUNCAN, BRYAN L., Professor Emeritus, October 2005, PhD Wayne St, BA Pittsburg State (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

DUNLOP, ALEXANDER W., Associate Professor Emeritus, 2007, PhD MA North Carolina, BA Hobart (ENGLISH)

DUNLOP, WILLIAM, Lecturer Emeritus, 1996, BFA Corcoran School (SCHOOL OF INDUSTRIAL AND GRAPHIC DESIGN)

*DUNN, CAROLINE, Professor Emerita, 1991, PhD MEd Texas, BS Miami (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

*DURAN, SUE H., Professor Emerita, 1975, PhD RPhMS BS Maryland, BS Auburn, Internship Johns Hopkins Hospital, Diplomate-International College of Veterinary Pharmacy (CLINICAL SCIENCES)

DUTE, ROLAND R., Professor Emeritus, 1982, PhD Wisconsin, MS BS Ohio State (BIOLOGICAL SCIENCES)

DYE, PATRICK F., Head Football Coach Emeritus, September 1994, BS Georgia (ATHLETIC DEPARTMENT)

DYER, DAVID F., Professor Emeritus, 1965, PhD MME Georgia Tech, BME Tennessee (MECHANICAL ENGINEERING)

E

*EAKES, DONALD J., Professor Emeritus, 1989, PhD Virginia Tech, MS BS Auburn (HORTICULTURE)

EASTERDAY, KENNETH E., Professor Emeritus, June 1998, EdD Case Western, MAT Indiana (CURRICULUM AND TEACHING)

EAVES, RONALD, Professor Emeritus, 2008, PhD Georgia, MEd Florida, BS Florida (REHABILITATION AND SPECIAL EDUCATION)

EDMONDS, CHARLES III, Professor Emeritus, September 1995, PhD Arkansas, MSA BA Auburn (FINANCE)

EICK, CHARLES J., Associate Professor Emeritus, 1999, PhD Auburn, MEd Georgia State, BS Clemson (CURRICULUM AND TEACHING)

ELDER, THOMAS J., Professor Emeritus, 2003, PhD Texas AM, MF Stephen F. Austin State, BS SMU ()

ELFSTROM, GERARD A., Professor Emeritus, 1988, PhD MA Emory, BA Cornell (PHILOSOPHY)

ELLERO, NADINE P., Associate Professor Emerita, 2011, MLS BA Buffalo-SUNY (AUBURN UNIVERSITY LIBRARIES)

*ELLISON, KATHY JO, Professor Emerita, 2001, DSN MSN Alabama-Birmingham, BSN Tennessee (NURSING)

ELTON, DAVID J., Professor Emeritus, 1985, PhD Purdue, MS Utah State, BS Clarkson (CIVIL ENGINEERING)

ESSAH, PATIENCE, Professor Emerita, 1990, PhD MA UCLA, BA Ghana (HISTORY)

*EVANS, R. LEE, Professor Emeritus, 2018, PharmD Tennessee, BSPharm Georgia (PHARMACY PRACTICE)

EVANS, DENNIS A., Extension Specialist Professor Emeritus (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

F

FABEL, ROBIN F.A., Professor Emeritus, 2001, PhD Auburn, MA BA Oxford (HISTORY)

FAIRLEY, L. NAN, Associate Professor Emerita, 1992, MA Alabama, BA Mississippi U. for Women (SCHOOL OF COMMUNICATION AND JOURNALISM)

FAUPEL, CHARLES E., Professor Emeritus, December 2010, PhD Delaware, MA Central Michigan, BA Asbury (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

FEILD, JR., HUBERT S., Professor Emeritus, June 2015, PhD Georgia, MS BS Mississippi State (MANAGEMENT)

FELKEY, BILL G., Professor Emeritus, 2009, MS Indiana, BA Maine (PHARMACY CARE SYSTEM)

FELLERS, ROBIN B., Associate Professor Emerita, 2012, PhD Florida, MS Kansas State, Dipl H Sc New Zealand (NUTRITIONAL SCIENCES)

FEMINELLA, JACK W., Associate Dean and Professor Emeritus (BIOLOGICAL SCIENCES)

FERGUS, JEFFREY W., Professor Emeritus, 1992, PhD Pennsylvania, BS Illinois (MECHANICAL ENGINEERING)

FINN, SCOTT, Associate Professor Emeritus, 1987, MArch Yale University, AB Princeton (SCHOOL OF ARCHITECTURE, PLANNING AND LANDSCAPE ARCHITECTURE)

FISCHMAN, MARK G., Professor Emeritus, 1989, PhD Pennsylvania State University, MS James Madison University, BA The City University of New York (SCHOOL OF KINESIOLOGY)

FITCH, JAMES L., Professor Emeritus, July 2005, PhD MS Florida State, BS Illinois State (COMMUNICATION)

FITCH-HAUSER, MARGARET E., Professor Emerita, 2014, PhD Oklahoma, MA BA Stephen F. Austin (SCHOOL OF COMMUNICATION AND JOURNALISM)

FLANDERS, KATHY, Professor Emerita, 1995, PhD MS Minnesota, BS Cornell (ENTOMOLOGY PLANT PATHOLOGY)

FLEMING, BARRY, Associate Professor Emeritus, 1988, MFA Tennessee, BFA W. Kentucky (ART)

FLICK, WARREN A., Assoc. Professor Emeritus, 1998, PhD BS SUNY (FORESTRY)

FLUKER, BILLIE, Assoc. Professor Emeritus, June 1987, PhD Tulane, MS BS Texas AM (MECHANICAL ENGINEERING)

FLYNN, KATHRYN MARIE, Senior Associate Athletics Director Emerita ()

FLYNT, J. WAYNE, Professor Emeritus, October 2005, PhD MA Florida State, AB Howard (HISTORY)

*FOLKERTS, DEBBIE R., Assistant Professor Emerita, 1986, PhD Georgia, MS BS Auburn (BIOLOGICAL SCIENCES)

FORD JR, F. NELSON, Associate Professor Emeritus, 2016, PhD MA BS Alabama (AVIATION AND SUPPLY CHAIN MANAGEMENT)

FORSYTHE, SANDRA M., Wrangler Professor Emerita, 2016, PhD University of Tennessee, MS Virginia Tech, BS Tennessee State (CONSUMER AND DESIGN SCIENCES)

FOSTER JR, WINFRED A., Professor Emeritus, 1974, PhD MS BAE Auburn (AEROSPACE ENGINEERING)

FOSTER, JR, RALPH SHELL, Assistant VP for University Outreach and Public Service Emeritus, 2020 (UNIVERSITY OUTREACH)

FRENCH, FRANCES C., Assoc. Professor Emerita, September 1992, JD Jones, MS BA LSU (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

FRIEDMAN, MICHAEL, Professor Emeritus, August 2007, PhD Cornell, MS Polytechnic Inst. of Brooklyn, BS Pennsylvania (CHEMISTRY AND BIOCHEMISTRY)

FROBISH, LOWELL, Director Emeritus, 2005, PhD MS Iowa State, BS Illinois (ALABAMA AGRICULTURAL EXPERIMENT STATION)

FUKAI, JUNICHIRO, Professor Emeritus, 2008, PhD Tennessee, MS Denver, BEng Waseda (PHYSICS)

FULFORD, SHERRI G., Executive Director Emerita, 2017 (GOVERNMENTAL AFFAIRS)

FURR, L. ALLEN, Professor Emeritus, 2010, PhD LSU, MA Stephen F. Austin, MSSW Louisville, BA Texas AM-Commerce (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

G

GALBRAITH, RUTH L., Dean Emerita, 1985, PhD BS Purdue (HUMAN SCIENCES)

GALLAGHER, THOMAS V., Professor Emeritus, 2003, PhD MS Virginia Tech, BS Maine (FORESTRY WILDLIFE SCIENCES)

*GALLAGHER, SEAN, Hal N. and Peggy S. Pennington Professor Emeritus, 2012, PhD MS The Ohio State University, BA University of North Carolina (INDUSTRIAL AND SYSTEMS ENGINEERING)

GARMAZ, MAGDALENA, Associate Professor Emerita, 1990, MS University of Cincinnati, BA Zagreb University (SCHOOL OF ARCHITECTURE, PLANNING AND LANDSCAPE ARCHITECTURE)

*GARRISON, KAREN H., Professor Emerita, 1983, DM Florida State, MM South Carolina, BME North Carolina (MUSIC)

GARRISON, ROGER W., Professor Emeritus, 2011, PhD Virginia, MA Missouri-Kansas, BSEE Missouri State (ECONOMICS)

GERBER, LARRY G., Professor Emeritus, July 2008, PhD MA BA California (HISTORY)

*GIAMBRONE, JOSEPH J., Professor Emeritus, 1977, PhD Georgia, MS BS Delaware (POULTRY SCIENCE)

GIBBS, ROBERT C., Asst. University Librarian; Librarian III Emeritus, 1992, MSLS North Carolina, AB Duke (LIBRARY)

GIBSON, BRIAN J., Professor Emeritus, 1999, PhD Tennessee, MBA Wayne State, BS Central Michigan (SUPPLY CHAIN MANAGEMENT)

GILES, WILLIAM F., Professor Emeritus, 2011, PhD Tennessee, MA Georgia, BA Duke (MANAGEMENT)

GILES, HARRIET WATKINS, Director External Relations Emerita, 1983, PhD University of Georgia, MS Auburn University, BS Auburn University (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

GIMENEZ JR, DIEGO M., Associate Professor Emeritus, 2009, PhD MS BS Florida (ANIMAL SCIENCES)

*GIORDANO, NICHOLAS, Professor Emeritus, 2013, PhD Yale, BS Purdue (PHYSICS)

*GIVENS, M. DANIEL, Professor Associate Dean for Academic Affairs Emeritus, 1996, DVM Auburn University (PATHOBIOLOGY)

GJERSTAD, DEAN H., Professor Emeritus, December 2008, PhD MS BS Iowa State (FORESTRY WILDLIFE SCIENCES)

GLAZE, LINDA, Associate Provost Emerita for Undergraduate Studies and Associate Professor Emerita, September 2010, PhD MA Wisconsin, BA Marietta (WORLD LANGUAGES, LITERATURES, AND CULTURES)

GLOVER, GLENN R., Professor Emeritus, 2006, PhD Virginia Tech, MS BS Auburn (FORESTRY WILDLIFE SCIENCES)

GOFF, WILLIAM D., Professor Emeritus, 1982, PhD Clemson, MS BS Mississippi State (HORTICULTURE)

GOLDEN, MICHAEL S., Assoc. Professor Emeritus, September 2001, PhD Tennessee, MS Auburn, AB Trevecca (FORESTRY WILDLIFE SCIENCES)

*GOLDSTEIN, R. JAMES, Professor Emeritus, 1991, PhD MA Virginia, BA Rochester (ENGLISH)

*GOLDSTEIN, HOWARD A., Professor Emeritus, 1992, DM MM Peabody, BA UCLA (MUSIC)

GOLDSTEIN, R. JAMES, Professor Emeritus (ENGLISH)

GOODLING, JOHN S., Professor Emeritus, June 1996, PhD MSE BSE Florida (MECHANICAL ENGINEERING)

GOSSETT, JR., CLAUDE W., Professor Emeritus, June 1998, PhD Southern Mississippi, MCM Southwestern Baptist Theo. Sem., BS Lamar (MUSIC)

*GOVIL, NARENDRA K., Professor Emeritus, 1986, PhD Montreal, MS Aligarh, BS Agra (MATHEMATICS AND STATISTICS)

GOWAYED, YASSER A., Professor Emeritus, 1992, PhD North Carolina State, MS American U. of Cairo, BS Ain-Shams (MECHANICAL ENGINEERING)

GRAF, EDWARD R., Professor Emeritus, 1987, PhD Stuttgart, MEE BEE Auburn (ELECTRICAL AND COMPUTER ENGINEERING)

*GRAMBERG, ANNE-KATRIN, Professor Emerita, 1992, PhD Michigan State, MA Georg August Germany (WORLD LANGUAGES, LITERATURES, AND CULTURES)

GRAVES, RICHARD L., Professor Emeritus, 1995, PhD Florida State, MEd Florida, BA Baylor (CURRICULUM AND TEACHING)

GRAVOIS, JAMES M., Librarian Emeritus, August 2008, MLIS South Carolina, MA Texas, BA New Orleans (RALPH BROWN DRAUGHON LIBRARY)

GREENE, MICHAEL E., Professor Emeritus, June 2007, PhD Rice, MS BEE Ohio State (ELECTRICAL AND COMPUTER ENGINEERING)

GREENLEAF, ROBERT B., Professor Emeritus, 2007, D. Mus Arts MM Louisiana State, BM Florida State (MUSIC)

GREENSHIELDS, CHARLES M., Assoc. Professor Emeritus, June 1990, PhD MA BA Michigan St. (EDUCATION FOUNDATIONS LEADERSHIP AND TECHNOLOGY)

GRIGSBY, LEO L., Professor Emeritus, July 1999, PhD Oklahoma State, MSEE BSEE Texas Tech (ELECTRICAL AND COMPUTER ENGINEERING)

GROCCIA, JAMES E., Professor Emeritus, 2003, EdD Tennessee, MSEd Hofstra, BA Hartwick (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

GROPPER, DANIEL, Professor Emeritus, 1988, PhD Florida State, BA Maryland (FINANCE)

GROPPER, SAREEN S., Professor Emeritus, 1988, PhD MS Florida State, BS Maryland (NUTRITIONAL SCIENCES)

GROSS, ROBERT S., Associate Professor Emeritus, 1988, PhD MS Clemson, BS Virginia Tech (AEROSPACE ENGINEERING)

GROSS, CHARLES A., Professor Emeritus, Sept. 1972, PhD MS Missouri-Rolla, BS Alabama (ELECTRICAL AND COMPUTER ENGINEERING)

GROVER, JOHN H., Professor Emeritus, 2002, PhD MS Iowa State, BS Utah (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

GUDAUSKAS, ROBERT T., Professor Emeritus of Plant Pathology, PhD Illinois, MS Illinois, BS E. Illinois State (ENTOMOLOGY PLANT PATHOLOGY)

*GUERTAL, ELIZABETH A., Professor Emerita, 1993, PhD Oklahoma State, MS BS Ohio State (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

GUFFEY, JR., HUGH J., Associate Professor Emeritus, June 2007, PhD MBA B.BA Georgia (MARKETING)

GUNDLACH, JAMES H., Professor Emeritus, September 2007, PhD MA Texas, BA Oklahoma State (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

GUYER, CRAIG, Scharnagel Professor Emeritus, 1987, PhD Miami, MS Idaho State, BS Humboldt State (BIOLOGICAL SCIENCES)

GWIN, WILLIAM R., Professor Emeritus, 1998, MArch Pennsylvania, MVA Georgia State, BArch Auburn (ARCHITECTURE)

H

HAAK, NANCY JEANNE, Professor Emerita, 1989, PhD University of Florida, MS Perdue University, BA Auburn University (SPEECH, LANGUAGE, AND HEARING SCIENCES)

*HAGAN, AUSTIN K., Professor Extension Specialist Emeritus, 1980, PhD MS Ohio State, BS Indiana-Pennsylvania (ENTOMOLOGY PLANT PATHOLOGY)

HAGUE, DAYDRIE, Professor Emeritus, 1995, MFA Washington, BME SUNY-Potsdam (THEATRE AND DANCE)

HAIRSTON, JAMES E., Professor Emeritus, September 2009, PhD Georgia, BS Berry (AGRICULTURE)

HALE, DENNIS, Assoc. Professor Emeritus, June 1985, MA Peabody, BS Middle Tennessee State (ACCOUNTANCY)

HALE, KATHLEEN, Professor Emerita, PhD Kent State (POLITICAL SCIENCE)

HALL, DIANNE J., Professor Emeritus, 2002, PhD Texas AM, MBA Texas AM-Corpus Christi, BA Texas (BUSINESS ANALYTICS AND INFORMATION SYSTEMS)

HALL, DAVID M., Professor Emeritus, September 1995, PhD Victoria, MS Clemson, BS Auburn (TEXTILE ENGINEERING)

HALL, HINES H., Assoc. Professor Emeritus, July 2006, PhD Vanderbilt, MA Auburn, BA Duke (HISTORY)

HALPIN, GERALD, Professor Emeritus, 2009, EdD MEd Georgia, BS Jacksonville State (ATIONS LEADERSHIP AND TECHNOLOGY EDUCATION FOUND)

HALPIN, GLENNELLE, Professor Emerita, 2009, PhD MA Georgia, BS Jacksonville State (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

HAMRICK, MAYNARD E., Professor Emeritus, 2005, PhD MS BS Auburn (PHARMACAL SCIENCES)

HANKES, GERALD H., Professor Emeritus, September 2001, PhD MS Colorado State, DVM BS Illinois (VETERINARY MEDICINE)

HANSEN, JAMES R., Professor Emeritus, 1986, PhD MA Ohio State, BA Indiana (HISTORY)

*HANSON, TERRILL R. (Terry), Professor Emeritus, 2008, PhD MS MAq Auburn University, BS Allegheny College (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

HANSON, JAMES D., Professor Emeritus, 1984, PhD Maryland, MS Cornell, BA Kalamazoo (PHYSICS)

HARDGRAVE, BILL C., Provost Emeritus, 2010, PhD Oklahoma State, MBA Missouri State, BS Arkansas Tech (BUSINESS - ADMINISTRATION)

HARGIS, JAMES H., Professor Emeritus, August 2004, PhD Utah, BS Eastern New Mexico (CHEMISTRY)

HARRELL, DAVID E., Breeden Eminent Scholar Emeritus, October 2005, PhD MA Vanderbilt, BA Lipscomb (HISTORY)

HARRIS, GREG A., Associate Professor Emeritus, 1992, PhD Utah, MS Montana State, BA California-Fullerton (MATHEMATICS AND STATISTICS)

HARRIS, JAMES R., Professor Emeritus, June 2007, PhD MBA Florida, BBA Emory (MARKETING)

HARRIS, RALPH R., Professor Head Emeritus, 1995, PhD Texas AM, MS BS Auburn (ANIMAL SCIENCES)

HARRIS, STANLEY G., Luck Professor Emeritus, 1986, PhD MA Michigan, BS North Georgia (BUSINESS - ADMINISTRATION)

HARTSFIELD, NANCY M., Professor Emerita, 2002, MFA BVD Auburn University (ART)

*HARTWELL, GREGORY J., Professor Emeritus, 1998, PhD Auburn, BS Mississippi State (PHYSICS)

HASELSCHWERDT, MEGAN L., Assistant Professor Emerita (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

HATCH, UPTON, Professor Emeritus, 2006, PhD Minnesota, MS Georgia, BS Dartmouth (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

*HATHCOCK, JOHN T., Professor and Section Chief Emeritus, 1984, DVM MS Auburn (CLINICAL SCIENCES)

HAWSEY, LAWRENCE S., Extension Leader Emeritus, September 1995, EdS Mississippi State, MEd BS Auburn (PROGRAMS AND EVENTS)

HAYES, VIRGINIA, Assoc. Dean Emerita, 1998, EdD MA Alabama, BS Samford (EDUCATION)

HAYNES, WILLIAM O., Professor Emeritus, 2008, PhD Bowling Green, MA BA N. Michigan (COMMUNICATION)

HEATH, JO W., Professor Emeritus, 2007, PhD MS Auburn, BS Southwest Louisiana (MATHEMATICS AND STATISTICS)

HEBERT, ROBERT F., Russell Foundation Professor Emeritus, 2000, PhD MS BS LSU (ECONOMICS)

*HECK, DONALD R., Professor Emeritus, 1986, MFA BFA East Tennessee State (SCHOOL OF INDUSTRIAL AND GRAPHIC DESIGN)

HEILMAN, JOHN G., Provost and Vice President for Academic Affairs Emeritus, 2009, PhD MA NYU, BA Lafayette (POLITICAL SCIENCE)

HELMKE, HENRY C., Assoc. Professor Emeritus, June 1993, PhD Ohio State, MA BA Duke (WORLD LANGUAGES, LITERATURES, AND CULTURES)

HENDERSON JR, RALPH A., Professor Emeritus, 1972, DVM Missouri, MS Auburn (CLINICAL SCIENCES)

HENDRICKS, CONSTANCE S., Professor Emerita, 2007, PhD Boston College, MSN BSN Alabama-Birmingham (NURSING)

HENDRIX, CHARLES M., Professor Emeritus, 1981, PhD MS Minnesota, DVM Georgia (PATHOBIOLOGY)

HENRY, JOHN F., Professor Emeritus, 1986, PhD Alabama, MSIM Georgia Tech, BIM Auburn (MANAGEMENT)

*HENRY, RAYMOND P., Professor Emeritus, 1983, PhD University of Texas at Austin, MS BS William Mary (BIOLOGICAL SCIENCES)

HENTON, JUNE M., Professor Emerita, 1985, PhD Minnesota, MS Nebraska, BS Oklahoma State (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

HEPP, GARY R., Professor Emeritus, 1988, PhD North Carolina State, MS Clemson, BS Ohio State (FORESTRY WILDLIFE SCIENCES)

HESS, JOSEPH B., Extension Specialist and Professor Emeritus (POULTRY SCIENCE)

*HETZER, GEORG, Professor Emeritus, 1987, DSc MS BS Technical-Aachen (MATHEMATICS AND STATISTICS)

HICKS, DAVID, Management Scientist Emeritus, MS University of Alabama in Huntsville, BS Tennessee State University (MANAGEMENT)

HIERS, CHARLES J., Professor Emeritus, June 1988, MAA BAA Auburn (ART)

HILL, DAVID T., Professor Emeritus, 2010, PhD Clemson, MS BSAE Georgia (BIOSYSTEMS ENGINEERING)

HILL, PAUL D., Professor Emeritus, August 2000, PhD MS BS Auburn University (MATHEMATICS AND STATISTICS)

HINATA, SATOSHI, Professor Emeritus, 2015, PhD MS Illinois, BE Tokyo (PHYSICS)

HINRICHSEN, JOHN W., Assoc. Professor Emeritus, September 1998, PhD MA BA Texas (MATHEMATICS AND STATISTICS)

HINTON, WILBUR, Professor Emeritus, 1984, EdD MA BM Alabama (MUSIC)

HIRTH, LEO J., Professor Emeritus, 1990, PhD MS Texas, BS CCNY (CHEMICAL ENGINEERING)

HITCHOCK JR., WALTER B., Professor Emeritus, 2008, PhD Duke, MA Oregon, BA Auburn (ENGLISH)

HITE, DIANE, Professor Emerita, 2002, PhD MA Ohio State, BFA Rhode Island School of Design (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

HOBBS, MARLEAH K., Assoc. Professor Emerita, June 1988, MFA Mississippi, BFA Colorado (ART)

HOERR, FREDERIC J., Professor Emeritus, 2012, PhD DVM MS Purdue (PATHOBIOLOGY)

HOLLER, NICHOLAS R., Professor Emeritus, Zoology Wildlife Science, October 1998, DVM MS Auburn (FORESTRY WILDLIFE SCIENCES)

HOLLEY JR, WILLIAM H., Professor Emeritus, 2001, PhD Alabama, MBA BS Mississippi State (MANAGEMENT)

HOLLOWAY, BOBBY E., Asst. Dean Librarian III Emeritus, 1998, MLS Kentucky, BA Harding ()

*HOLMES, RANDALL R, Professor Emeritus, 2007, PhD Illinois, MA BSEd Missouri (MATHEMATICS AND STATISTICS)

HOOL, JAMES N., Professor Emeritus, July 1998, PhD MS BS Purdue (INDUSTRIAL AND SYSTEMS ENGINEERING)

HORNE, ROBERT D., Professor Emeritus, 1994, DVM MS Auburn (SMALL ANIMAL SURGERY)

HOSEY, MICHAEL, Building Science Field and Demo Lab Manager Emeritus, BS Auburn (MCWHORTER SCHOOL OF BUILDING SCIENCE)

HOWARD, MARY J., Associate Professor Emerita, June 2000, MM Florida St., BM Westminster (MUSIC)

*HUANG, TUNG-SHI, Professor Emeritus, 2002, PhD Florida, MS BS National Chung-Hsing (POULTRY SCIENCE)

HUDDLESTON, NORMAN R., Assoc. Professor Emeritus, September 1990, PhD Mississippi State, MS Tennessee, BS Tennessee Tech (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

HUDSON, JUDITH A., Professor Emerita, 1983, PhD Auburn, DVM Guelph (CLINICAL SCIENCES)

HUFFMAN, DALE L., Professor Emeritus, September 1995, PhD MS Florida, BS Cornell (ANIMAL SCIENCES)

HUGHES, MARY, Senior Lecturer Emerita, 2003, PhD Georgia Tech, MS BCE Auburn University (CIVIL AND ENVIRONMENTAL ENGINEERING)

*HULUKA, GOBENA, Associate Professor Emeritus, 2002, PhD MS Auburn, BS Ethiopia (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

HUMBURG, JAY M., Assoc. Professor Emeritus, August 2000, DVM BS Kansas State, MS Auburn (LARGE ANIMAL SURGERY)

*HUNG, JOHN Y., Professor Emeritus, 1989, PhD Illinois, MSE Princeton, BSEE Tennessee (ELECTRICAL AND COMPUTER ENGINEERING)

I

IRWIN, J. DAVID, Professor and Department Head Emeritus, 2016, PhD MS Tennessee, BEE Auburn (ELECTRICAL AND COMPUTER ENGINEERING)

J

JACKSON, JOHN D., Professor Emeritus, June 2012, PhD Claremont, MA BA Texas-Arlington (ECONOMICS)

JACOBSON, MARCIA A, Hargis Professor Emerita, English, July 1999, PhD MA BA California (ENGLISH)

JAEGER, RICHARD C., Professor Emeritus, 1979, PhD ME BSEE Florida (ELECTRICAL AND COMPUTER ENGINEERING)

JAFFE, ROBIN, Associate Professor and College of Liberal Arts Facilities and Administration Project Advisor Emeritus, 1992, MFA Memphis, BA Edison State (THEATRE AND DANCE)

*JAHERA JR, JOHN S., Bobby Lowder Distinguished Professor Emeritus, 1980, PhD MBA BS Georgia (FINANCE)

JANER, ANN L., Assoc. Professor Emerita, 2006, MS Temple, BS Pharm Philadelphia (PHARMACY PRACTICE)

JEMIAN, WARTAN A., Professor Emeritus, 1993, PhD MS Rensselaer Poly, BS Maryland (MECHANICAL ENGINEERING)

JENKINS, RHONALD M., Assoc. Professor Emeritus, 2004, PhD Purdue, MS BS Florida State (AEROSPACE ENGINEERING)

JENKINS, STEPHEN R., Professor Emeritus, 1995, PhD MS Harvard, BSCE Georgia Tech (CIVIL ENGINEERING)

JENSEN, JOHN W., Professor Emeritus, 2007, PhD MS Auburn, BS Minnesota (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

JOHNSON, RANDALL, Professor Emeritus, 2003, PhD Ohio, MBA BS Embry Riddle (AVIATION AND SUPPLY CHAIN MANAGEMENT)

JOHNSON, FREDERIC A., Assoc. Professor Emeritus, 1992, PhD Wisconsin, MS BS New Hampshire ()

JOHNSON, GERALD W., Professor Emeritus, September 1995, PhD MA Tennessee, BA Marshall (POLITICAL SCIENCE)

JOHNSON, PAUL M., Associate Professor Emeritus, June 2012, PhD MA Stanford, BA Rice (POLITICAL SCIENCE)

JOHNSON, ROBERT E., Assoc. Professor Emeritus, 1995, PhD Michigan, MME BME Kansas (CURRICULUM AND TEACHING)

JOHNSON, R. WAYNE, Professor Emeritus, 1987, PhD Auburn, MS BA Vanderbilt (ELECTRICAL AND COMPUTER ENGINEERING)

JOHNSON, TANYA L., Associate Clinical Professor Emerita, 2023, MSN Auburn University, BSN Auburn University Montgomery (NURSING)

JOHNSON JR., PETER D., Professor Emeritus, 1980, PhD Michigan, BS Brown (MATHEMATICS AND STATISTICS)

JOHNSTON, JAMES M., Professor Emeritus, August 2009, PhD MA Florida, BA Tennessee (PSYCHOLOGICAL SCIENCES)

JOLLY, CURTIS M., Professor Emeritus, 1980, PhD LSU, MS Auburn, BS Tuskegee (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

*JONES, PETER D., Professor Emeritus, 1990, PhD Rice, OE MIT, BS California-Berkeley (MECHANICAL ENGINEERING)

JONES, ALLEN W., Professor Emeritus, September 1991, PhD Alabama, MA BS Auburn (HISTORY)

*JUNGNICKEL, PAUL W., Professor and Associate Dean, 1997, PhD Nebraska, MS Kansas, BSPharm Oregon State (PHARMACY - ADMINISTRATION)

K

KALLENBERG, OLAV H., Professor Emeritus, 1986, DTech Chalmers, MTech BCE Royal Tech (MATHEMATICS AND STATISTICS)

*KALTENBOECK, BERNHARD, Professor Emeritus, 1994, PhD Louisiana State, DVM VMD Dipl Austria (PATHOBIOLOGY)

KAMINSKY, JAMES S., Mildred Cheshire Fraley Distinguished Professor Emeritus, 1989, PhD MA Michigan State, BA Minnesota (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

KANDHAL, PRITHVI S., Assoc. Director Emeritus, July 2001, MS Iowa State, BS Rajasthan India (ASPHALT TECHNOLOGY CENTER)

KAPLAN, BARBARA C., Professor Emerita, June 1990, PhD Florida St., MA Eastman, MA S. Florida, BA Agnes Scott (CURRICULUM AND TEACHING)

KATAINEN, V. LOUISE., Assoc. Professor Emerita, 2002, PhD California (WORLD LANGUAGES, LITERATURES, AND CULTURES)

KEEVER, GARY J., Professor Emeritus, 1982, PhD MS Cornell, BS Clemson (HORTICULTURE)

KEITH, ROBERT E., Professor Emeritus, August 2010, PhD Virginia Tech, MS BS Florida State (NUTRITIONAL SCIENCES)

KELLEY, VIRGINIA C., Assoc. Professor Emerita, 1994, PhD MS Auburn, AB LaGrange (BOTANY AND MICROBIOLOGY)

KELLEY, WALTER D., Professor Emeritus, 1994, PhD North Carolina State, MS BS Auburn (FORESTRY)

KEMPF, STEPHEN C., Associate Professor Emeritus, 1985, PhD Hawaii, BS Case Institute of Technology (BIOLOGICAL SCIENCES)

KEMPPAINEN, BARBARA W., Professor Emerita, 1986, PhD Georgia, MS Ohio State, BS Ashland (ANATOMY)

*KEMPPAINEN, ROBERT J., Professor Emeritus, 1982, PhD Georgia, DVM Michigan State (ANATOMY, PHYSIOLOGY PHARMACOLOGY)

*KESSLER JR, J. RAYMOND, Professor Emeritus, 1995, PhD Georgia, MS Mississippi State, BS Auburn (HORTICULTURE)

KEYVANIAN, CARLA, Ann and Batey Gresham Professor Emerita, 2009, PhD MS Arch Studies MIT, BArch IUAC (Italy) (SCHOOL OF ARCHITECTURE, PLANNING AND LANDSCAPE ARCHITECTURE)

KICKLIGHTER, JOSEPH A., Professor Emeritus, 1975, PhD MA Emory, BA University of the South (HISTORY)

*KILGORE, TED, Professor Emeritus, 1994, PhD Texas, AB Michigan (MATHEMATICS AND STATISTICS)

KILLINGSWORTH JR, ROGER A., Associate Professor Emeritus, 1985, MS BS Texas AM (MCWHORTER SCHOOL OF BUILDING SCIENCE)

KINCAID, STEVEN A., Professor Emeritus, 2011, PhD DVM MS Purdue (ANATOMY)

*KINNUCAN, HENRY W., Professor Emeritus, 1983, PhD Minnesota, MS Minnesota-St. Paul, BS Illinois (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

KITELEY, GARY W., Assoc. Professor Emeritus, June 1990, MS Purdue, BS Minnesota (AEROSPACE ENGINEERING)

KLING, EMILY B., Extension Specialist Emerita, 2010, EdD Auburn, MS Michigan, BA Principia (ALABAMA COOPERATIVE EXTENSION SYSTEM)

*KLOEPPER, JOSEPH W., Professor Emeritus, 1989, PhD California-Berkeley, MS BS Colorado State (ENTOMOLOGY PLANT PATHOLOGY)

*KNIGHT, ROY W., Associate Professor Emeritus, 1986, PhD Texas, MS B.M.E. Maryland (MECHANICAL ENGINEERING)

KNIPSCHILD, ANN K., Professor Emerita, 1985, DMA SUNY-Stony Brook, MM Yale, BM BS Missouri (MUSIC)

KNOWLTON, STEPHEN F., Professor Emeritus, 2012, PhD MIT, BA Middlebury (PHYSICS)

KOCHAN, FRANCES K., Professor Emerita, 1994, PhD Florida State, MEd Guam, BS SUNY-Fredonia (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

KOUIDIS, VIRGINIA M., Associate Professor Emerita, Emeritus, 2009, PhD MA Iowa, BA Michigan State (ENGLISH)

KOZLOWSKI, YVONNE, Librarian Emerita, 2003, MA MLS BA Washington ()

KRASKA, MARIE F., Professor Emerita, 1988, PhD Missouri, MS Wisconsin-Stout, BS Wisconsin-Stevens (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

*KRIESE-ANDERSON, LISA ANN, Professor and Extension Specialist Emerita, 1993, BS Cornell, MS Kansas State, PhD Georgia (ANIMAL SCIENCES)

KRISHNAGOPALAN, GOPAL A., Professor Emeritus, 2010, PhD MS Maine, BCHE Bombay (CHEMICAL ENGINEERING)

KRISTA, LAVERNE M., Professor Emeritus, September 1998, DVM PhD Minnesota, MS South Dakota State (ANATOMY)

KRTIC, ZDENKO, Associate Professor Emeritus, 1992, MFA Cincinnati, BFA Zagreb (ART)

KUHLERS, DARYL L., Professor Emeritus, 1978, PhD MS Wisconsin, BS Iowa State (ANIMAL SCIENCES)

*KUPERBERG, KRYSTYNA M., Professor Emerita, 1984, PhD Rice, MS Warsaw (MATHEMATICS AND STATISTICS)

*KUPERBERG, WLODZIMIERZ, Professor Emeritus, 1982, PhD MS Warsaw (MATHEMATICS AND STATISTICS)

L

LABAND, DAVID, Professor Emeritus, August 2012, PhD MA BA Virginia Tech (ECONOMICS)

LAKWETE, ANGELA, Associate Professor Emerita, 1999, PhD MA Delaware, MSLS Wayne State, BA Goddard (HISTORY)

LAMKE, LEANNE K., Professor and Head Emerita, September 2011, BA North Dakota, PhD MS Texas Tech., BA North Dakota (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

LANFORD, BOBBY L., Assoc. Professor Emeritus, 2002, PhD SUNY, MS BS Clemson (FORESTRY WILDLIFE SCIENCES)

LAROCQUE, DANIEL J., Professor Emeritus, 1990, MFA Washington, BA Moorhead State (THEATRE AND DANCE)

LARSEN, HARRY S., Assoc. Professor Emeritus, July 1991, PhD Duke, MS Michigan State, BS Rutgers (FORESTRY)

LATIMER, DAN R., Professor Emeritus, 2011, PhD MA Michigan, BA Texas (ENGLISH)

LATIMER, RENATE S., Assoc. Professor Emerita, 2008, PhD MA Michigan, BA Wayne State (WORLD LANGUAGES, LITERATURES, AND CULTURES)

LAUFER, MARILYN, Director Emerita, 2018 (JULE COLLINS SMITH MUSEUM)

LAUMER JR., J. FORD, Professor Emeritus, 2006, PhD Georgia, MBA BCE Auburn (MARKETING)

LAWRENCE, JIMMY, Executive Director Emeritus (Business)

LEBLEU, CHARLENE, Professor Emerita, 2003, MLA MCP Auburn BS Florida (SCHOOL OF ARCHITECTURE, PLANNING AND LANDSCAPE ARCHITECTURE)

LECHNER, JUDITH V., Professor Emerita, 2009, PhD UCLA, MEd Auburn, MLS Columbia, BS CCNY (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

LECHNER, NORBERT M., Professor Emeritus, July 2006, MS Columbia, BS BArch CUNY (AGRICULTURE)

LEDBETTER, WILLIAM N., Assoc. Professor Emeritus, 1991, PhD Oklahoma State, MS Georgia Tech, BSIE Alabama (MANAGEMENT)

LEE, YOON Y., Professor Emeritus, 1974, PhD Iowa State, MS South Carolina, BS Seoul National (CHEMICAL ENGINEERING)

*LEE, SOO-YOUNG, Professor Emeritus, 1995, PhD Texas, MS Korea Advanced Inst., BS Seoul National (ELECTRICAL AND COMPUTER ENGINEERING)

LEISCHUCK, GERALD S., Executive Asst. to the President and Secretary to the Board of Trustees Emeritus, 1997, EdD Auburn, MA AB Northern Colorado ()

LEWIS, JEFFREY, Professor Emeritus, 1988, MFA MA Iowa, BA SUNY (ART)

*LEWIS, RONALD D., Associate Professor Emeritus, 1984, PhD Texas, MS BS Iowa (GEOSCIENCES)

LEWIS, PHILIP M., Professor Emeritus, November 2008, PhD MA Syracuse, AB Hamilton (PSYCHOLOGICAL SCIENCES)

LEY, TERRY C., Professor Emeritus, 2001, PhD MA (CURRICULUM AND TEACHING)

*LIAO, MING, Professor Emeritus, 1997, PhD Stanford (MATHEMATICS AND STATISTICS)

LIEN, ROGER J., Professor Emeritus, 1989, PhD North Carolina State, MS BS Texas AM (POULTRY SCIENCE)

*LIM, ALVIN, Professor Emeritus, 1997, PhD Wisconsin, MS Indiana, BS U. Malaya (COMPUTER SCIENCE AND SOFTWARE ENGINEERING)

LISHAK, ROBERT S., Associate Professor Emeritus, 1976, PhD Ohio State, BA Seton Hall (BIOLOGICAL SCIENCES)

LITTLETON, TAYLOR D., Mosley Professor Emeritus, 1995, PhD MS BS Florida State (ENGLISH)

LIU, ZHANJIANG, Professor Emeritus, 2008, PhD MS Minnesota, BS Northwestern Agricultural (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

LIVANT, PETER D., Associate Professor Emeritus, 1977, PhD Brown, BS CCNY (CHEMISTRY AND BIOCHEMISTRY)

LLANES, JOSE R., Professor Emeritus, 2006, PhD BA Havana (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

LOCKABY, GRAEME B., Professor Emeritus, 1986, PhD Mississippi State, MS BS Clemson (FORESTRY WILDLIFE SCIENCES - ADMINISTRATION)

LOCKROW, A. LYNN, Professor Emeritus, December 2008, BS E. Tennessee St., MFA North Carolina-Greensboro (THEATRE AND DANCE)

LOCY, ROBERT D., Professor Emeritus, 1991, PhD Purdue, AB Defiance (BIOLOGICAL SCIENCES)

*LOEWENSTEIN, EDWARD F., Associate Professor Emeritus, 2002, PhD Missouri, MS Auburn, BS Southern Illinois (FORESTRY WILDLIFE SCIENCES)

LOEWENSTEIN, NANCY, Extension Specialist Emerita, 2005, PhD Missouri, MS Virginia Tech, BS Auburn (FORESTRY WILDLIFE SCIENCES)

LOGUE Jr, HANCHEY E., Professor Emeritus, July 1993, MA BS Auburn (JOURNALISM)

LONG, JAMES E., Professor Emeritus, December 2010, PhD Florida State, MS Florida State, AB Erskine (ECONOMICS)

LOVELL, RICHARD T., Professor Emeritus, 1998, PhD LSU, MS BS Oklahoma State (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

LOVSHIN Jr, LEONARD L., Professor Emeritus, December 2003, PhD Auburn, MS Wisconsin, BS Miami (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

*LUNDELL, CLARK E., Professor and School Head Emeritus, 1977, MArch BED Texas AM (SCHOOL OF INDUSTRIAL AND GRAPHIC DESIGN)

M

MACDONALD, JOHN M., Professor Emeritus, 1980, DVM Cornell, MEd BEd Plymouth State (CLINICAL SCIENCES)

MACEINA, MICHAEL J., Professor Emeritus, 2010, PhD Texas AM, MS BS Florida (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

MACEWAN, BONNIE J., Dean and Librarian Emerita, 2005, MA Denver, BA Whittier (LIBRARY)

*MACKLIN, KENNETH S., Professor Emeritus, 2005, PhD Auburn, MS BS Northern Illinois (POULTRY SCIENCE)

MACKOWSKI, DANIEL, Professor Emeritus, 1990, PhD Kentucky (MECHANICAL ENGINEERING)

MADRIGAL, JOSE A., Professor Emeritus, July 2008, PhD Kentucky, MA BA Michigan State (WORLD LANGUAGES, LITERATURES, AND CULTURES)

MADSEN, NELS, Professor Emeritus, 1978, PhD MS BA Iowa (MECHANICAL ENGINEERING)

MAGHSOODLOO, SAEED, Professor Emeritus, 1966, PhD MS BS Auburn (INDUSTRIAL AND SYSTEMS ENGINEERING)

MARCINKO, DOROTHY K., Librarian III Emerita, August 2002, EDS Auburn, MLS Texas Woman’s, AB Philippines (RALPH BROWN DRAUGHON LIBRARY)

MARION, JAMES E., Dean Emeritus, College of Agriculture and Director Emeritus, AAES, September 1999, PhD Georgia, MS Kentucky, BS Berea ()

*MARSHALL, MARGARET, Professor Emerita, 2010, PhD Michigan, MA Colorado, BA Northern Colorado (ENGLISH)

*MARSHALL, BEVERLY B., Professor Emerita, 1998, PhD MBA Georgia State University, BS University of South Alabama (FINANCE)

MARTIN, DAVID L., Professor Emeritus, 1997, PhD MA Claremont, BA Redlands (POLITICAL SCIENCE)

MARTIN, JAMES E., President Emeritus, August 1993, PhD Iowa State, MS North Carolina State, BS Auburn ()

MARTIN, NEIL R., Professor Emeritus, June 2000, PhD Illinois, MS BS Auburn (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

MARTIN, Jr., EVERETT DAVIS, Professor Emeritus (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

MARTINSON, TOM L., Professor Emeritus, 2007, PhD Kansas, BA Oregon (GEOSCIENCES)

*MASK, PAUL L., Professor and Assistant Dean Emeritus, Extension, 1982, PhD Ohio State, MS Georgia, BS Georgia State (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

*MAXWELL, HERRIS S., Clinical Professor, 2005, DVM Auburn, BS Mississippi State (CLINICAL SCIENCES)

MAZAHERI, JOHN H., Professor Emeritus, 1989, PhD Brown, MA Provence, MFA Beaux-Arts (WORLD LANGUAGES, LITERATURES, AND CULTURES)

MCCALL, CYNTHIA ANN, Professor and Extension Specialist Emerita, 1989, PhD MS Texas AM, BS Tennessee (ANIMAL SCIENCES)

MCCASKEY, THOMAS, Professor Emeritus, 2014, PhD MS Purdue, BS Ohio (ANIMAL SCIENCES)

MCCORD JR., ROBERT WARREN, Extension St. Program Leader Emeritus for Community Resource Development, 2003, PhD MS Auburn, BS North Alabama (ALABAMA COOPERATIVE EXTENSION SYSTEM)

MCCORMICK, THERESA M., Professor Emerita, 2004, PhD EdS MA University of Alabama, BS Jacksonville State University (CURRICULUM AND TEACHING CTCH)

MCDANIEL, RANDALL S., Wayne T. Smith Distinguished Professor Emeritus, December 2010, EdD Auburn, MRC BSOT Florida (SPECIAL EDUCATION, REHABILITATION AND COUNSELING)

MCDONALD, TIMOTHY P., Professor Emeritus, 2002, PhD Purdue, MSAE BSAE Clemson (BIOSYSTEMS ENGINEERING)

*MCELDOWNEY, RENE P., Professor Emerita, 1992, PhD Virginia Tech, MBA Marshall, BS West Virginia (POLITICAL SCIENCE)

MCGLYNN, FRANCIS D., Professor Emeritus, 2010, PhD MA Missouri, AB Missouri Valley (PSYCHOLOGICAL SCIENCES)

MCKEE, MICHAEL L., Professor Emeritus, 1981, PhD Texas, BS Lamar (CHEMISTRY AND BIOCHEMISTRY)

MCMILLAN, LIBBA REED, Associate Professor Emerita, 2009, PhD Auburn University, MS Univ of Texas Austin, BS Univ of Maryland, BS Auburn University (NURSING)

MCNABB, KENNETH L., Professor Emeritus, 1989, PhD Florida, MS BS Southern Illinois (FORESTRY WILDLIFE SCIENCES)

MCVAY, TED, Associate Professor Emeritus, 2008, PhD Louisiana State, MA BA Auburn (WORLD LANGUAGES, LITERATURES, AND CULTURES)

MEIR, AMNON J., Professor Emeritus, August 2015, PhD Carnegie Mellon, BS Technion (MATHEMATICS AND STATISTICS)

MELANCON, MICHAEL S., Professor Emeritus, 2010, PhD MA Indiana, BA Loyola (HISTORY)

MELDAHL, RALPH S., Assoc. Professor Emeritus, 2005, PhD MS BS Wisconsin (FORESTRY WILDLIFE SCIENCES)

MELVIN, EMILY A., Associate Professor Emerita, 2006, EdD MEd Virginia, BS Old Dominion (EDUCATION)

MEYER, DARRELL C., Professor Emeritus, 1997, MRP Pennsylvania, BA California State (ARCHITECTURE)

MILLER, RALPH E., Assoc. Professor Emeritus, June 2002, PhD Wayne State, MA Emporia State, BS Kent State (THEATRE AND DANCE)

MILLER, THOMAS, Assoc. Professor Emeritus, 1987, EdD Indiana, MS Stout State, BS Berry (EDUCATIONAL MEDIA)

MILLMAN, MARY M., Assoc. Professor Emerita, June 1994, EdD Georgia, MA East Michigan, MA New York, AB Michigan (WORLD LANGUAGES, LITERATURES, AND CULTURES)

MILLS, GERMAN, Professor, 1989, PhD West Berlin, Lic Chile (CHEMISTRY AND BIOCHEMISTRY)

MILTON, JAMES L., Professor Emeritus, 1995, DVM MS Auburn (SMALL ANIMAL SURGERY)

MIRARCHI, RALPH E., Professor Emeritus, 2008, PhD MS Virginia Tech, BS Muhlenberg (FORESTRY WILDLIFE SCIENCES)

MITCHELL JR, CHARLES C., Professor Emeritus and Extension Specialist, 1984, PhD Florida, MS Auburn, BS Birmingham Southern (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

*MITRA, AMITAVA, Professor, 1979, PhD Clemson, MS Kentucky, DIIT BT Indian Inst. Tech. (BUSINESS ANALYTICS)

MITREVSKI, GEORGE, Associate Professor Emeritus, June 2009, PhD Ohio State (WORLD LANGUAGES, LITERATURES, AND CULTURES)

MIZE, JACQUELYN, Professor Emerita, 2012, PhD Purdue, MS BA Georgia (CHILD DEVELOPMENT AND FAMILY STUDIES)

MOHAN, RAJ P., Professor Emeritus, 1973, PhD North Carolina State, MA BS Agra-India (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

MOLNAR, JOSEPH J., Professor Emeritus, 1976, PhD Iowa State, MA BA Kent State (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

*MOLT, LAWRENCE F., Professor Emeritus, PhD University of Tennessee, MS (Dual) University of South Florida (SPEECH, LANGUAGE, AND HEARING SCIENCES)

MOLZ, FRED J., Professor Emeritus, September 1995, PhD Stanford, MSCE BS Drexel (CIVIL ENGINEERING)

MONTGOMERY, RONALD D., Professor Emeritus, 1990, DVM MS Auburn (CLINICAL SCIENCES)

MONTJOY, ROBERT S., Professor Emeritus, 2004, PhD Indiana, MA Alabama, BA Mississippi (POLITICAL SCIENCE)

MOORE, WAYNE T., Professor Carillonneur Emeritus, 1995, EdD AM Columbia, AB Elon (MUSIC)

MORACCO, JOHN C., Professor Emeritus, September 1995, PhD Iowa, MA Arizona State, BS SUNY (COUNSELING AND COUNSELING PSYCHOLOGY)

MORAN, MICHAEL J., Professor Emeritus, 1983, PhD Penn State, MA Wichita State, BS E. Stroudsburg State (SPEECH, LANGUAGE, AND HEARING SCIENCES)

MORAN, EDWIN T., Professor Emeritus, June 2011, PhD MS Washington State, BS Rutgers (POULTRY SCIENCE)

MORGAN, CHERYL E., Professor Emerita, 1992, MArch University of Illinois, BArch BS Auburn University (ARCHITECTURE)

MORGAN, JOHN, Professor Emeritus, 1981, MFA Syracuse, BFA Memphis School of Art (SCHOOL OF INDUSTRIAL AND GRAPHIC DESIGN)

MORGAN, ALICE S., Assoc. Professor Emerita, December 1986, EdD Auburn, MA Alabama, BS Southern Mississippi (VOCATIONAL AND ADULT EDUCATION)

MORGAN, JOE M., Professor Emeritus, August 2011, PhD MSSE Virginia Tech., BSCE Tennessee Tech. (CIVIL ENGINEERING)

MORGAN, JULIA M., Assoc. Professor Emerita, June 1998, BM MM Alabama (MUSIC)

MORGAN, LAURENCE, Assoc. Professor Emeritus, June 1985, MM Columbia, BM Alabama (MUSIC)

MORGAN, WILLIAM W., Professor Emeritus, 1982, MS Georgia Tech, BBA Georgia (INDUSTRIAL AND SYSTEMS ENGINEERING)

MORGAN-JONES, GARETH, Professor Emeritus, 2011, PhD MS Nottingham, DSc BSc Wales (ENTOMOLOGY PLANT PATHOLOGY)

MORRIS IV, DREWRY H., Associate Professor Emeritus, June 2009, PhD North Carolina, MA Yale, BA Davidson (WORLD LANGUAGES, LITERATURES, AND CULTURES)

*MORRISON, EDWARD E., Professor and Department Head Emeritus, 1990, PhD MS Kansas State, BS Massachusetts (ANATOMY, PHYSIOLOGY PHARMACOLOGY)

MORROW, PATRICK D., Professor Emeritus, 2007, PhD MA Washington, AB Southern California (ENGLISH)

MOSJIDIS, JORGE A, Professor Emeritus, 2012, PhD California-Riverside, BAg Chile (AGRONOMY SOILS)

*MOSSHOLDER, KEVIN, Professor Emeritus, 2008, PhD Tennessee, BS Louisville (MANAGEMENT)

MOUNT, ROBERT H., Professor Emeritus, 1986, PhD Florida, MS BS Auburn (ZOOLOGY AND ENTOMOLOGY)

MOUTON, JOHN C., Professor Emeritus, 1992, MBC Florida, BS NE Louisiana (MCWHORTER SCHOOL OF BUILDING SCIENCE)

MULLEN, GARY R, Professor Emeritus, 2010, PhD MS Cornell, BA Northeastern (ENTOMOLOGY PLANT PATHOLOGY)

*MUNTIFERING, RUSSELL B., Professor Emeritus, 1990, PhD Arizona, MS BS California-Davis (ANIMAL SCIENCES)

*MURPHY, JOHN F., Professor Emeritus, 1994, PhD Illinois, MS Clemson, BS Springfield (ENTOMOLOGY PLANT PATHOLOGY)

MURRAY, BRUCE A., Professor Emeritus (CURRICULUM AND TEACHING)

MYERS, EMILY W., Associate Clinical Professor Emerita, 1987, MSW Louisiana State, BA South Maine (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

MYERS III, LAWRENCE J., Associate Professor Emeritus, 1982, PhD Oklahoma State, DVM Mississippi State (ANATOMY, PHYSIOLOGY PHARMACOLOGY)

McCULLERS, GAIL H., Director Emerita, October 2002, MEd BS Auburn (HOUSING AND RESIDENCE)

McGINNIS, BOB, Vice President for Development Emeritus (OFFICE OF DEVELOPMENT)

McGUIRE, JOHN A., Professor Emeritus, October 1993, PhD Auburn, MS BS Mississippi State (BOTANY AND MICROBIOLOGY)

McKOWN, DELOS B., Professor and Head Emeritus, September 1995, PhD Florida State, MA Kentucky, BA Alma, BD Lexington Theological Sem. (PHILOSOPHY)

N

NAKHJAVAN, BEHZAD B., Professor Emeritus, 1988, MArch Washington-St. Louis, BArch Mississippi State (SCHOOL OF ARCHITECTURE, PLANNING, AND LANDSCAPE ARCHITECTURE)

NATARAAJAN, RAJAN, Professor Emeritus (Economics)

NELL JR, CARLTON E., Professor Emeritus, 1992, MFA Georgia State, BFA Auburn (SCHOOL OF INDUSTRIAL AND GRAPHIC DESIGN)

*NELSON, VICTOR P., Professor Emeritus, 1978, PhD MS Ohio State, BSEE Kentucky (ELECTRICAL AND COMPUTER ENGINEERING)

NEUMAN, RONALD D., Professor Emeritus, 1985, PhD MS The Institute of Paper Chemistry, BS Washington (CHEMICAL ENGINEERING)

*NEWTON, JOSEPH C., Associate Professor Emeritus, 1993, DVM PhD MS Auburn (PATHOBIOLOGY)

NEWTON, DAVID S., Assoc. Professor and Assistant Dean Emeritus, September 1995, PhD MBA BBA BS Mississippi (PHARMACY CARE SYSTEM)

NICHOLS, JAMES O., Assoc. Professor Emeritus, July 1993, PhD MSE BSAE Alabama (AEROSPACE ENGINEERING)

NIEBUHR, ROBERT E., Assoc. Professor Emeritus, 2001, PhD MS Ohio State, BS Cincinnati (MANAGEMENT)

NIST, JOAN S., Professor Emerita, June 1992, EdD Auburn, MA Indiana, AB Lawrence (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

NOE, KENNETH W., Draughon Professor of Southern History Emeritus, 2000, PhD Illinois, MSLS Kentucky, MA Virginia Tech, BA Emory and Henry (HISTORY)

NOE, NANCY W., Professor Emerita, 2000, MSLS Kentucky, BA Louisville (LIBRARY)

NORRIS, DWIGHT R., Professor Emeritus, 2007, PhD MBA Georgia, BS Valdosta State (BUSINESS)

NOVAK, JAMES L., Professor Emeritus, 1985, PhD Clemson, MS BS New Hampshire (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

NUNNALLY, THOMAS, Associate Professor Emeritus, 2010, PhD MA Georgia, BA Alabama (ENGLISH)

NUNNELLY, SUSAN C., Director Emerita of Campus Recreation, 2008 (STUDENT AFFAIRS)

NUSBAUM, KENNETH E., Professor Emeritus, December 2010, PhD MS Georgia, DVM Cornell (PATHOBIOLOGY)

*NYLEN, PETER M., Professor Emeritus, 2001, PhD MS Clemson, BS Stetson (MATHEMATICS AND STATISTICS)

O

ODOM, JOHN W., Professor Emeritus, 1977, PhD Purdue, MS BS Tennessee (AGRONOMY SOILS)

OKS, EVGUENI, Professor Emeritus, July 2017, PhD MS Moscow Tech, DS USSR Acad. (PHYSICS)

OLEINICK, THEREZA B., Associate Professor Emerita, 1996, MFA California Inst. Arts, BA Iowa (THEATRE AND DANCE)

OLSON, DOUGLAS J., Professor Emeritus, August 2001, MFA Cincinnati, BFA Layton (ART)

ORGEN, A. TARIK., Professor Emeritus, 1981, MArch Virginia, BArch Academy Fine Arts Istanbul (ARCHITECTURE)

*ORTIZ, JOSEPH VINCENT, Ruth W. Molette Professor Emeritus, 2006, PhD Florida, BS Florida (CHEMISTRY AND BIOCHEMISTRY)

OSWALD, SHARON L., Professor Emerita, 2011, PhD Alabama, MBA Alabama-Birmingham, BA Auburn (MANAGEMENT)

OVERFELT, RUEL A. (TONY), Professor Emeritus (MECHANICAL ENGINEERING)

OWENS, MELVIN, Executive Director Emeritus (PUBLIC SAFETY AND SECURITY)

OWSLEY, W. FRANK, Professor Emeritus, 1990, PhD Texas Tech, MS BS Texas AM (ANIMAL SCIENCES)

O’BRIEN, J. FRED, Director Emeritus, October 1992, MME BME Auburn (ENGINEERING EXTENSION)

O’LEARY, VIRGINIA E., Professor Emerita, 2006, PhD MA Wayne State, BA Chatham (PSYCHOLOGICAL SCIENCES)

P

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PAINE, PAMELA F., Associate Professor Emerita, 2012, PhD Florida, MA Auburn, BA Florida State (WORLD LANGUAGES, LITERATURES, AND CULTURES)

PANANGALA, VICTOR S., Professor Emeritus, 1994, PhD Cornell, DVM E. Pakistan Ag, MS Guelph (PATHOBIOLOGY)

PARISH, EDWARD J., Professor Emeritus, 1981, PhD Mississippi State, MA Sam Houston State, BS Southwest Texas State (CHEMISTRY AND BIOCHEMISTRY)

PARK, CHAN S., Professor Emeritus, 1980, PhD Georgia Tech, MSIE Purdue, BS Hanyang (INDUSTRIAL AND SYSTEMS ENGINEERING)

PARK-GATES, SHARI, Associate Professor Emeritus, 2007, PhD Virginia Tech, MS MBA Charleston, BID Interior Design Institute, BA West Virginia (CONSUMER AND DESIGN SCIENCES)

PARKER JR, FRAZIER, Professor Emeritus, 2009, PhD MS Texas, BS Alabama (CIVIL ENGINEERING)

PARKS, PAUL F., Provost Professor Emeritus, 1993, PhD Texas AM, MS BS Auburn (ANIMAL SCIENCES)

PARSONS, DANIEL L., Professor Emeritus, 1982, PhD BSPharm Georgia (PHARMACAL SCIENCES)

PASCOE, DAVID D., Humana-Germany-Sherman Distinguished Professor and Assistant Head Emeritus, 1990, PhD Ball State, MA Cal State-Fresno, BA Cal State-Sacramento (SCHOOL OF KINESIOLOGY)

PATTERSON Sr., GORDON D., Assistant Professor Emeritus, 1971, PhD Maryland, MEd BS Auburn (CURRICULUM AND TEACHING)

PEARSON, ROBERT E., Professor Asst. Dean Emeritus, 2002, MS BSPharm Illinois (PHARMACY CARE SYSTEMS)

PENASKOVIC, RICHARD, Professor Emeritus, 1984, PhD Munich, MA BA Wuerzburg (PHILOSOPHY)

PEREZ III, JOSEPH D., Professor Emeritus, 1988, PhD Maryland, BS South Loyola (PHYSICS)

PERKINS, WARREN S., Professor Emeritus, 1994, MS BS Clemson (TEXTILE ENGINEERING)

PERRICONE, CATHERINE, Professor Emerita, June 1989, PhD Tulane, MA Oklahoma, BA Notre Dame (WORLD LANGUAGES, LITERATURES, AND CULTURES)

PERRY, CLIFTON B., J.D. Hudson Chair and Professor Emeritus, 1984, PhD MA UC-Santa Barbara, JD Faulkner, LLM Loyola (Chicago), LLM Arizona (POLITICAL SCIENCE)

PETERSON, CURT M., Professor Emeritus, July 1997, PhD Oregon, BS Morehead State (BOTANY AND MICROBIOLOGY)

PETTIT, GREGORY S., Professor Emeritus, 1989, PhD Indiana, MS BS Auburn (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

PHELPS, RONALD P., Professor Emeritus, 1975, PhD BS Auburn (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

PHELPS, KEVIN T., Professor Emeritus, 1987, PhD MS Auburn, BA Brown (MATHEMATICS AND STATISTICS)

PHILLIPS, PHYLLIS P., Assoc. Professor Emerita, June 1983, EdD MEd BS Auburn (SPEECH PATHOLOGY)

PINDZOLA, REBEKAH H., Professor Emerita, 2014, PhD Tennessee, MS BS East Carolina (SPEECH, LANGUAGE, AND HEARING SCIENCES)

*PINDZOLA, MICHAEL S., Professor Emeritus, July 2019, PhD Virginia, BA Sewanee (PHYSICS)

PINKERT, CARL A., Professor Emeritus, PhD University of Georgia, MS Southern Illinois University, BS Colorado State University (PATHOBIOLOGY)

PIPES, RANDOLPH B., Professor Emerita, 2016, PhD University of Texas at Austin, BS BS Southeastern State College (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

PITTMAN JR, JOE F., Professor and Head Emeritus, 1989, PhD MA BS Georgia (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

PLACEK, TIMOTHY D., Professor Emeritus, 1978, PhD Kentucky, MS BS Cleveland State (CHEMICAL ENGINEERING)

PLUMB, JOHN A., Professor Emeritus, September 1998, PhD Auburn, MS Illinois, BA Bridgewater (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

PONDER, HARRY G., Professor Emeritus, 1978, PhD Michigan State, MS BS Auburn (HORTICULTURE)

POPMA, THOMAS J., Assoc. Professor Emeritus, 2001, PhD Auburn, MS BS Michigan State (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

POTTER, MARY ANN R., Associate Professor Emerita, 2010, EdD Auburn, MHE Georgia, BS Georgia Southern (CONSUMER AND DESIGN SCIENCES)

POWELL, ARLIE A., Professor Emeritus, December 2003, PhD MS BS Florida (HORTICULTURE)

PRICE, MARK S., Professor Emeritus, June 2000, MFA BFA Illinois (ART)

PRITCHETT, JOHN F., Professor Emeritus, June 2004, PhD Iowa State, MS BS Auburn (BIOLOGICAL SCIENCES)

R

RABREN, KAREN, Professor Emerita, 2015, Ph.D., M.Ed. Auburn University, B.S. Auburn University at Montgomery (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

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RAJU, POLAPRAGADA K., Professor Emeritus, 1984, PhD Indian Inst., MS Madras, BS Sri Venkateswara (MECHANICAL ENGINEERING)

RANKINS JR, DARRELL L., Professor Emeritus, 1989, PhD MS New Mexico State, BS Illinois (ANIMAL SCIENCES)

RASCH, RONALD H., Professor Emeritus, 2003, PhD Texas, MS Air Force Inst. Tech, BS Kansas State (ACCOUNTANCY)

RAVIS, WILLIAM R., Professor Emeritus, 1977, PhD Houston, BSPharm Temple (PHARMACAL SCIENCES)

*REEVES JR, STANLEY J., Professor Emeritus, 1990, PhD Georgia Tech, MS BS Clemson (ELECTRICAL AND COMPUTER ENGINEERING)

REINKE, CARL M., Associate Professor Emeritus, 2007, PharmD MS Michigan, BA Jamestown (PHARMACY PRACTICE)

RENDEN, JOSEF A., Professor Emeritus, June 2001, PhD MS BS California-Davis (POULTRY SCIENCE)

RICHARDSON, DON R., Professor Emeritus, August 1991, PhD MA Ohio State, BA Auburn (SCHOOL OF COMMUNICATION AND JOURNALISM)

RIDDELL JR, M. GATZ, Professor Emeritus, June 2005, DVM Kansas State, MS Auburn (CLINICAL SCIENCES)

RIDGEWAY, LARRY D., Asst. Vice President Emeritus, September 1995, MA BS South Alabama (STUDENT AFFAIRS)

*RIGGS, LLOYD S., Professor Emeritus, 1983, PhD MS BS Auburn (ELECTRICAL AND COMPUTER ENGINEERING)

RILEY, RHETT E., Vice President Emeritus, 1993, BS Auburn (BUSINESS)

ROBERTS, SHARON R., Associate Professor Emerita, 1996, PhD UC Davis, MPH UCLA, BA UC San Diego (BIOLOGICAL SCIENCES)

ROBERTSON, BENJAMIN THOMAS, Professor Emeritus, October 1993, DVM MS Auburn, BS Kentucky (VETERINARY MEDICINE)

*ROBINSON, P. MICHAEL, Professor Emeritus, 1996, MLA Harvard, BArch Kentucky (ARCHITECTURE)

ROBINSON, CECIL E., Assoc. Professor Emeritus, 1991, PhD MA Alabama, BS Auburn (MATHEMATICS AND STATISTICS)

RODEN, REBECCA H., Asst. Dean Emerita, 1997, BS Auburn (GRADUATE SCHOOL)

*RODGER, CHRIS, Don Logan Endowed Chair Emeritus in Mathematics, 1982, PhD Reading, MS BS Sydney (MATHEMATICS AND STATISTICS)

RODRIGUEZ-KABANA, RODRIGO, Professor Emeritus, 1965, PhD MS BS LSU (ENTOMOLOGY PLANT PATHOLOGY)

*ROGERS, KAREN L., Associate Professor and Associate Dean Emerita, 2007, PhD MA Binghamton, BA Yale (ARCHITECTURE DESIGN CONSTRUCTION - ADMINISTRATION)

ROGERS, WILMER A., Professor Head Emeritus, 1995, PhD MS Auburn, BS Southern Mississippi (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

ROGERS JR, JACK W., Professor Emeritus, 2007, PhD MA BA Texas (MATHEMATICS AND STATISTICS)

ROLAND, DAVID A., Professor Emeritus, June 2010, PhD BS Georgia (POULTRY SCIENCE)

*ROPPEL, THADDEUS A., Associate Professor Emeritus, 1986, PhD MS BS Michigan State University (ELECTRICAL AND COMPUTER ENGINEERING)

ROSENBLATT, DAVID J., Archivist II Emeritus, August 2001, MA BA Missouri (RALPH BROWN DRAUGHON LIBRARY)

ROSS, MARGARET E., Professor Emerita, 1997, PhD Kansas, MA Missouri-Kansas City, BSEd Northeast Missouri State (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

ROSS, CONRAD H., Professor Emeritus, October 1997, MFA Iowa, BFA Illinois (ART)

ROSSI, CHARLES R., Professor Emeritus, September 1993, PhD DVM BS Illinois, MS Ohio State (VETERINARY MEDICINE)

ROSTAMPOUR, FERESHTEH, Professor Emerita, 2010, MFA Ohio State, BA Otterbein (THEATRE AND DANCE)

ROTFELD, HERBERT JACK, Professor Emeritus, June 1988, PhD MS BS, University of Illinois at Urbana-Champaign (MARKETING)

ROUSE, DAVID B., Professor Emeritus, 1981, PhD Texas AM, MS BS Auburn (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

ROWSEY, ROBERT E., Professor Emeritus, 2005, EdD Auburn MS BS Marshall (CURRICULUM AND TEACHING)

RUMPH, PAUL F., Professor Emeritus and Visiting Professor, 1997, DVM MS Auburn University (ANATOMY)

*RUTH, LINDA C., Associate Professor Emerita, 1999, MS Auburn, BA Tennessee (MCWHORTER SCHOOL OF BUILDING SCIENCE)

RYGIEL, DENNIS, Professor Emeritus, 2008, PhD Cornell, MA BA Loyola (ENGLISH)

S

SABA, RICHARD P., Professor Emeritus, 2011, PhD Texas AM, MBA BA Dallas (ECONOMICS)

SABINO, ROBIN, Professor Emerita, 1991, PhD Pennsylvania, MA Virgin Islands, BA Adelphi (ENGLISH)

SALTS, CONNIE J., Professor Emerita, August 2004, PhD Florida St., MA Kent St., BS Ohio St. (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

SAMOYLOVA, TATIANA I., Research Professor Emerita, 1999, PhD Acad. Sci. of Belarus, MS Kiev State (VETERINARY MEDICINE - ADMINISTRATION)

SAMPSON, GARY M., Professor Emeritus, August 2011, PhD Syracuse, MA BA Temple (MATHEMATICS AND STATISTICS)

SAMUELSON, LISA J., Professor Emerita, 1994, PhD Virginia Tech, MS BS Georgia (FORESTRY WILDLIFE SCIENCES)

SANDERSON, BONNIE K., Professor Emerita, 2009, PhD MA MSN Alabama-Birmingham, BSN Central Florida (NURSING)

SANKAR, CHETAN S., Professor Emeritus, 1989, PhD Pennsylvania, MBA Indian Inst., BS India (AVIATION AND SUPPLY CHAIN MANAGEMENT)

SARTIN, EVA A, Professor Emerita, 1982, PhD Auburn, DVM MS Oklahoma State (PATHOBIOLOGY)

SARTIN JR, JAMES L., Professor Emeritus, August 2012, PhD Oklahoma State, MA MS Auburn (ANATOMY)

SAUSER, WILLIAM I., Professor Emeritus, 2016, PhD MS BS Georgia Tech (MANAGEMENT)

SAUSER, LANE D., Director Emerita, July 2012, DPA MBA BBA Alabama (AGRICULTURE)

*SAVRDA, CHARLES E., Professor, 1986, PhD MS Southern California, BA Rutgers (GEOSCIENCES)

SAYE Jr., JOHN W., Alumni Professor, Mildred Chesire Fraley Distinguished Professor Emeritus, 1994, EdD MA AB Georgia (CURRICULUM AND TEACHING)

SCHMIDT, STEPHEN P., Professor Emeritus, 1976, PhD MS Wisconsin, BSA Idaho (ANIMAL SCIENCES)

SCHMIDT, PAUL G., Professor Emeritus, 1988, Ph.D. Aachen University of Technology (MATHEMATICS AND STATISTICS)

SCHMITTOU, HOMER R., Professor Emeritus, 1991, PhD MS Auburn, BS Tennessee Tech. (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

SCHNUELLE, JULIE G., Professor Emerita (CLINICAL SCIENCES)

SCHUESSLER, JENNIFER B., Professor Emerita, 1990, DSN MSN Alabama-Birmingham, BSN Jacksonville State (NURSING)

SCHUMACHER, SHERI L, Associate Professor Emerita, 1986, MFA Cranbrook, BID Auburn (ARCHITECTURE)

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SCHWARTZ, PETER, Professor Emeritus, 2001, PhD North Carolina State University, MS BS Georgia Institute of Technology, MA University of Pittsburgh (MECHANICAL ENGINEERING)

SELMAN, JAMES W., Assoc. Professor Emeritus, September 1995, EdD MS BS Florida State (VOCATIONAL AND ADULT EDUCATION)

SEROKA, JAMES H., Professor Emeritus, 1998, PhD MA Michigan State, BA Michigan (POLITICAL SCIENCE)

SFORZINI, RICHARD H., Professor Emeritus, 1985, ME MIT, BS West Point (AEROSPACE ENGINEERING)

*SHANNON, DENNIS A., Professor Emeritus, 1990, PhD MS Cornell, BS McGill (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

*SHANNON, CURTIS G., Professor Emeritus, 1991, PhD Texas, BS Cal State-Fullerton (CHEMISTRY AND BIOCHEMISTRY)

SHANNON, DAVID M., Professor Emeritus, 1990, PhD Virginia, BS Kutztown (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

*SHAW, JOEY N., Professor Emeritus, 1998, PhD Georgia, MS Maryland, BS James Madison (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

SHAW, DEBBIE, Vice President Emerita for Alumni Affairs (ALUMNI AFFAIRS)

SHELL, E. WAYNE, Professor Emeritus, 1994, PhD Cornell, MS BS Auburn (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

*SHEPARD, JAMES P., Dean Emeritus, 2011, PhD BS Mississippi State, MS Perdue University (FORESTRY WILDLIFE SCIENCES)

SHEPPARD, JUDITH E., Associate Professor Emerita, 1993, MA BS Auburn University (SCHOOL OF COMMUNICATION AND JOURNALISM)

SHEVLIN, PHILIP B., Professor Emeritus, June 2002, PhD MS Yale, BS LaFayette (CHEMISTRY)

SHUMACK, RONALD, Professor Emeritus, 2010, PhD Michigan State, MA BS Auburn (HORTICULTURE)

SHUMPERT, THOMAS H., Professor Emeritus, 2000, PhD MSEE BSEE Mississippi State (ELECTRICAL AND COMPUTER ENGINEERING)

SIDLER, MICHELLE A., Associate Professor Emerita, 2000, PhD MA Purdue, BA Oglethorpe (ENGLISH)

SILVERN, STEVEN B., Professor Emeritus, 2008, PhD Wisconsin, MEd BS Maryland (CURRICULUM AND TEACHING)

SIMMS, JOHN D., Professor Emeritus, September 1992, MA LSU, BS Auburn (JOURNALISM)

*SIMONIAN, ALEKSANDR L., Alumni Professor, 2003, DSc Inst. of Applied Biochemistry Moscow, PhD Acad. Sci. Armenia, MS Yerevan St. (MECHANICAL ENGINEERING)

SIMPSON III, EUGENE H., Associate Director, NPTC and Professor Emeritus, 1983, PhD BS Mississippi State (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

SINCLAIR, ANDREW J., Associate Professor Emeritus, 2005, PhD Texas AM, MS BS Florida (AEROSPACE ENGINEERING)

SINGH, NARENDRA K., Professor Emeritus (BIOLOGICAL SCIENCES)

SINHA, SUBHASH C., Alumni Professor Emeritus, 1987, PhD Wayne State, MS Indian Inst., BS Bihar (MECHANICAL ENGINEERING)

SKELTON, CHARLOTTE A., Professor and Dean Emerita, 2005, EdD Auburn, MSN Med. College Georgia, BSN Alabama-Birmingham (NURSING)

SLAMINKA, EDWARD E., Professor Emeritus, August 2011, PhD MS Michigan, BS Case Western (MATHEMATICS AND STATISTICS)

SLATEN, BUSTER L., Professor Emeritus, June 2005, PhD Maryland, MS Arkansas, BS Arkansas AM (CONSUMER AND DESIGN SCIENCES)

SLATON, CHRISTA D., Professor Emerita, July 2010, PhD MA Hawaii-Manoa, BS Tennessee-Nashville (PLANT PATHOLOGY)

*SMITH, ANNETTE N., Lowder Distinguished Professor Emerita, 1995, DVM BS Texas AM, MS Auburn (CLINICAL SCIENCES)

*SMITH, JEFFREY S., Professor Emeritus, 1999, PhD MS Penn State, BSIE Auburn (INDUSTRIAL AND SYSTEMS ENGINEERING)

SMITH, DAVID M., Librarian III and Head Emeritus, July 1998, MLS Emory, AB Huntingdon (CATALOGING, RALPH BROWN DRAUGHON LIBRARY)

SMITH, LEO A., Professor Emeritus, September 1995, PhD Purdue, ME BE Georgia Tech (INDUSTRIAL ENGINEERING)

SMITH, PAUL C., Professor Emeritus, 1996, DVM Auburn, MS Ohio State, PhD Iowa State (PATHOBIOLOGY)

SMITH, ROBERT C., Professor Emeritus, 1995, PhD Illinois College of Medicine, BS Elmburst (ANIMAL SCIENCES)

SMITH, RONALD H., Professor Emeritus, 2003, PhD MS BS Auburn (ENTOMOLOGY PLANT PATHOLOGY)

SMITH, THOMAS R., Professor Emeritus, 2006, DMA Colorado, MA Iowa, BM Samford (MUSIC)

SMITH, W. GAINES, Extension Director Emeritus, 2011, EdD MAg BS Auburn (ALABAMA COOPERATIVE EXTENSION SYSTEM)

SMITH, THOMAS A., Associate Professor and Director of the Marriage and Family Therapy Program Emeritus (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

SMITH, MELVIN KEITH, Career Services Specialist Emeritus (University Career Center)

*SMITH-CARR, SARALYN, Associate Professor Emerita, 1994, PhD MS Washington State, DVM Tuskegee (CLINICAL SCIENCES)

SNYDER, CHARLES A., Professor Emeritus, July 2006, PhD Nebraska, MS South Dakota St, MBA Ohio St. (MANAGEMENT)

SOLLIE, DONNA L., Assistant Provost for Women’s Initiatives and Professor Emerita, 1986, PhD Tennessee, MS Kentucky, BS Mississippi State (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

SOLOMON JR., HARRY M., Professor Emeritus, 2007, PhD MA Duke, BA Stephen Austin (ENGLISH)

SOMERS, GREG L., Associate Professor Emeritus, 1987, PhD MS Virginia Tech, BS Oklahoma State (FORESTRY WILDLIFE SCIENCES)

SORJONEN, DONALD C., Professor Emeritus, 2000, DVM BS Texas AM, MS Auburn (SMALL ANIMAL SURGERY)

SOUTH, DAVID B., Professor Emeritus, December 2010, PhD Auburn, MS BS North Carolina State (FORESTRY WILDLIFE SCIENCES)

SPARROW IV, THOMAS W, Director Emeritus, 2005, BS Auburn (BEARD-EAVES-MEMORIAL COLISEUM)

SPEAKE, DANIEL W., Professor Emeritus, 1995, PhD MS BS Auburn (ZOOLOGY WILDLIFE SCIENCES)

SPENCER, SAMIA I., Professor Emerita, 2012, PhD MA Illinois, Lic Alexandria (WORLD LANGUAGES, LITERATURES, AND CULTURES)

SPENCER, WILLIAM A, Professor Emeritus, 2008, PhD MA Illinois, BS Southern Illinois (EDUCATION FOUNDATIONS LEADERSHIP AND TECHNOLOGY)

SPRING, DONALD J., Assoc. Professor Emeritus, June 1998, PhD Illinois, MAE BAE Auburn (AEROSPACE ENGINEERING)

SQUILLACOTE, MICHAEL E., Associate Professor Emeritus, 1987, PhD California-Los Angeles, BS Chicago (CHEMISTRY AND BIOCHEMISTRY)

*STALLINGS, J. MICHAEL, Professor Emeritus, 1988, PhD Texas, MS BCE Auburn (CIVIL ENGINEERING)

STALLINGS, JAMES L., Assoc. Professor Emeritus, July 1991, PhD Michigan State, MS BS Purdue (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

STANBURY, DAVID M., Professor Emeritus (CHEMISTRY AND BIOCHEMISTRY)

STANWICK, SARAH D., Associate Professor Emerita, 1992, PhD Florida State, MAc North Carolina, BS North Carolina-Greensboro (SCHOOL OF ACCOUNTANCY)

STANWICK, PETER A., Associate Professor Emeritus, 1992, PhD Florida State, MBA Washington, BA W. Ontario (MANAGEMENT AND ENTREPRENEURSHIP)

STARKEY, THOMAS E., Research Fellow Emeritus, 2006, PhD MS Penn State, BS North Carolina State (FORESTRY WILDLIFE SCIENCES)

STAUFFER, BONNIE B., Assoc. Director Emerita, September 2008, EdD Northern, MS BA New Mexico (OUTREACH PROGRAM OFFICE)

*STELTENPOHL, MARK G., Professor Emeritus, 1989, PhD North Carolina, MS BS Alabama (GEOSCIENCES)

STEVENSON, R. EUGENE, Editor Emeritus, 1992, BS Auburn University (RESEARCH INFORMATION, AGRICULTURAL EXPERIMENT STATION)

STRAITON JR, THOMAS H., Librarian III Asst. Dean Emeritus, 2005, MLS Alabama, BS Auburn (RALPH BROWN DRAUGHON LIBRARY)

STRAWN, HARRY B., Extension Specialist & Professor Emeritus, December 2003, PhD MS Tennessee, BS North Carolina State (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

STREET, DONALD R., Professor Emeritus, June 1994, PhD Penn State, MS BS Auburn (ECONOMICS)

STRINGFELLOW, DAVID A., Professor Emeritus, June 2008, DVM Cornell, MS Auburn (PATHOBIOLOGY)

STROUD, CHARLES E., Professor Emeritus, 2003, PhD Illinois, MS BS Kentucky (ELECTRICAL AND COMPUTER ENGINEERING)

*STRUEMPLER, BARBARA J., Professor Emerita, 1984, PhD MS Iowa State, BS Nebraska (NUTRITIONAL SCIENCES)

STUCKWISCH, STEPHEN E., Assoc. Professor Emeritus, 2014, PhD MA BA State University of New York at Binghamton (MATHEMATICS AND STATISTICS)

SUH, SUHYUN, Associate Professor Emeritus, 2017, EdD Alabama, MS CUNY, MA BA Ewha Womans (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

SULLENGER, PAULA A., Librarian III Emerita, 1992, MSLS North Carolina, BA Alabama-Birmingham (LIBRARY)

*SUNDERMANN, CHRISTINE A., Professor Emerita, 2002, PhD MS Georgia, BS Iowa State (BIOLOGICAL SCIENCES)

*SUPPIRAMANIAM, VISHNU, Professor Emeritus, 2001, PhD MS Auburn, DVM Madras Veterinary (DRUG DISCOVERY AND DEVELOPMENT)

SUTTON, DAVID L., Professor Emeritus, 1993, PhD Georgia, MA Auburn University, BA Baylor (SCHOOL OF COMMUNICATION AND JOURNALISM)

SUTTON, CHARLOTTE D., Associate Professor Emerita, 2016, PhD Texas AM, MBA BA Baylor (MANAGEMENT)

SWAIM, STEVEN F., Professor Emeritus, 2003, DVM Kansas State, MS Auburn (CLINICAL SCIENCES)

SWAMIDASS, PAUL M., Professor Emeritus, 1992, PhD MBA Washington, BE Osmania (AVIATION AND SUPPLY CHAIN MANAGEMENT)

SWANGO, LARRY, Professor Emeritus, 2000, PhD Purdue, DVM BS Oklahoma State (LAB ANIMAL RESOURCES)

*SWIDLER, STEVEN M., J. Stanley Mackin Professor Emeritus, 2001, PhD MS Brown, BA Oberlin (FINANCE)

SZECHI, DANIEL, Professor Emeritus, 2007, PhD Oxford, BA Sheffield (HISTORY)

SZEDLMAYER, STEPHEN T., Professor Emeritus, 1990, PhD William Mary, MS South Florida, BA Millersville (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

T

TABOR, RICHARD H., Professor Emeritus, 2009, PhD Florida, MBA BS Tennessee (ACCOUNTANCY)

*TAM, TIN YAU, Professor Emeritus, 2012, PhD BS Hong Kong (MATHEMATICS AND STATISTICS)

TAMBLYN, JOHN W., Professor Emeritus, 1991, PhD MMus Rochester, BS BS Auburn (MUSIC)

TARRER, ARTHUR R., Professor Emeritus, June 2007, PhD MS Purdue, BS Auburn (CHEMICAL ENGINEERING)

TAYLOR, C. ROBERT, Professor Emeritus, 1988, PhD Missouri, MS Kansas State, BS Oklahoma State (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

TAYLOR, DEBRA C., Associate Professor Emerita, 1995, MS DVM Auburn (CLINICAL SCIENCES)

TAYLOR, JANET B., Professor Emerita, September 2002, PhD Florida State, MEd BS Francis Marion (CURRICULUM AND TEACHING)

TEEM, DAVID, Professor Emeritus, 2007, PhD MS BS Auburn University (AGRONOMY SOILS)

*TEETER, LAWRENCE D., Professor, 1985, PhD Colorado State, AB Michigan (FORESTRY WILDLIFE SCIENCES)

TEIRLINCK, LUC M., Professor Emeritus, June 2011, PhD BS Vrije (MATHEMATICS AND STATISTICS)

THOMAS JR, ROBERT E., Professor Emeritus, 2009, PhD MS Texas AM, BIE Georgia Tech (INDUSTRIAL AND SYSTEMS ENGINEERING)

THOMPSON, ANNE E., Assoc. Provost and Vice President Emerita, September 1994, EdD Oklahoma St, MA Maryland, BS Auburn (UNIVERSITY OUTREACH)

THOMPSON, EMMETT F., Dean and Professor Emeritus, June 1998, PhD Oregon State, MS North Carolina State, BS Oklahoma State (FORESTRY)

THOMPSON, ISABELLE, Professor Emerita, 2012, EdD MAT Duke, MA North Carolina State (ENGLISH)

THOMPSON, HENRY, Professor Emeritus, 1987, PhD Houston (ECONOMICS)

THORNE, JACK F., Professor Emeritus, 1990, PhD MA Alabama, BS Auburn (ACCOUNTANCY)

*TIAN, HANQIN, Professor Emeritus, 2003, PhD SUNY, MS Chinese Academy of Agric. Sciences Beijing, BS Zhejiang (FORESTRY WILDLIFE SCIENCES)

TILT, KENNETH M., Professor Emeritus, 2012, PhD BS North Carolina State, MS East Carolina (HORTICULTURE)

TIN, CHIN-CHE, Professor Emeritus, July 2013, PhD Alberta, MS BS London (PHYSICS)

TOLE, THOMAS M., Assoc. Professor Emeritus, 1998, PhD MBA BCE Oklahoma (FINANCE)

TORREJON, ALFREDO., Associate Professor Emeritus, 2007, PhD MA SUNY – Buffalo (WORLD LANGUAGES, LITERATURES, AND CULTURES)

TRENTHAM, GARY L., Alumni Professor Emeritus, September 1995, MA BS Murray State, MFA Indiana (CONSUMER AND DESIGN SCIENCES)

TRENTHAM, LANDA L., Professor Emerita, September 1995, EdD Indiana, MA Murray State, BS Kentucky (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

TRIMBLE, WILLIAM F., Professor Emeritus, 2014, PhD MA BA Colorado (HISTORY)

TROY, JUDY R., Professor and Alumni Writer-in-Residence Emerita, 1992, MA Indiana, BA Illinois (ENGLISH)

TU, MAOBING, Associate Professor Emeritus, 2008, PhD Univ British Columbia and East China Univ, MS Tianjin Univ, BS Anhui Ag Univ (FORESTRY WILDLIFE SCIENCES)

TUFTS, ROBERT A., Associate Professor Emeritus, 1979, JD Jones, PhD Virginia Tech, MS BS Louisiana State (FORESTRY WILDLIFE SCIENCES)

TURNQUIST, PAUL K., Professor Head Emeritus, 1998, PhD MS Oklahoma State, BS Kansas State (AGRICULTURAL ENGINEERING)

TYSON, TED W., Professor Emeritus, 2012, MS BSAE Georgia (BIOSYSTEMS ENGINEERING)

*TZENG, YONHUA, Professor Emeritus, 2007, PhD MS Texas Tech, BS National Taiwan (ELECTRICAL AND COMPUTER ENGINEERING)

U

UHLIG, FRANK, Professor Emeritus, 2013, PhD California Institute of Technology, MA Ball State University (MATHEMATICS AND STATISTICS)

*ULRICH, PAMELA V., Professor and Department Head Emerita, 1992, PhD Oregon, MS Auburn, BS Oregon State (CONSUMER AND DESIGN SCIENCES)

*UMPHRESS, DAVID, COLSA Corporation Cyber Security and Information Assurance Professor Emeritus, 1999, PhD Texas AM University (COMPUTER SCIENCE AND SOFTWARE ENGINEERING)

UNGER, VERNON E., Professor Emeritus, 1998, PhD MSMS BES Johns Hopkins (INDUSTRIAL AND SYSTEMS ENGINEERING)

UZUMERI, MUSTAFA V., Associate Professor Emeritus, August 2012, PhD Rensselaer, MBA York, BA Toronto (AVIATION AND SUPPLY CHAIN MANAGEMENT)

V

VAN SANTEN, EDZARD, Professor Emerita, 1988, PhD MSc Wisconsin (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

VAN SANTEN, VICKY L., Professor Emerita, 1988, PhD University Chicago (PATHOBIOLOGY)

*VAUGHN, BRIAN E., Professor Emeritus, 1989, PhD Minnesota, BA Arizona State (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

VECELLIO, ROBERT L., Associate Professor Emeritus, 2012, PhD MSCE BSCE Ohio State (CIVIL ENGINEERING)

VILLAUME, SUSAN K., Professor and Associate Dean Emerita, 1988, PhD Ohio State, MS Tennessee, BA Carson Newman (CURRICULUM AND TEACHING)

VILLAUME, WILLIAM A., Professor Emeritus, 2011, PhD Ohio State, MDiv Lutheran Theo, BA Waterloo (PHARMACY CARE SYSTEM)

VINSON, JOHNNIE B., Professor Emeritus, November 2007, D. Arts Mississippi, BS MS Auburn (MUSIC)

VIVES, DONALD L., Professor Emeritus, June 1987, MS BS Columbia (CHEMICAL ENGINEERING)

W

WADDELL, FRED E., Assoc. Professor Emeritus & Extension Family Resource Management Specialist, 2000, PhD MS BS Virginia Tech (HUMAN DEVELOPMENT AND FAMILY SCIENCE)

WADE, LARKIN H., Professor Emeritus, July 1993, MS BS Auburn (FORESTRY)

WAGONER, GARY, Professor Emeritus, 1980, MFA Alfred New York, BFA Wichita State (ART)

WALKER, ROBERT H., Professor Emeritus, PhD MS BS Mississippi State (AGRONOMY SOILS)

WALKER, ROBERT P., Professor Emeritus, 1994, MS Inst. Textile Tech., BS Auburn (TEXTILE ENGINEERING)

WALLACE JR, RICHARD K., Professor Director Emeritus, 2008, PhD Auburn, MS Puerto Rico, BA Ohio Wesleyan (SCHOOL OF FISHERIES, AQUACULTURE AQUATIC SCIENCES)

WALLS, KIMBERLY C., Professor and Head Emerita, 1997, PhD Florida State, MEd BS Auburn (CURRICULUM AND TEACHING)

WALSH, WILLIAM K., Professor Emeritus, 2001, PhD North Carolina State, BS South Carolina (TEXTILE ENGINEERING)

WALTERS, KENNETH W., Professor Emeritus, July 2000, PhD MA Northwestern, BA Roosevelt (PHILOSOPHY)

WARBINGTON, THOMAS L., Assoc. Professor Emeritus, 1992, MA BS Mississippi (WORLD LANGUAGES, LITERATURES, AND CULTURES)

WARD, CHARLOTTE E., Assoc. Professor Emerita, June 1994, PhD MS Purdue, MS BS Kentucky (PHYSICS)

WARD, KEITH J., Director Emeritus, June 1998, PhD Tennessee, MPA BS Brigham Young (CENTER FOR GOVERNMENTAL SERVICES)

WARFIELD, CAROL L., Professor and Head Emerita, 1977, PhD MS Illinois, BS South Dakota State (CONSUMER AND DESIGN SCIENCES)

WATERS, GARY L., Senior Associate Athletics Director Emeritus, June 1, 2017 (ATHLETICS DEPARTMENT)

WATERS JR, LUTHER, Professor Emeritus, 2010, PhD Oregon State, MS BS Clemson (HORTICULTURE)

*WATSON, FURMAN DALE, Director of Professional Development Emeritus, MS Aeronautical Science Embry-Riddle Aeronautical University, BS Auburn University (GRADUATE SCHOOL)

*WEATHERS III, FRANK W., Professor Emeritus, 1997, PhD Indiana, BA Butler (PSYCHOLOGICAL SCIENCES)

WEAVER, DAVID B., Professor Emeritus, 1981, PhD Purdue, MS BSA Georgia (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

WEAVER, ANDREW, Professor Emeritus, August 2007, EdD MA Tennessee, BS Tennessee Tech. (CURRICULUM AND TEACHING)

WEBB, THOMAS R., Associate Professor Emeritus, 2007, PhD Iowa State, BS Oregon State (CHEMISTRY AND BIOCHEMISTRY)

WEBSTER, GWYNEDD A. THOMAS, Associate Professor Emerita, 1996 (MECHANICAL ENGINEERING)

*WEESE, SONDRA JEAN, Professor Emerita and Extension Specialist, 1987, PhD Tennessee, MA BS Eastern Kentucky (POULTRY SCIENCE)

WEETE, JOHN D., Assoc. Dean and Professor Emeritus, September 1998, PhD Houston, MS BS S.F. Austin State (SCIENCES AND MATHEMATICS)

WEHTJE, GLENN R., Professor Emeritus, 1981, PhD Nebraska, MS N. Dakota State, BS Washington State (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

WELLES, ELIZABETH G., Professor Emerita, 1990, PhD Georgia, DVM Auburn, BS North Carolina State (PATHOBIOLOGY)

*WENTWORTH, STUART, Associate Professor Emeritus, 1990, PhD MS University of Texas, BS Auburn University (ELECTRICAL AND COMPUTER ENGINEERING)

*WENZEL, JAMES G., Professor Emeritus, 1990, PhD Minnesota, DVM Auburn, MS Georgia (CLINICAL SCIENCES)

WERSINGER, JEAN-MARIE P., Associate Professor Emerita, 2011, PhD BS Ecole-Lausanne (PHYSICS)

WEST, KATHRYN MILLY, Academic Program Associate Emerita (CHEMISTRY AND BIOCHEMISTRY)

WHITE, B. DOUGLAS, Associate Professor Emeritus, 1996, PhD Louisiana State, MS BS Auburn (NUTRITIONAL SCIENCES)

WHITE, STEPHEN, Associate Professor Emeritus, 1985, PhD MA Georgia, BA Oglethorpe (PHILOSOPHY)

WHITE, BONNIE J., Professor Emerita, December 2010, EdD Tennessee, MA Eastern Kentucky, MS Florida State, BA Evangel (CURRICULUM AND TEACHING)

WHITE, CHARLES R., Assoc. Professor Emeritus, September 1994, PhD MS BS Purdue (INDUSTRIAL AND SYSTEMS ENGINEERING)

WHITE, J. HERBERT, Executive Director Emeritus, October 1993, BS Auburn (UNIVERSITY RELATIONS)

*WHITFORD, BETTY LOU, Dean and Wayne T. Smith Distinguished Professor Emerita, 2010, PhD MAT AB North Carolina Chapel Hill (EDUCATION - ADMINISTRATION)

WHITLEY, R. DAVID, Professor Emeritus, December 2008, DVM MS Auburn University (VETERINARY MEDICINE)

WHITTEN, DAVID O., Professor Emeritus, PhD Tulane, MA South Carolina, BS Charleston (ECONOMICS)

WHITTENBURG, BOBBY L., Extension Animal Scientist & Assoc. Professor Emeritus, 1994, MS Tennessee (ANIMAL SCIENCES)

WHYTE, ALYSON I., Associate Professor Emerita, 2001, PhD BA Stanford (CURRICULUM AND TEACHING)

WIGGINS, LORNA A., Librarian III Emerita, September 1995, MLS Emory, BA Agnes Scott ()

*WILAMOWSKI, BOGDAN D., Professor Emeritus, 2003, D.Sc. PhD MSc Technical University of Gdansk (ELECTRICAL AND COMPUTER ENGINEERING)

WILBANKS, JAMES R., Director Emeritus, 1994, MME BME Auburn (ENGINEERING EXTENSION)

WILBANKS, MARY ELIZABETH, Librarian Emerita, 1985, MA Emory, MSLS North Carolina, AB Montevallo (RALPH BROWN DRAUGHON LIBRARY)

WILKE, ARTHUR S., Professor Emeritus, 2002, PhD MA Minnesota, BS Wisconsin (SOCIOLOGY, ANTHROPOLOGY, AND SOCIAL WORK)

*WILLIAMS, J. DAVID, Professor Emeritus, 1984, PhD Ohio State, MS BS Auburn (HORTICULTURE)

WILLIAMS, DOUGLAS F., Assoc. Professor Emeritus, June 1990, PhD Texas, MA Michigan, BA N. Michigan (EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY)

WILLIAMS, ELIZABETH G., Assoc. Professor Emerita, June 1987, MS BS Auburn (ACCOUNTANCY)

WILLIAMS, HUGH O., Alumni Professor Emeritus, June 1985, MA Columbia, BAA Auburn ()

WILLIAMS, JOHN R., Professor Emeritus, December 2011, PhD North Carolina State, BS North Georgia (PHYSICS)

WILLIAMS, MICHAEL L., Professor Emeritus, June 2012, PhD MS Virginia Tech, BS Arkansas State (ENTOMOLOGY PLANT PATHOLOGY)

WILLIAMS, JAMES S., Professor Emeritus, 1982, MS Clemson, BS Toledo (MCWHORTER SCHOOL OF BUILDING SCIENCE)

WILLIAMS JR, KING E., Professor Emeritus, 1983, MA BA Alabama (SCHOOL OF COMMUNICATION AND JOURNALISM)

WILMOTH, JAMES N., Professor Emeritus, September 1995, PhD MS Wayne State, BS Marshall (VOCATIONAL AND ADULT EDUCATION)

WILSON, MARTHA W., Clinical Professor Emerita, 1990, AuD Penn. School of Optometry, MA Kent State, BS Miami (SPEECH, LANGUAGE, AND HEARING SCIENCES)

WILSON, ARLETTE C., Professor Emerita, June 2010, PhD Arkansas, MBA BBA Mississippi (ACCOUNTANCY)

WILSON, DENNIS, Professor Emeritus, December 2008, EdD MS Tennessee, BS Union (SCHOOL OF KINESIOLOGY)

WINDLE, ROBERT T, Senior Associate Athletics Director and Chief Financial Officer Emeritus (ATHLETICS DEPARTMENT)

WIT, LAWRENCE C., Assoc. Dean and Professor Emeritus, October 2012, PhD Missouri, MS Western Illinois, BS Wheaton (BIOLOGICAL SCIENCES)

WITT, BARBARA, Dean and Professor Emerita, 2010, EdD Columbia, MSN BSN Connecticut (NURSING)

WITTE, JAMES, Delta Air Lines Endowed Professor Emeritus, PhD University of South Florida, MS College of William and Mary, BS University of Nebraska (SCHOOL OF AVIATION)

WOLF, LORRAINE W., Professor Emerita, 1993, PhD Alaska, MA BA SUNY Binghamton (GEOSCIENCES)

WOLFE, DWIGHT F., Professor Emeritus, 1980, DVM MS Auburn, BS Tennessee (CLINICAL SCIENCES)

WOLFE, LAUREN G., Professor Emeritus and Head, October 2006, PhD DVM MS Ohio State (PATHOBIOLOGY)

WOLTERS, ROGER S., Professor Emeritus, 2008, PhD Illinois, MAc BBA North Florida (MANAGEMENT)

WOOD, C. Wesley, Professor Emeritus, 2014, PhD Colorado State, MS BS Mississippi State (AGRONOMY SOILS)

*WOODS, FLOYD M., Associate Professor Emeritus, 1990, PhD Mississippi State, MS Cornell, BS Tuskegee (HORTICULTURE)

*WOOTEN, MICHAEL C., Professor Emeritus, 1986, PhD North Texas State, MS BS Memphis State (BIOLOGICAL SCIENCES)

WORTHINGTON, JAMES E., Assoc. Professor Emeritus. Accountancy, 2000, PhD MA Missouri, BSBA Pittsburg State ()

*WRIGHT, JAMES C., Professor Emeritus, 1985, PhD MS Missouri, DVM Georgia, BS Virginia Tech (PATHOBIOLOGY)

WU, CHWAN-HWA, Professor Emeritus, 1987, PhD MS PolyTechnic-New York, BS National Chiao Tung (ELECTRICAL AND COMPUTER ENGINEERING)

WYLIE, ROY, Professor Emeritus, 2007, D Mus Arts Texas, MM Manhattan School of Music, BM SMU (MUSIC)

WYSOCKA-DILLER, JOANNA, Associate Professor Emerita, 2000, PhD MA Columbia, BS Hunter (BIOLOGICAL SCIENCES)

Y

YOO, KYUNG HAK, Professor Emeritus, 2014, Professor Emeritus (BIOSYSTEMS ENGINEERING)

YOUNG, SAM W., Assoc. Professor Emeritus, 1997, PhD MS BA Texas (MATHEMATICS AND STATISTICS)

Z

ZEE, RALPH H., Associate Dean and Professor Emeritus, 1986, PhD MS BS Wisconsin (ENGINEERING - ADMINISTRATION)

*ZHONG, JUMING, Professor Emeritus, 2001, PhD University of Missouri, DVM Southwest Chengdu P.R.China (ANATOMY, PHYSIOLOGY PHARMACOLOGY)

*ZINNER, BERTRAM, Associate Professor Emeritus, 1994, PhD Utah, BS Darmstadt (MATHEMATICS AND STATISTICS)

ZORR JR, PAUL A., Professor Emeritus, 1980, MArch BArch Illinois Inst. (ARCHITECTURE)

*ZYLLA-JONES, ELIZABETH, Clinical Professor Emerita, 1991, MS Purdue, BA Pacific (SPEECH, LANGUAGE, AND HEARING SCIENCES)

Courses of Instruction

This section lists and describes all undergraduate and graduate courses taught by the departments of the university. The courses are presented by subject area and arranged in departmental order, alphabetically. The subject name (the heading in large type) is followed by the subject area code in parentheses.

Courses of Instruction

By Subject

Accounting - ACCT (p. 1918)
Adult Education - ADED (p. 1921)
Aerospace Engineering - AERO (p. 1923)
Aerospace Studies (AFROTC) - AIRF (p. 1927)
African American and Africana Studies - AAAS (p. 1928)
Agricultural Economics - AGEC (p. 1928)
Agriculture - AGRI (p. 1932)
Animal Sciences - ANSC (p. 1933)
Anthropology - ANTH (p. 1936)
Applied Biotechnology - APBT (p. 1939)
Architecture - ARCH (p. 1939)
Art - ARTS (p. 1942)
Auburn Global - GLOB (p. 1946)
Aviation Management - AVMG (p. 1948)
Biochemistry - BCHE (p. 1952)
Biological & Agricultural Technology Management - BATM (p. 1950)
Biology - BIOL (p. 1952)
Biomaterials and Packaging - BIOP (p. 1963)
Biosystems Engineering - BSEN (p. 1965)
Building Science - BSCI (p. 1968)
Business Administration - BUSI (p. 1973)
Business Analytics - BUAL (p. 1975)
Career and Technical - CTCT (p. 1977)
Chemical Engineering - CHEN (p. 1981)
Chemistry - CHEM (p. 1984)
Civil Engineering - CIVL (p. 1989)
Communication - COMM (p. 1998)
Communication and Journalism - CMJN (p. 2003)
Community and Civic Engagement - CCEN (p. 2004)
Community Planning - CPLN (p. 2004)
Computer Science - CPSC (p. 2012)
Computer Science & Software Engineering - COMP (p. 2006)
Consumer and Design Sciences - CADS (p. 2014)
Cooperative Education - COOP (p. 2021)
Counselor Education, Counseling Psychology - COUN (p. 2021)
Crop, Soil, and Environmental Sciences - CSES (p. 2026)
Drug and Biopharmaceutical Sciences - DBPS (p. 2031)
Drug Discovery and Development - DRDD (p. 2033)
EAGLES Program - EAGL (p. 2036)
Early Childhood Education - CTEC (p. 2037)

Earth System Science - ESSI (p. 2039)
Economics - ECON (p. 2040)
Educational Leadership - EDLD (p. 2046)
Educational Media - EDMD (p. 2048)
Educational Psychology - EPSY (p. 2045)
Educational Research Methods & Analysis - ERMA (p. 2043)
Electrical and Computer Engineering - ELEC (p. 2050)
Elementary Education - CTEE (p. 2058)
Engineering - ENGR (p. 2060)
English - ENGL (p. 2063)
English for Speakers of Other Languages - CTES (p. 2070)
Entomology - ENTM (p. 2071)
Entrepreneurship and Family Business - ENFB (p. 2073)
Environmental Design - ENVD (p. 2074)
Environmental Science - ENVI (p. 2076)
Exploratory - EXPL (p. 2076)
Film and Media Studies - Film - FILM (p. 2199)
Film and Media Studies - MDIA (p. 2198)
Finance - FINC (p. 2077)
Fisheries, Aquaculture, and Aquatic Sciences - FISH (p. 2080)
Flight Education - AVMF (p. 2085)
Food Science - FDSC (p. 2086)
Forest Engineering - FOEN (p. 2087)
Forest Products - FOPR (p. 2087)
Forestry - FORY (p. 2091)
Forestry & Wildlife Sciences - FOWS (p. 2088)
Foundations of Education - FOUN (p. 2095)
Geography - GEOG (p. 2096)
Geology - GEOL (p. 2099)
Geosciences - GEOS (p. 2103)
Geospatial and Environmental Informatics - GSEI (p. 2103)
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Graduate Studies - GRAD (p. 2105)
Graphic Design - GDES (p. 2106)
Health Administration - HADM (p. 2108)
Health Outcomes Research & Policy - HORP (p. 2109)
Higher Education Administration - HIED (p. 2110)
History - HIST (p. 2111)
Honor - HONR (p. 2120)
Horticulture - HORT (p. 2121)
Hospitality Management - HOSP (p. 2124)
Human Development & Family Science - HDFS (p. 2129)
Human Resource Management - HRMN (p. 2135)
Human Sciences, General - HUSC (p. 2136)
Industrial & Systems Engineering - INSY (p. 2138)
Industrial Design - INDD (p. 2146)
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Journalism - Sports Production - JRSP (p. 2158)
Kinesiology - KINE (p. 2158)
Laboratory Science - LBSC (p. 2166)
Landscape Architecture - LAND (p. 2166)
Leadership - LEAD (p. 2172)
Liberal Arts, General - LBAR (p. 2172)
Management - MNGT (p. 2173)
Marketing - MKTG (p. 2174)
Materials Engineering - MATL (p. 2176)
Mathematics - MATH (p. 2179)
Mechanical Engineering - MECH (p. 2191)
Middle School Education - CTMD (p. 2200)
Military Science (AROTC) - MILS (p. 2201)
Music - Applied - MUAP (p. 2202)
Music - MUSI (p. 2203)
Music Education - CTMU (p. 2208)
Music Ensemble - MUSE (p. 2210)
Natural Resources Management - NATR (p. 2216)
Naval Science (NROTC) - NAVS (p. 2219)
Nursing - NURS (p. 2220)
Nutrition - NTRI (p. 2228)
Parks and Recreation - PARK (p. 2232)
Pharmacy (PharmD) - PYPD (p. 2233)
Philosophy - PHIL (p. 2242)
Physical Education - PHED (p. 2245)
Physics - PHYS (p. 2248)
Plant Pathology - PLPA (p. 2251)
Political Science - POLI (p. 2254)
Polymer & Fiber Engineering - PFEN (p. 2263)
Poultry Science - POUL (p. 2265)
Psychology - PSYC (p. 2267)
Public and One Health - PAOH (p. 2273)
Public Relations Communication - PRCM (p. 2275)
Reading Education - CTRD (p. 2276)
Real Estate Development - RDEV (p. 2277)
Rehabilitation & Special Education - RSED (p. 2278)
Religion - RELG (p. 2285)
Rural Sociology - RSOC (p. 2285)
Sciences & Math - SCMH (p. 2287)
Secondary Education - CTSE (p. 2288)
Social Work - SOWO (p. 2293)
Sociology - SOCY (p. 2295)
Space Systems - SPCE (p. 2298)

Speech, Language, and Hearing Sciences - SLHS (p. 2299)
Statistics - STAT (p. 2303)
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Wildlife Sciences - WILD (p. 2333)
Women's Studies - WMST (p. 2337)
World Language - Arabic - FLAR (p. 2338)
World Languages - Asian Culture - FLAS (p. 2338)
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World Languages - French - FLFR (p. 2340)
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World Languages - Greek - FLGK (p. 2345)
World Languages - Italian - FLIT (p. 2345)
World Languages - Japanese - FLJP (p. 2346)
World Languages - Korean - FLKN (p. 2347)
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World Languages - Russian - FLRU (p. 2348)
World Languages - Spanish - FLSP (p. 2349)

Accounting - ACCT

Courses

ACCT 2110 PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3. Basic accounting principles with focus on preparation and use of financial statements. Credit will not be given for both ACCT 2110 and ACCT 2810. Sophomore standing.

ACCT 2117 HONORS PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3. Pr. Honors College. Basic accounting principles with focus on preparation and use of financial statements. Sophomore standing.

ACCT 2210 PRINCIPLES OF MANAGERIAL ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. Emphasis on cost accounting, budgeting, and decision making using managerial accounting information. Sophomore standing.

ACCT 2700 BUSINESS LAW (3) LEC. 3. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2707 HONORS BUSINESS LAW (3) LEC. 3. Pr. Honors College. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2810 FUNDAMENTALS OF ACCOUNTING (3) LEC. 3. Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and ACCT 2810.

ACCT 2817 HONORS FUNDAMENTALS OF ACCOUNTING (3) LEC. 3. Pr. Honors College. Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and ACCT 2810.

ACCT 3210 ACCOUNTING FOR DECISION MAKING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Junior standing applies to ACCT 3210. ACCT 3210 is limited to students in the BSBA Online completer program.

ACCT 3310 BUSINESS PROCESSES AND INTERNAL CONTROLS (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment. Limited to students in the BSBA Online completer program. Credit will not be given for both ACCT 3310 and ACCT 3520.

ACCT 3810 PROFESSIONAL DEVELOPMENT IN ACCOUNTANCY (1) LEC. 1. SU. Pr. (P/C ACCT 3110 or P/C ACCT 3113 or P/C ACCT 5110) and P/C BUSI 2010. Career planning and preparation for transition from university student to accounting professional.

ACCT 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Advanced individual research and study in accounting under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

ACCT 4920 ACCOUNTING INTERNSHIP (1-6) DSL/LEC. SU. Internship opportunity with an accounting firm, corporation, or governmental entity. Course may be repeated for a maximum of 6 credit hours.

ACCT 5110 INTERMEDIATE ACCOUNTING I (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. Accounting principles and theory including accounting for current assets, liabilities, and investments. Junior standing applies to ACCT 5110. ACCT 5113 is limited to students accepted to online accounting program.

ACCT 5120 INTERMEDIATE ACCOUNTING II (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110. Grade of C or better. Continuation of ACCT 5110, with emphasis on fixed assets, capital structure, and cash flows. Junior standing applies to ACCT 5120. ACCT 5123 is limited to students accepted to online accounting program.

ACCT 5130 ADVANCED ACCOUNTING TOPICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics.

ACCT 5140 SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. A study of current issues in accounting theory and practice. Topics include regulations and economic and technological developments.

ACCT 5150 CURRENT ISSUES IN ACCOUNTING (3) LEC. 3. Pr. P/C ACCT 5110. Departmental approval. Examination of current issues in the accounting profession.

ACCT 5210 COST ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Junior standing applies to ACCT 5210.

ACCT 5300 AUDITING & ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 3110 or ACCT 5110. Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports.

ACCT 5410 INCOME TAX I (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110. Principles of federal taxation as it applies to individuals and property transactions.

ACCT 5420 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413 or ACCT 5410. Tax accounting for individuals, partnerships, corporations, estates, and trusts. Extensive use of a tax-service program. ACCT 5423 is limited to students accepted to online accounting program.

ACCT 5510 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3. Pr. P/C ACCT 3110 or P/C ACCT 3113 or P/C ACCT 5110. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment.

ACCT 5520 ACCOUNTING ANALYTICS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110) and (CTCT 3250 or CTCT 3253) and (P/C ACCT 3520 or P/C ACCT 3523 or P/C ACCT 5510). Students will learn to analyze data and solve accounting based problems using advanced spreadsheet techniques, database management systems and other analysis tools.

ACCT 5610 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. Accounting for governmental and not-for-profit entities. Focus on effective use of resources.

ACCT 5620 ISSUES IN INTERNATIONAL ACCOUNTING (3) LEC. 3. Pr. P/C ACCT 5110. Departmental approval. Accounting issues concerning international business activity.

ACCT 5700 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments. ACCT 5703 is limited to students accepted to online accounting program.

ACCT 5810 CORPORATE GOVERNANCE & ACCOUNTING ETHICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120. Analyzing the impact of corporate governance and accounting ethics on business transactions.

ACCT 6110 INTERMEDIATE ACCOUNTING I (3) LEC. 3. Accounting principles and theory including accounting for current assets, liabilities, and investments.

ACCT 6120 INTERMEDIATE ACCOUNTING II (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110 or ACCT 6116. Continuation of ACCT 6110/6116, with emphasis on fixed assets, capital structure, and cash flows.

ACCT 6130 ADVANCED ACCOUNTING TOPICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120 or ACCT 6126. Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics.

ACCT 6150 CURRENT ISSUES IN ACCOUNTING (3) LEC. 3. Pr. ACCT 5110. Departmental approval. Examination of current issues in the accounting profession.

ACCT 6210 COST ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2113 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making.

ACCT 6300 AUDITING & ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 3110 or ACCT 5110 or ACCT 6110. Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports.

ACCT 6410 INCOME TAX I (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110 or ACCT 6116. Principles of federal taxation as it applies to individuals and property transactions.

ACCT 6420 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413 or ACCT 5410 or ACCT 6410 or ACCT 6416. Tax accounting for individuals, partnerships, corporations, estates and trusts. Extensive use of a tax-service program.

ACCT 6510 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113 or ACCT 5110 or P/C ACCT 6110 or P/C ACCT 6116. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment.

ACCT 6520 ACCOUNTING ANALYTICS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110 or ACCT 6116) and (ACCT 3520 or ACCT 3523 or ACCT 5510 or ACCT 5513 or ACCT 6510 or ACCT 6516). Students will learn to analyze data and solve accounting based problems using advanced spreadsheet techniques, database management systems and other analysis tools.

ACCT 6610 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120. Accounting for governmental and not-for-profit entities. Focus on effective use of resources.

ACCT 6620 ISSUES IN INTERNATIONAL ACCOUNTING (3) LEC. 3. Pr. ACCT 5110. Departmental approval. Accounting issues concerning international business activity.

ACCT 6700 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments.

ACCT 6810 CORPORATE GOVERNANCE & ACCOUNTING ETHICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120 or ACCT 6126. Analyzing the impact of corporate governance and accounting ethics on business transactions.

ACCT 7110 RESEARCH IN ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120. Departmental approval. An evaluation, critique, and application of financial accounting theory to current reporting problems using current research tools and resources.

ACCT 7130 FINANCIAL ANALYSIS & VALUATION (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 or ACCT 5120 or ACCT 6120. Financial analysis to support managerial, investor, and creditor decision-making, forecasting financial statements and earnings, and applying valuation models to accounting measurement and investment decisions.

ACCT 7210 ACCOUNTING FOR DECISION MAKING AND CONTROL (3) LEC. 3. Pr. ACCT 3210 or ACCT 3213 or ACCT 5210 or ACCT 5213 or ACCT 6210 or ACCT 6216. Departmental approval. Relationship between management accounting and information systems and analysis of costs.

ACCT 7300 ADVANCED AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313 or ACCT 5300 or ACCT 5303 or ACCT 6300 or ACCT 6306. Advanced topics in auditing and assurance services.

ACCT 7320 FRAUD EXAMINATION (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313 or ACCT 5300 or ACCT 5303 or ACCT 6300 or ACCT 6306. Learning how and why occupational fraud is committed and how fraudulent conduct is deterred, investigated, and resolved.

ACCT 7410 FEDERAL TAX RESEARCH (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or P/C ACCT 6420 or ACCT 6426. Departmental approval. Sources of authority used in federal tax research and survey of tax policy issues.

ACCT 7420 CORPORATE AND PARTNERSHIP TAXATION (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426. Tax issues involving corporations and partnership.

ACCT 7510 INTEGRATED ACCOUNTING APPLICATIONS (3) LEC. 3. Pr. ACCT 3530 or ACCT 3533 or ACCT 5520 or ACCT 5523 or ACCT 6520 or ACCT 6526. Design and analysis of accounting information systems and relational databases.

ACCT 7520 ENTERPRISE ACCOUNTING SYSTEMS (3) LEC. 3. Departmental approval. Design, analysis and use of Enterprise accounting systems.

ACCT 7710 PROFESSIONAL DEVELOPMENT (0) IND. Professional development topics and events for Master of Accountancy students. Course may be repeated for a maximum of 10 credit hours.

ACCT 7970 ADVANCED SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Departmental approval. Industry issues in accounting.

Adult Education - ADED

Courses

ADED 4010 LEARNING RESOURCES IN AREA OF SPECIALIZATION (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

ADED 4050 METHODS OF TEACHING IN ORGANIZATIONS (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education.

ADED 4600 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing, and life-long learning.

ADED 4610 DIRECTED WORK EXPERIENCE (3) LEC. 3. SU. In-service, supervised work experience individually designated for part-time or summer work experience.

ADED 4620 COMMUNITY CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources.

ADED 4650 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3. Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities.

ADED 4660 TEACHING IN THE NON-SCHOOL SETTING (3) LEC. 3. Planning, conducting, and supervising instruction for adults in varied non-school settings.

ADED 4900 INDEPENDENT STUDY (1-6) IND. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 4910 PRACTICUM (1-6) PRA. SU. Departmental Approval. Experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 4920 PROFESSIONAL INTERNSHIP IN ADULT EDUCATION (9) INT. 9. SU. Supervised internship experiences in a school or other appropriate setting. Evaluation and analysis of the internship experience. Or Minor.

ADED 4970 SPECIAL TOPICS (1-6) LEC. Current or special topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 7010 LEARNING RESOURCES (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. May count either ADED 7010 or ADED 7016.

ADED 7050 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 3. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education. May count either ADED 7050 or ADED 7056.

ADED 7060 CURRICULUM AND PROGRAM PLANNING IN ADULT EDUCATION (3) LEC. 3. Introduction to principles and practices involved in designing education programs in the area of specialization. May count either ADED 7060 or ADED 7066.

ADED 7600 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing and life-long learning. May count either ADED 7600 or ADED 7606.

ADED 7620 CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources. May count either ADED 7620 or ADED 7626.

ADED 7640 WORKFORCE EDUCATION (3) LEC. 3. Identification and evaluation of basic skills problems in the workplace. Strategies for addressing workplace education issues. May count either ADED 7640 or ADED 7646.

ADED 7650 TEACHING DIVERSE POPULATIONS IN ADULT EDUCATION (3) LEC. 3. This course is designed to define, analyze, and understand diverse populations of adult learners with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in workforce education, community agencies, higher education, or other educational roles.

ADED 7670 ADULT EDUCATION IN COOPERATIVE EXTENSION (3) LEC. 3. Exploration of the unique relationship between adult education and the Cooperative Extension System. May count either ADED 7670 or ADED 7676.

ADED 7680 EXPERIENTIAL LEARNING IN ADULT EDUCATION (3) LEC. 3. This course is designed to introduce the key theories of teaching and learning related to experiential learning in adult education and training.

ADED 7690 MEETING DIVERSE NEEDS IN ADULT EDUCATION SETTINGS (3) LEC. 3. This course provides an innovative look at disability services in post-secondary institutions. Learners will study the history of disability services, legislation, campus accessibility, assessment of the accessibility of adult education settings and other topics of interest.

ADED 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 3 credit hours.

ADED 7910 PRACTICUM (1-3) DSL/PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 3 credit hours.

ADED 7920 INTERNSHIP (1-10) DSL/INT. SU. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. May count either ADED 7920 or ADED 7926. Course may be repeated for a maximum of 10 credit hours.

ADED 7950 SEMINAR (1-3) DSL/SEM. SU. Presentation of research projects, analysis of procedures, and findings. Course may be repeated for a maximum of 3 credit hours.

ADED 7960 READINGS (1-3) DSL/IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

ADED 7970 SPECIAL TOPICS (1-6) LEC. 1-6. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

ADED 7990 RESEARCH AND THESIS (1-10) DSL/MST. Departmental approval. Individualized support and direction for students writing their thesis. Course may be repeated with change in topics.

ADED 8900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 8910 PRACTICUM (1-6) DSL/PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college, or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

ADED 8950 SEMINAR (1-6) DSL/SEM. SU. Presentation by graduate students of research projects and/or analysis of procedures and findings. Course may be repeated for a maximum of 6 credit hours.

ADED 8960 SPECIAL PROBLEMS (1-6) IND. Departmental approval. Critical analysis of current and classical research writings. Course may be repeated for a maximum of 6 credit hours.

ADED 8970 SPECIAL TOPICS (1-6) DSL. Departmental approval. Current or advanced topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 8980 FIELD PROJECT (1-10) DSL/FLD. SU. Field project formulated, planned, conducted, evaluated, and reported in appropriate written form and oral formats under the direction of the student's major professor. Course may be repeated for a maximum of 10 credit hours.

ADED 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Departmental approval. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours

Aerospace Engineering - AERO

Courses

AERO 2200 AEROSPACE FUNDAMENTALS (2) LEC. 1. LAB. 3. Pr. ENGR 1110 and (PHYS 1600 or PHYS 1607). C or better in PHYS 1600 and ENGR 1110. Introduction to the fundamental physical concepts required for the successful design of aircraft and spacecraft.

AERO 3110 AERODYNAMICS I (3) LEC. 3. Pr. MATH 2650 and AERO 2200. C or better in AERO 2200 and MATH 2650. Properties of fluids, fluid statics, conservation of mass and momentum, atmospheric properties, two dimensional airfoils, three dimensional wings, drag, and flight performance.

AERO 3120 AERODYNAMICS II (3) LEC. 3. Pr. ENGR 2010 and MATH 2650 and AERO 2200. C or better in AERO 2200, MATH 2650, and ENGR 2010. Principles of compressible flow including flows with area changes, friction and heat transfer. Fundamental analysis of aerodynamics and potential flow theory. Correlation of potential flow theory with experimental data.

AERO 3130 AERODYNAMICS LABORATORY (2) LEC. 1. LAB. 3. Pr. P/C AERO 2200. C or better in AERO 2200. Application of fundamental aerodynamic principles to subsonic and supersonic wind tunnel experiments.

AERO 3220 AEROSPACE SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650 and (MATH 2660 or MATH 2667). C or better in ENGR 2350, MATH 2650, and MATH 2660. Modeling of system elements, classical feedback control techniques used in the analysis of linear systems, analysis of systems undergoing various motions connected with flight.

AERO 3230 FLIGHT DYNAMICS (4) LEC. 3. LAB. 2. Pr. AERO 3110 and ENGR 2350 and MATH 2650 and AERO 3220. C or better in MATH 2650 and ENGR 2350. Airplane performance and stability and control including analytical prediction of performance characteristics, experimental determination of static stability parameters, and analytical prediction of dynamic stability characteristics.

AERO 3310 ORBITAL MECHANICS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650. C or better in ENGR 2350 and MATH 2650. Geometry of the solar system and orbital motion, mathematical integrals of motion, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories.

AERO 3610 AEROSPACE STRUCTURES I (2) LEC. 1. LAB. 3. Pr. ENGR 2070 or ENGR 2077. C or better in ENGR 2070. Fundamental concepts employed in the mechanical testing of engineering materials and structures. Load, stress, and strain measurement techniques are utilized to determine material properties and structural response.

AERO 3970 SPECIAL TOPICS (1-3) AAB. SU. Departmental approval. Investigation of various topics in Aerospace Engineering. Course may be repeated for a maximum of 6 credit hours.

AERO 4140 AERODYNAMICS III (3) LEC. 3. Pr. AERO 3110. Theoretical background essential to a fundamental understanding of laminar and turbulent boundary layers and their relations to skin friction and heat transfer.

AERO 4510 AEROSPACE PROPULSION (4) LEC. 3. LAB. 3. Pr. AERO 3120. Fundamental analysis of airbreathing jet propulsion. Introduction to chemical rocket propulsion.

AERO 4620 AEROSPACE STRUCTURES II (4) LEC. 3. LAB. 3. Pr. AERO 3610 and (MATH 2660 or MATH 2667). C or better in MATH 2660. Aircraft and space vehicle structures. An introduction to the finite element method and its application to structural analysis. The laboratory will utilize state-of-the-art software numerical solution of aerospace structural systems.

AERO 4630 AEROSPACE STRUCTURAL DYNAMICS (4) LEC. 3. LAB. 3. Pr. AERO 4620 and MATH 2650. C or better in MATH 2650. Free, forced and damped vibration of single and multiple degree-of-freedom systems. The laboratory will utilize state-of-the-art software for the analysis of the vibration and dynamic response of structural systems.

AERO 4710 AEROSPACE DESIGN I: AIRCRAFT DESIGN (3) LEC. 2. LAB. 3. Pr. AERO 3120 and AERO 3110 and AERO 3610 and P/C AERO 3230. Introduction to the principles required to design aerospace vehicles.

AERO 4720 AEROSPACE DESIGN II: AIRCRAFT DESIGN (3) LEC. 2. LAB. 3. Pr. AERO 4710. This course is continuation of AERO 4710.

AERO 4730 AEROSPACE DESIGN I: SPACE MISSION (3) LEC. 2. LAB. 3. Pr. AERO 3120 and AERO 3610 and P/C AERO 3310. Introduction to the design of space systems including the identification of launch requirements, spacecraft system components, satellite tracking and orbital analysis to achieve a stated scientific objective.

AERO 4740 AEROSPACE DESIGN II: SPACE MISSION (3) LEC. 2. LAB. 3. Pr. AERO 4730. A continuation of AERO 4730, Space Mission Design I.

AERO 4750 AEROSPACE DESIGN I: LAUNCH VEHICLE (3) LEC. 2. LAB. 3. Pr. AERO 3120 and AERO 3610 and AERO 3310. Introduction to the principles required to design aerospace vehicles.

AERO 4760 AEROSPACE DESIGN II: LAUNCH VEHICLE (3) LEC. 2. LAB. 3. Pr. AERO 4750. This course is continuation of AERO 4750.

AERO 4970 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) AAB. Departmental approval. Investigation of current state-of-the-art technologies in aerospace engineering. Course may be repeated for a maximum of 9 credit hours.

AERO 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Membership in the Honors College and departmental approval required; Directed research and writing of an honors thesis. Course may be repeated for a maximum of 3 credit hours.

AERO 4AA0 PROGRAM ASSESSMENT (0) LAB. SU. Pr. P/C AERO 4710 or P/C AERO 4730 or P/C AERO 4750. Academic program assessment covering the areas of aerodynamics, aerospace structures, orbital mechanics, propulsion and vehicle design.

AERO 5110 MISSILE AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 5120 ROTARY WING AERODYNAMICS (3) LEC. 3. Pr. AERO 3110. Aerodynamics and flight characteristics of rotary-wing aircraft.

AERO 5140 COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. Pr. AERO 3110. An introduction to finite-difference and finite-volume methods for solving partial differential equations of interest in fluid dynamics.

AERO 5210 FLIGHT SIMULATION (3) LEC. 3. Pr. AERO 3230. Time domain simulation of nonlinear, six-degree-of-freedom motion of flight vehicles. Development of modular digital simulations including vehicle models for aerodynamics and propulsion, control, guidance subsystems.

AERO 5330 APPLIED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 3310. Introduction to general and special perturbations; N-body and restricted three-body problems; C-W equations, targeting and rendezvous; satellite constellations.

AERO 5410 AEROACOUSTICS (3) LEC. 3. Pr. AERO 3120 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410 or AERO 6410.

AERO 5460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2650. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 5520 ROCKET PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 5530 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.

AERO 5630 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 6110 MISSILE AERODYNAMICS (3) LEC. 3. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 6120 ROTARY WING AERODYNAMICS (3) LEC. 3. Aerodynamics and flight characteristics of rotary-wing aircraft.

AERO 6140 COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. An introduction to finite-difference and finite-volume methods for solving partial differential equations of interest in fluid dynamics.

AERO 6210 FLIGHT SIMULATION (3) LEC. 3. Time domain simulation of nonlinear, six-degree-of-freedom motion of flight vehicles. Development of modular digital simulations including vehicle models for aerodynamics and propulsion, control, guidance subsystems.

AERO 6330 APPLIED ORBITAL MECHANICS (3) LEC. 3. Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 6410 AEROACOUSTICS (3) LEC. 3. Pr. AERO 4140 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410/5413 or AERO 6410/6416.

AERO 6460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2650. Departmental approval. Analytical solutions of nonlinear problems, ODES, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 6520 ROCKET PROPULSION (3) LEC. 3. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 6530 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.

AERO 6630 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 6640 ADVANCED VISCOELASTICITY (3) DSL/LEC. An introduction to polymers and the theory of viscoelasticity. Topics include (1) a review of stress and strain analysis and measurement; (2) characteristics, applications, and properties of polymers; (3) polymerization and classification; (4) differential constitutive equations; (5) time and temperature behavior of polymers; (6) viscoelastic stress analysis; and (7) rate and time-dependent failure.

AERO 7100 ADVANCED SUPERSONIC AERODYNAMICS (3) LEC. 3. Pr. AERO 4140. A rigorous development of linearized and nonlinear fluid flow theories and application. Lifting surfaces, lifting bodies, duct flow, boundary layer effects, shock and expansion waves and method of characteristics.

AERO 7120 DYNAMICS OF VISCOUS FLUIDS I (3) LEC. 3. Pr. AERO 7100 or AERO 7106. Exact solutions to the Navier Stokes equations. Exact and approximate solutions of the laminar boundary layer equations. Incompressible and compressible boundary layers in theory and experiment.

AERO 7130 DYNAMICS OF VISCOUS FLUIDS II (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Turbulent flows, the Reynolds stresses and turbulence modeling. Computation of incompressible and compressible turbulent boundary layers. Stability theory and transition.

AERO 7140 ADVANCED COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. Pr. AERO 5140 or AERO 6140. Advanced methods for solving problems in computational fluid dynamics. Topics include: discretization approaches, implicit solution techniques, curvilinear coordinate systems, and upwind schemes.

AERO 7150 COMPRESSIBLE FLUID DYNAMICS (3) LEC. 3. Pr. AERO 4140. Departmental approval. An introduction to the fundamental of compressible fluid dynamics. Application of conservation of mass, momentum and energy for compressible flows. May count either AERO 7150 or AERO 7156.

AERO 7160 PHYSICAL FOUNDATIONS OF TURBULENCE (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to turbulence using classical descriptions with a focus on the physics of turbulence phenomena. May count either AERO 7160 or AERO 7166.

AERO 7170 FUNDAMENTALS OF FLUIDS (3) LEC. 3. Introduction to principal concepts and methods of fluid dynamics; similarity and dimensional analysis; conservation of mass, momentum, and energy for flows in continuum; circulation and vorticity theorems; potential flow theory; introduction to some exact solutions based on simplifying assumptions for inviscid, viscous, unsteady, and compressible flow problems.

AERO 7200 DYNAMICS OF FLIGHT (3) LEC. 3. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of flight vehicle motion. Stability concepts and analysis of the stability of flight vehicle motions. Effects of variable mass and flexibility.

AERO 7210 FLIGHT DYNAMICS OF HYPERVELOCITY VEHICLES (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of hypersonic flight vehicle motion. Stability concepts and analysis of the stability of steady-state motions of very high speed flight vehicles.

AERO 7220 SPACECRAFT ATTITUDE DYNAMICS AND CONTROL (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Development of specialized concepts and methods in dynamics applicable to the modeling of spacecraft rotational motion. Methods for controlling spacecraft attitude. Analysis of the attitude stability and controllability of spacecraft attitude motion. Department approval.

AERO 7330 ORBIT DETERMINATION (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of orbit determination; least squares, minimum norm, minimum variance solutions; batch, sequential and extended sequential filters.

AERO 7340 ADVANCED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of time measurements, earth orientation/coordinate system; f and g series; Lambert's Problem; linear orbit theory and circumlunar trajectories.

AERO 7350 OPTIMAL CONTROL OF AEROSPACE VEHICLES (3) LEC. 3. Principles of optimization; Pontryagin's principle; Linear quadratic regulator; Observers, state estimation, LQG problem. Optimal output feedback; Synthesis of flight control systems. AERO 3220 or equivalent.

AERO 7360 ADVANCED TRAJECTORY OPTIMIZATION (3) LEC. 3. Departmental approval. This course reviews single- and multi-variable optimization techniques of deterministic continuous systems. A review of the necessary (KKT) and sufficient conditions for optimality is given. We will review principles of dynamic programming and the Hamilton-Jacobi-Bellman (HJB) equation. We will also review Linear Programming (LP) problems and Quadratic Programming (QP) problems. Application of the QP problems for minimum-snap trajectory optimization for path planning of quad-rotors is demonstrated. We will also introduce basic concepts of convex optimization, which uses many of the concepts introduced in the LP and QP problems. The final project is to solve a trajectory optimization problem using successive linearization, which is a widely used technique for converting non-convex problems to convex ones.

AERO 7410 LIGHT-FIELD IMAGING (3) LEC. 3. Pr. AERO 7160 or AERO 7166. Departmental approval. An introduction to light-field imaging. Topics include light parameterization, light field cameras, computational photography and Fourier slice photography theorem. May count either AERO 7410 or AERO 7416.

AERO 7420 PARTICE IMAGE VELOCIMETRY (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to particle image velocimetry and it variations including conventional planar PIV, stereo PIV, stereo-PIV and torno-PIV. May count either AERO 7420 or AERO 7426.

AERO 7450 AEROSPACE ENGINEERING ANALYSIS (3) LEC. 3. Analysis and techniques for solving ordinary and partial differential equations common in Aerospace applications.

AERO 7460 ADVANCED PERTURBATION METHODS (3) LEC. 3. Departmental approval. Solutions of nonlinear problems and integrals using WKB, Rayleigh-Janzen, Generalized Scales, Latta, van der Pol, Watson, Laplace, Adomian, homotopy, Pade, Liouville-Green and Burmann transformations. May count either AERO 7460/7466 or MATH 7460/7466.

AERO 7510 THRUST GENERATION (3) LEC. 3. Pr. AERO 4510. Aerothermodynamics of propulsion. Selected topics in gas dynamics, thermodynamics, and heat transfer as applied to airbreathing and space propulsion.

AERO 7520 ADVANCED AIR-BREATHING PROPULSION (3) LEC. 3. Topics emphasizing interaction between external aerodynamics and performance of airbreathing jet engines. Performance optimization of ramjet, turbojet, and turbofan engines. Component matching.

AERO 7530 AEROTHERMCHEM OF PROPULSION (3) LEC. 3. Aerothermodynamics of compressible flow, chemical propellant characteristics, heat transfer in fluid flow, statistical gas dynamics, kinetic theory of gases.

AERO 7600 AEROSPACE SOLID MECHANICS (3) LEC. 3. An introduction to solid mechanics concepts with aerospace engineering applications. The course develops equations of motions from conservation laws and introduces constitutive equations from linearized continuum mechanics perspective for aerospace related applications. Topics include elastostatic solutions, elastodynamic solutions and plasticity.

AERO 7620 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STATIC STRUCTURES (3) LEC. 3. Pr. AERO 4620. Departmental approval. Advanced techniques for the numerical solution of static elastic and plastic problems, including two and three dimensional solutions.

AERO 7630 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STRUCTURAL DYNAMICS (3) LEC. 3. Pr. AERO 4630. Departmental approval. Advanced techniques for the numerical solution to problems in structural dynamics, including steady state and transient response of two-and three-dimensional structures.

AERO 7950 SEMINAR (0) SEM. 0. SU. Weekly lectures on current developments in aerospace sciences by staff members, graduate students, and visiting scientists and engineers. Course may be repeated for a maximum of 1 credit hours.

AERO 7970 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) DSL. Course may be repeated for a maximum of 9 credit hours.

AERO 7980 AEROSPACE ENGINEERING PROJECT (3) LEC. 3. SU. Departmental approval. Intended for students in the MAE program. On or off-campus project. The nature of the project is to be determined by the student's major professor. Approval of the project and its final written report by the student's advisory committee is required. Course may be repeated with change in topic.

AERO 7990 RESEARCH AND THESIS (1-10) DSL/MST. Credit hours to be arranged. Course may be repeated with change in topics.

AERO 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

Aerospace Studies (AFROTC) - AIRF

Courses

AIRF 1010 HERITAGE AND VALUES I (1) LEC. 1. This is a survey course designed to introduce students to the Department of the Air Force (DAF) and provides an overview of the basic characteristics, missions, communications and organization of the Air and Space Forces. This course can only be taken in Fall Semester.

AIRF 1011 AFROTC LEADERSHIP LABORATORY I (0) LAB. 3. SU. Departmental approval. Required for all AFROTC cadets. Leadership Lab (LLAB) is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force Second Lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander. This course can only be taken in Fall Semester. Course may be repeated with change in topics.

AIRF 1020 HERITAGE AND VALUES II (1) LEC. 1. This is a survey course designed to introduce students to the Department of the Air Force (DAF) and provides an overview of the basic characteristics, missions, communications and organization of the Air and Space Forces. This course can only be taken in Spring Semester.

AIRF 1021 AFROTC LEADERSHIP LABORATORY II (0) LAB. 3. SU. Departmental approval. Required for all AFROTC cadets. Leadership Lab (LLAB) is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force Second Lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander. This course can only be taken in Spring Semester. Course may be repeated with change in topics.

AIRF 2010 TEAM AND LEADERSHIP FUNDAMENTALS I (1) LEC. 1. This course provides a fundamental understanding of both leadership and team building. The lessons and course flow are designed to prepare students for field training and leadership positions in the detachment. This course can only be taken in Fall Semester.

AIRF 2020 TEAM AND LEADERSHIP FUNDAMENTALS II (1) LEC. 1. This course provides a fundamental understanding of both leadership and team building. The lessons and course flow are designed to prepare students for field training and leadership positions in the detachment. This course can only be taken in Spring Semester.

AIRF 3010 LEADING PEOPLE AND EFFECTIVE COMMUNICATION I (3) LEC. 3. Pr. AIRF 2020. Departmental approval. This course utilizes student's field training experience to take a more in-depth look at leadership. Special emphasis is placed on enhancing communication skills, and why that is important as a leader. Students have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. This course can only be taken in Fall Semester.

AIRF 3011 AFROTC PHYSICAL TRAINING I (0) LAB. 3. SU. Required for all AFROTC cadets. AFROTC Physical Training (PT) and combatives program for cadets pursuing a commission in the Department of the Air Force. This course can only be taken in Fall Semester. Course may be repeated with change in topics.

AIRF 3020 LEADING PEOPLE AND EFFECTIVE COMMUNICATION II (3) LEC. 3. Pr. AIRF 3010. Departmental approval. This course utilizes student's field training experience to take a more in-depth look at leadership. Special emphasis is placed on enhancing communication skills, and why that is important as a leader. Students have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. This course can only be taken in Spring Semester.

AIRF 3021 AFROTC PHYSICAL TRAINING II (0) LAB. 3. SU. Departmental approval. Required for all AFROTC cadets. AFROTC Physical Training (PT) and combatives program for cadets pursuing a commission in the Department of the Air Force. This course can only be taken in Spring Semester. Course may be repeated with change in topics.

AIRF 4010 NATIONAL SECURITY AND PREPARATION FOR ACTIVE-DUTY I (3) LEC. 3. Pr. AIRF 3020. Departmental approval. This course is designed for college seniors and provides them the foundation to understand their role as military officers and how they are directly tied to our National Security Strategy. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. This course can only be taken in Fall Semester.

AIRF 4011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Course may be repeated with change in topics.

AIRF 4020 NATIONAL SECURITY AND PREPARATION FOR ACTIVE-DUTY II (3) LEC. 3. Pr. AIRF 4010. Departmental approval. "National Security and Preparation for Active-Duty" is designed for college seniors and provides them the foundation to understand their role as military officers and how they are directly tied to our National Security Strategy. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. This course can only be taken in Spring Semester.

AIRF 4021 AFROTC LEADERSHIP LABORATORY (0) LAB. 0. SU. Departmental approval. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Course may be repeated with change in topics.

African American and Africana Studies - AAAS

Courses

AAAS 2000 INTRODUCTION TO AFRICAN AMERICAN & AFRICANA STUDIES (3) LEC. 3. An introduction to the interdisciplinary field of African American and Africana Studies through an exploration of the literature, culture, politics, and history of African Americans and other African descended peoples. The course highlights an intentional study of blackness, including critical discussions of social and political realities, arts and aesthetics, and narratives of enslavement, freedom, and radicality.

Agricultural Economics - AGEC

Courses

AGEC 1000 GLOBAL ISSUES IN FOOD, AGRICULTURE, DEVELOPMENT, AND ENVIRONMENT (3) LEC. 3. To expose students to global issues in food, agriculture, development, and natural resource/environmental economics and to learn about career opportunities in the field.

AGEC 3010 AGRIBUSINESS MARKETING (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Principles and problems of marketing farm and agribusiness products including marketing methods, channels, structures, and institutions. May count either AGEC 3010 or AGEC 3013.

AGEC 3050 FARM APPRAISAL (2) LEC. 2. Theory of land values; terminology, processes and procedures for alternative appraisal purposes; factors affecting value; and evaluation of appraisal methods.

AGEC 3080 FUTURES AND OPTIONS MARKETING (2) LEC. 2. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Functions, institutions, economic performance, and practices and procedures involved in utilizing futures and options markets to manage market price risks.

AGEC 3100 COMPUTER APPLICATIONS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. P/C STAT 2010 or P/C STAT 2017 or P/C STAT 2510 or P/C STAT 2513 or P/C STAT 2610 or P/C BUAL 2600. Analytical methods for agricultural economics: spreadsheet applications, optimization, regression, budgeting, and risk management.

AGEC 3200 QUANTITATIVE METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. (MATH 1680 or MATH 1610) and AGEC 3100. The course covers mathematical and econometric models for the quantitative analysis of problems in food, agricultural, development and resource/environmental economics.

AGEC 3300 AGRICULTURAL POLICIES AND TRADE (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Public policies affecting agriculture. Theory and significance of international trade, distribution of production and trade, issues and policies, and influence of exchange rates.

AGEC 3920 AGRICULTURAL BUSINESS AND ECONOMICS INTERNSHIP (1-3) INT. SU. Departmental approval. Practical experience with agricultural business firms and agencies including finance, farm supply, production, marketing and sales and government. Course may be repeated for a maximum of 6 credit hours.

AGEC 3950 CAREERS IN AGRICULTURAL BUSINESS AND ECONOMICS (1) LEC. 1. SU. To develop skills to find a job and learn about career opportunities in agricultural business and economics.

AGEC 4000 PRINCIPLES OF AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2027 or ECON 2023). Economics and business principles applied to agriculture: business formation, composing and analyzing financial statements, financial analysis and decision-making functions of management, capital budgeting and investment decisions. (Credit will not be given to majors in AGEC, ECON, or business).

AGEC 4040 AGRIBUSINESS FINANCE (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600). ECON 2020 or ECON 2023 or ECON 2027 with minimum grade of C. Economic problems and policies in financing agriculture.

AGEC 4047 HONORS AGRIBUSINESS FINANCE (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600). ECON 2020 or ECON 2023 or ECON 2027 with minimum grade of C. Economic problems and policies in financing agriculture.

AGEC 4070 AGRICULTURAL LAW (3) LEC. 3. Recognition of legal problems associated with property ownership, contracts, torts, financing, estate planning and environmental controls and restrictions.

AGEC 4100 AGRICULTURAL COOPERATIVES (2) LEC. 2. Principles and problems of organizing and operating farmers' cooperative buying and selling associations.

AGEC 4120 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS (3) LEC. 3. Economic principles related to common property, public goods, property rights, externalities and resource scarcity and allocation applied to current issues.

AGEC 4960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-2) IND. Departmental approval. Individual or group projects with a faculty member in agricultural economics or agribusiness. May include research, data analysis or a combination of these. Course may be repeated for a maximum of 4 credit hours.

AGEC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Membership in the Honors College required; Topics in agricultural economics. Course may be repeated for a maximum of 3 credit hours.

AGEC 4970 SPECIAL TOPICS IN AGRICULTURAL ECONOMICS (1-3) LEC. 1-3. Departmental approval. Topics of special interest in agricultural economics. May be repeated with change of topic. Course may be repeated for a maximum of 6 credit hours.

AGEC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

AGEC 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Directed research and writing of honors thesis. Course may be repeated for a maximum of 3 credit hours.

AGEC 5010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613) and (ECON 2020 or ECON 2023 or ECON 2027) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and AGEC 3100. ECON 2020 or 2023 or 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 5030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (STAT 2010 or STAT 2510 or STAT 2610 or BUAL 2600) and (MATH 1680 or MATH 1610) and ECON 3020. Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring. May count either AGEC 5030 or AGEC 6030.

AGEC 5090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc. May count either AGEC 5090 or AGEC 6090.

AGEC 5100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and AGEC 3100 and ACCT 2210 or ACCT 2217 or ACCT 2810 and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools. May count either AGEC 5100 or AGEC 6100.

AGEC 5210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 5100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.

AGEC 5250 BIG DATA FOR AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 3200. To expose students to essential tools for acquiring, managing, and visualizing large datasets in agribusiness.

AGEC 6010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (ECON 2020 or ECON 2023 or ECON 2027) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600 or BUAL 2603) and (ACCT 2110 or ACCT 2113 or ACCT 2117 or ACCT 2810 or ACCT 2813) and AGEC 3100. ECON 2020/ECON 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 6030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or BUAL 2600 or BUAL 2603) and ECON 3020. Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring.

AGEC 6090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc.

AGEC 6100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2210 or ACCT 2217 or ACCT 2810) and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools.

AGEC 6210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 6100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610). Case studies, managerial economics.

AGEC 6250 BIG DATA FOR AGRIBUSINESS MANAGEMENT (3) LEC. 3. To expose students to essential tools for acquiring, managing, visualizing, and analyzing large datasets in agribusiness.

AGEC 7000 ADVANCED AGRICULTURAL AND ENVIRONMENTAL POLICY (3) LEC. 3. Pr. AGEC 6090 and (AGEC 3300 or AGEC 6030 or AGEC 5030). Food and farm problems and related governmental actions from historical, political and analytical viewpoints. Welfare economics and other procedures used to evaluate costs and benefits of existing and proposed governmental programs and actions affecting agriculture, environment and the consumer.

AGEC 7030 ADVANCED AGRICULTURAL PRICES (3) LEC. 3. Pr. AGEC 6030 and ECON 6020. Theory and measurement of farm supply, retail demand and marketing-margin relationships. Introduction to equilibrium-displacement modeling.

AGEC 7080 PRODUCTION ECONOMICS I (3) LEC. 3. Pr. ECON 6020. Resource allocation and efficiency of production in the firm, between firms, and between agriculture and other industries.

AGEC 7090 RESOURCE ECONOMICS II (3) LEC. 3. Pr. AGEC 6090. Analysis of institutional and economic factors affecting use of natural resources including economic feasibility/conservation, benefit-cost analysis, environmental controls and other interventions.

AGEC 7100 OPERATIONS RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Optimization techniques with emphasis on linear programming and its extensions applied to agriculture. General theoretical background and associated computational procedures are used for presentation of models and modeling techniques.

AGEC 7110 AGRICULTURAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Conceptual and empirical analysis of economic development with emphasis on the lesser developed areas and countries. Analysis of financial and technical aid to other countries case studies of development problems.

AGEC 7200 AQUACULTURAL ECONOMICS I (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Application of economic theories and principles to production, marketing, and consumption of aquacultural enterprises and products. Role of aquaculture in economic development.

AGEC 7590 INTRODUCTION TO AGRICULTURAL ECONOMETRICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and STAT 2610. Regression analysis in economic research. Model specification and estimation plus introduction to detection and correction of violations of assumptions of OLS. Hypothesis testing, dummy variables, heteroschedasticity, autocorrelation and measurement errors.

AGEC 7690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS I (3) LEC. 3. Pr. AGEC 7590. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course.

AGEC 7700 RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. ECON 7130 and AGEC 7590. Overview of the philosophy of science, detailed discussion of how various research tools are used to perform applied research in agricultural economics.

AGEC 7960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-3) AAB. Departmental approval required; Individualized direction/instruction by faculty on research, teaching and/or outreach issues. Course may be repeated for a maximum of 6 credit hours.

AGEC 7970 SPECIAL TOPICS IN AGRIC ECON (3) LEC. 3. Departmental approval. New topics in agricultural and applied economics.

AGEC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

AGEC 8060 THEORY OF AGRICULTURAL MARKETS (3) LEC. 3. Pr. AGEC 7590 and ECON 6020. Theory and methods for estimating complete demand systems (e.g., LES, Translog, ALIDS, and Rotterdam) for food products. Introduction to imperfect competition models.

AGEC 8080 PRODUCTION ECONOMICS II (3) LEC. 3. Pr. AGEC 7080. Firm-level economics problems are extended. Consideration of the influence of risk on firm behavior; empirical analysis of theoretical problems; welfare analysis; technical change; impacts of research investments.

AGEC 8090 FOOD AND AGRICULTURAL POLICY (3) LEC. 3. Pr. ECON 6020 or ECON 7000 or ECON 7110. The course will cover current issues in the economics and policies associated with food, food production and marketing.

AGEC 8690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS II (3) LEC. 3. Pr. AGEC 8310. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course. May count either AGEC 8310 or AGEC 8690.

AGEC 8890 TOPICS IN AGRICULTURAL MICROECONOMETRICS (3) LEC. 3. Pr. AGEC 8690. This course is meant to assimilate knowledge acquired throughout core coursework in the Agricultural Economics PhD program.

AGEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Agriculture - AGRI

Courses

AGRI 1000 INTRODUCTION TO AGRICULTURE (2) LEC. 1. LAB. 2. Provide information about the College of Agriculture and Alabama Agriculture. An emphasis will be placed on learning about the different departments in the college.

AGRI 1080 AGRICULTURAL COMMUNICATIONS (3) LEC. 3. Departmental approval. Introduction to agricultural communications and professional development as applied to the ag sector; overviews of common communication methods and possible careers.

AGRI 3000 AGRICULTURAL GENETICS (4) LEC. 3. LAB. 2. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Introductory understanding of the applications of genetics to agricultural and natural systems. Theoretical and practical knowledge of qualitative, quantitative, molecular, population, and biotechnological aspects of genetics will be developed.

AGRI 3800 LEADING PEOPLE AND TEAMS IN AGRICULTURE (3) LEC. 3. Course focuses on creating and leading high functioning teams in Agriculture.

AGRI 4000 AGRICULTURE STUDY ABROAD (1-10) AAB/FLD. Departmental approval. Study abroad programs with emphasis on agricultural topics. Credit awarded in consultation with departmental chair. Course may be repeated for a maximum of 10 credit hours.

AGRI 4920 INTERNSHIP IN AGRICULTURAL COMMUNICATION AND LEADERSHIP (1-3) INT. Departmental approval. Supervised, closely monitored work experience in agricultural communications or leadership. Course may be repeated for a maximum of 6 credit hours.

AGRI 4940 AGRICULTURAL COMMUNICATIONS CAPSTONE (3) LEC. 3. Pr. AGRI 1080. A capstone experience for the Agricultural Communications major that brings together the agricultural topics and communication techniques that have been developed throughout the course of the student's study.

AGRI 4970 SPECIAL TOPICS IN AGRICULTURAL COMMUNICATION AND LEADERSHIP (1-3) DSL. Departmental approval. Directed study in agricultural communications or leadership. Course may be repeated for a maximum of 6 credit hours.

AGRI 5010 ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc. Credit will be given for only one of either AGRI 5010, AGRI 5013, AGRI 6010, or AGRI 6016.

AGRI 5840 LEADING ORGANIZATIONAL AND COMMUNITY CHANGE IN AGRICULTURE (3) LEC. 3. Course designed for students who want to make meaningful change in agricultural organizations and communities. Focuses on leading organizations/communities to adapt and thrive. Credit will only be given for one of the following: AGRI 5840 or AGRI 6840.

AGRI 6010 ANALYSIS OF PLANT, SOIL & ANIMAL DATA (3) LEC. 3. Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc. Credit will be given for only one of either AGRI 5010, AGRI 5013, AGRI 6010, or AGRI 6016.

AGRI 6840 LEADING ORGANIZATIONAL AND COMMUNITY CHANGE IN AGRICULTURE (3) LEC. 3. Course designed for students who want to make meaningful change in agricultural organizations and communities. Focuses on leading organizations/communities to adapt and thrive. Credit will only be given for one of the following: AGRI 5840 or AGRI 6840.

AGRI 7080 ADVANCED ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. AGRI 5010 or AGRI 5013 or AGRI 6010 or AGRI 6016 or STAT 7000. Analysis of continuous, count, and binary data from randomized, paired, blocked, and split-plot experimental designs used in agricultural research. Use of statistical software and interpretation of results for applied agricultural research with plants, soils, and animals.

AGRI 7820 RESEARCH PROPOSAL WRITING (3) LEC. 3. Graduate level standing or Departmental approval. Experience in all aspects of writing and reviewing competitive research proposals through a workshop-format culminating in each student writing a proposal on research topics of their choosing. Fall.

Animal Sciences - ANSC

Courses

ANSC 1000 INTRODUCTION TO ANIMAL SCIENCES (4) LEC. 3. LAB. 2. The importance of livestock to agriculture and to the health and nutrition of a modern society. Livestock terminology, selection, reproduction, nutrition, management, marketing, and species characteristics of beef and dairy cattle, swine, sheep and horses.

ANSC 1050 INTRODUCTION TO EQUINE CARE AND USE (3) LEC. 2. LAB. 2. This course serves as an introductory course to the history, care, use, and enjoyment of horses. Students will learn the foundations of numerous topics of working with horses and how to handle horses safely and effectively.

ANSC 1100 ORIENTATION TO ANIMAL SCIENCES (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of the college experience. Breadth of career opportunities for animal science graduates.

ANSC 2000 COMPANION ANIMAL MANAGEMENT (3) LEC. 3. Practical aspects of behavior, nutrition, breeding, reproduction, health and management of dogs, cats and other animals generally considered to be human companions.

ANSC 2010 ANIMALS AND SOCIETY (3) LEC. 3. Ethical and scientific issues surrounding human-animal interactions and the role human-animal interactions play in modern society.

ANSC 2050 EQUINE BEHAVIOR AND TRAINING (3) LEC. 1. LAB. 4. Pr. ANSC 1050. This course is designed to teach students concepts of how equine behavior applies to training. Students will be exposed to a variety of training methods used in the equine industry.

ANSC 2100 DAIRY GOAT U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Dairy Goat U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2150 SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. SU. Departmental approval. Basic management and care of animals used in intercollegiate equestrian and rodeo sports. Must be affiliated with the NCEA Equestrian Team or IHSA Equestrian Team in current term. Course may be repeated for a maximum of 2 credit hours.

ANSC 2200 DAIRY U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Dairy U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2300 BEEF U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Beef U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2400 HORSE U PROGRAM PLANNING (1) LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Horse U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

ANSC 2720 THE MEAT WE EAT (3) LEC. 3. Foundation course on the global meat industry with emphasis on meat products, modern processing techniques, concepts of food safety, sanitation, inspection, grading and meeting consumer demands.

ANSC 2910 PRACTICUM IN LIVESTOCK WELFARE AND MANAGEMENT (2) LAB. 6. Pr. ANSC 1000. Departmental approval. Hands-on laboratory teaching applied management of livestock species, including horses, cattle, swine and small ruminants, using modern equipment and techniques.

ANSC 3000 HERD HEALTH MANAGEMENT (3) LEC. 3. Pr. ANSC 1000. The prevention and control of the major diseases of farm animals and the development of herd health programs.

ANSC 3150 EQUINE MARKETING (3) LEC. 3. Pr. ANSC 1000 and (ECON 2020 or ECON 2023 or ECON 2027). Practical concepts of equine marketing including evaluating the horse, assessing the market, targeting customers, and presenting the horse.

ANSC 3300 INTRODUCTORY LIVESTOCK EVALUATION AND MARKETING (2) LAB. 6. Pr. ANSC 1000. Comprehensive study of live animal and carcass evaluation techniques used in the selection and marketing of beef cattle, swine and sheep. The development of decision-making oral communication skills is emphasized.

ANSC 3310 INTRODUCTION TO MEAT SELECTION AND GRADING (2) LAB. 4. Instruction for the evaluation of meat carcasses, cuts, and products from cattle, swine, sheep, and goats. Understanding and calculating meat yield and quality for each species, evaluation of valuable traits, understanding product specifications, and preparation of written reasons. This course is required for participation in the meat judging program but is open to all students.

ANSC 3400 ANIMAL NUTRITION (4) LEC. 3. LAB. 2. Pr. CHEM 1040 and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles and practice of animal nutrition, nutrient contents of feedstuff, and diet formulation.

ANSC 3410 ANIMAL METABOLISM AND NUTRITION (3) LEC. 3. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles of animal nutrition and nutrient metabolism and a study of nutrients and their utilization by animals.

ANSC 3420 APPLIED ANIMAL FEEDING AND NUTRITION (3) LEC. 2. LAB. 1. Pr. ANSC 3410. Feedstuffs, diet formulation, and feeding practices applicable to the well-being and performance of economically important livestock and companion animals.

ANSC 3500 ANIMAL BREEDING (3) LEC. 3. Pr. ANSC 1000 and (STAT 2510 or STAT 2513 or BIOL 3000 or BIOL 3003 or AGRI 3000). Genetic and environmental effects of animal differences. Selection and mating systems used in the improvement of domestic animals with an emphasis on livestock.

ANSC 3600 REPRODUCTIVE PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and BIOL 2510. Comparative anatomy, physiology and endocrinology of animal reproduction; principles of reproductive biotechnologies used to enhance reproductive efficiency in mammalian systems.

ANSC 3610 ANIMAL GROWTH AND DEVELOPMENT (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and (BIOL 1030 or BIOL 1037). Biology of prenatal and postnatal growth of meat animals, emphasizing muscle, adipose, and bone tissues from a molecular, cellular, endocrine perspective. Application of concepts to improve rate, efficiency, and composition of growth.

ANSC 3650 PHYSIOLOGY OF EQUINE ATHLETE (3) LEC. 3. Pr. ANSC 1000 and BIOL 2510. Selection and development of the horse for athletic performance; exercising, training, and fitness conditioning for performance horses.

ANSC 3700 MUSCLE FOODS (4) LEC. 3. LAB. 2. Pr. ANSC 1000. Introduction to domestic animal growth and development, comparative evaluation of livestock and carcass composition. Biochemical and physiological factors affecting fresh meat and processed meat quality. Fundamentals of ante-and postmortem muscle biology, slaughter, processing, storage and merchandising of meat and meat products.

ANSC 3760 VALUE BASED MARKETING OF LIVESTOCK (3) LEC. 2. LAB. 2. Livestock grading standards and their application to carcasses of meat producing animals, concepts and principles of marketing, advertising, promotion and sales of commercial livestock.

ANSC 3800 CAREERS IN ANIMAL SCIENCE (1) LEC. 1. SU. Career opportunities for animal science graduates. Identifying and investigating careers and presenting oneself professionally for employment or post-baccalaureate education.

ANSC 3840 STUDY/TRAVEL IN ANIMAL SCIENCE (1-10) AAB/FLD. Departmental approval. Concentrated study in animal production and management, equine science and the meats industry within the US or international locations. Course may be repeated for a maximum of 10 credit hours.

ANSC 4000 MODERN LIVESTOCK SYSTEMS (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of beef, dairy, swine and small ruminant production systems. Modern concepts, ideas, and methodology associated with the application of technology to reproduction, breeding, health, nutrition, waste nutrient utilization, and management.

ANSC 4010 BEEF PRODUCTION (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of the beef cattle industry. Modern concepts, ideas and methodology associated with the application of technology to reproduction, breeding, nutrition, management and the use of facilities in a modern beef cattle enterprise.

ANSC 4050 EQUINE PRODUCTION AND MANAGEMENT (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420 or ANSC 4450) and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, reproduction, selection, herd health, and management for efficient horse production.

ANSC 4150 ADVANCED SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. SU. Pr. ANSC 2150. Principles and skills utilized in intercollegiate equestrian and rodeo team competition and management. Issues affecting management, training, marketing, and promotion of animals used in equestrian and rodeo sports. Must be affiliated with the NCEA Equestrian Team or IHSA Equestrian Team in current term. Course may be repeated for a maximum of 2 credit hours.

ANSC 4300 ADVANCED LIVESTOCK JUDGING (1) LAB. 4. Departmental approval. Advanced course in principles and techniques of livestock selection based on visual criteria, performance records, and other advanced technologies. Course may be repeated for a maximum of 2 credit hours.

ANSC 4310 ADVANCED MEAT JUDGING (1) LAB. 4. Pr. ANSC 3310. Practice in evaluation and grading of beef, pork, and lamb carcasses and cuts. Development of communication skills and exposure to animal agriculture through training and intercollegiate competition. Course may be repeated for a maximum of 2 credit hours.

ANSC 4450 EQUINE NUTRITION (3) LEC. 2. LAB. 2. Pr. ANSC 3410 or ANSC 3400. Principles of digestive physiology, nutrition, and metabolic disorders unique to various classes of horses.

ANSC 4700 MEAT PROCESSING (4) LEC. 3. LAB. 3. Integration of topics in meat and non-meat ingredient chemistry and their applications to muscle food processing. Physical, chemical, and sensory properties of fresh and processed meat products.

ANSC 4800 ISSUES IN ANIMAL AGRICULTURE (2) LAB. 4. Pr. COMM 1000 or COMM 1003. Issues affecting animal agriculture, dealing with concerns of consumers and activists, involvement in public debate, and the political process.

ANSC 4810 PROFESSIONAL DISCOURSE IN AGRICULTURE (1) LAB. 2. Pr. COMM 1000 or COMM 1003. Methods for enhancing effective discourse concerning issues facing the livestock industry.

ANSC 4920 INTERNSHIP IN ANIMAL SCIENCES (2) INT. SU. Departmental approval. Practical experience in an animal agriculture industry. Course may be repeated for a maximum of 4 credit hours.

ANSC 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Students will work under the direction of staff members on specific problems. Course may be repeated for a maximum of 15 credit hours.

ANSC 4967 HONORS SPECIAL PROBLEMS (3-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

ANSC 4970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-4) IND. Instruction and discussion of selected current topics in Animal Sciences. Course may be repeated for a maximum of 4 credit hours.

ANSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ANSC 4997 HONORS THESIS (3-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

ANSC 5070 ANIMAL WELFARE (3) LEC. 3. Pr. (POUL 1000 or ANSC 1000) and (POUL 3150 or ANSC 3600 or ANSC 3410). This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

ANSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. Credit will only be given for one of the following courses: ANSC 5700 or ANSC 6700.

ANSC 6070 ANIMAL WELFARE (3) LEC. 3. This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

ANSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (3) LEC. 3. LAB. 0. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. Credit will only be given for one of the following courses: ANSC 5700 or ANSC 6700.

ANSC 7010 ADVANCED BEEF SYSTEMS (3) LEC. 3. Advanced study of contemporary beef cattle production systems, including principles of planning, resource management and financing plus integrated biology in areas of breeding and selection, reproduction, metabolism, nutritional physiology and growth, health and disease; integration of forage system biology, soil and forage management as related to performance and sustainability.

ANSC 7400 RUMINANT NUTRITION (3) LEC. 3. Digestive physiology, mechanisms of rumen fermentation, postruminal nutritional biochemistry.

ANSC 7410 NONRUMINANT NUTRITION (3) LEC. 3. Departmental approval. Digestion, absorption, and utilization of macro and micro nutrients, nutrient interrelationship in swine and other non-ruminant species.

ANSC 7610 PHYSIOLOGY OF GROWTH (3) LEC. 3. Pr. BCHE 7210. Molecular and cellular basis of tissue differentiation, growth and development with emphasis on muscle, adipose and connective tissues and factors influencing gene expression controlling such events.

ANSC 7700 MUSCLE FOODS AND APPLIED MUSCLE BIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 3700 and BCHE 7210. Investigations of muscle microanatomy, biochemistry of muscle proteins and lipids, biochemistry of skeletal muscle contraction, lipid/protein interactions, antemortem and postmortem factors affecting fresh and processed meat quality; discussion of classic and current scientific literature.

ANSC 7950 SEMINAR (1) LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.

ANSC 7960 SPECIAL PROBLEMS (1-5) DSL/LEC. Conference problems, assigned reading, literature searches in one or more of the following major fields; (a) biochemistry, (b) nutrition, (c) animal breeding, (d) reproductive physiology, (e) growth physiology, (f) muscle foods, (g) microbiology, and (h) behavior. Course may be repeated for a maximum of 15 credit hours.

ANSC 7970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-5) IND. Emerging topics in Animal Science and related industries. Course may be repeated for a maximum of 5 credit hours.

ANSC 7990 RESEARCH AND THESIS (1-15) MST. Research and thesis may be on technical laboratory problems or on problems directly related to beef and dairy cattle, sheep, swine, or laboratory animals. Course may be repeated with change in topics.

ANSC 8400 PROTEIN AND ENERGY METABOLISM (3) LEC. 3. Pr. BCHE 7210. Nutritional biochemistry of protein and energy metabolism of mammalian, avian and aquatic species. Concepts of protein turnover, nutrient-gene interactions, control of bioenergetics, nutritional assessment, nutritional quality of nutrient sources.

ANSC 8410 VITAMIN AND MINERAL METABOLISM (3) LEC. 3. Departmental approval. Vitamin and mineral nutrition with emphasis on chemical structures and characteristics, metabolic functions, deficiencies and toxicity syndromes, interrelationships and requirements of vitamins and minerals.

ANSC 8950 DOCTORAL SEMINAR (1) LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.

ANSC 8990 DOCTORAL RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topics.

Anthropology - ANTH

Courses

ANTH 1000 ANTHROPOLOGY: CULTURE AND ADAPTATION (3) LEC. 3. Social Science core. Anthropology is the exploration of human evolution and cultures. This course surveys the four subfields of Archaeology, Biological Anthropology, Cultural Anthropology and Linguistic Anthropology. We will see how anthropology provides a broad framework for understanding and solving pressing social problems in the world today.

ANTH 1007 HONORS INTRODUCTION TO ANTHROPOLOGY (3) LEC. 3. LAB. 0. Pr. Honors College. Social Science core. Anthropology is the exploration of human evolution and cultures. This course surveys the four subfields of Archaeology, Biological Anthropology, Cultural Anthropology and Linguistic Anthropology. We will see how anthropology provides a broad framework for understanding and solving pressing social problems in the world today. Credit will not be given for both ANTH 1000 and ANTH 1007.

ANTH 2000 ETHNOGRAPHIC METHODS (3) LEC. 3, AAB/LEC. 0. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007) or (SOCY 1000 or SOCY 1007) or GEOG 1100. Approaches, techniques, and strategies for carrying out ethnographic research and analyzing qualitative data in the social sciences.

ANTH 2500 ANTHROPOLOGY OF GLOBAL STUDIES (3) LEC. 3. Any Social Science Core course. Broad-based study of processes and problems that transcend national boundaries, including global historical processes, politics, migrations, trade, disease, environmental change, and sustainability.

ANTH 2600 MUSEUM STUDIES IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003. Students will consider the history of museum anthropology and reflect on contemporary anthropological engagement in/of museums and other cultural institutions.

ANTH 2610 FORENSIC ANTHROPOLOGY (3) LEC. 3. Explores standards of practice in forensic anthropology and analysis of case studies.

ANTH 2700 PEOPLES AND CULTURES OF ASIA (3) LEC. 3. Any Social Science Core course. Introduction to the traditions, religions, histories, and nation-states of the people of Asia, using a cultural approach.

ANTH 2800 ANTHROPOLOGY OF THE AFRICAN DIASPORA (3) LEC. 3. Any Social Science Core course. Anthropological perspectives on African Diasporas. Diaspora. Archaeological, ethnohistorical, and contemporary research exploring identity, symbols, power, and social relations in the lives of enslaved Africans and descendants in the Caribbean, Latin America and North America.

ANTH 2900 WORLD PREHISTORY (3) LEC. 3. Explore broad patterns in human prehistory over the past 10,000 years, including the origins of culture, religion, domestication and agriculture, writing, cities, and states.

ANTH 3000 CULTURE, MARRIAGE, AND THE FAMILY (3) LEC. 3. Role and meaning of kinship and its universal and particularistic features in human society.

ANTH 3010 MAGIC, MYTH, AND RITUAL: ANTHROPOLOGY OF RELIGION (3) LEC. Pr. P/C ANTH 1000. This course explores religious beliefs and practices around the world from an anthropological perspective. Our focus will be on how anthropologists study religion and how religious beliefs, practices, and practitioners are understood in their historical and cultural contexts.

ANTH 3100 LANGUAGE AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Contemporary perspectives on cultural and linguistic anthropology, emphasizing language acquisition and culture change; language as socially charged; performance; status and inequality; and the study of globally diverse linguistic communities of practice.

ANTH 3110 ANTHROPOLOGY AND FICTION (3) LEC. Inter-disciplinary study of fiction from an anthropological perspective.

ANTH 3200 ANTHROPOLOGY OF GENDER (3) LEC. 3. Pr. P/C ANTH 1000 or P/C ANTH 1003 or P/C ANTH 1007 or P/C WMST 2100 or P/C WMST 2103. Gender relations and representations in different cultures, historical periods, and discourses.

ANTH 3300 BIOLOGICAL ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007 or BIOL 1000 or BIOL 1010. Overview of biological anthropology, including evolutionary theory and genetics, primatology, human origins, and biological variation of contemporary human populations. Concepts will be applied during in-class exercises and discussions.

ANTH 3410 APPLIED & PRACTICING ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores application and practice of anthropology in settings such as cultural resource management, museums, social and environmental policy, and healthcare. This course emphasizes how careers in anthropology contribute to resolving contemporary social problems.

ANTH 3500 ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Archaeology is the study of human societies based on the material remains they left behind. This course explores the history, theories, methods, and applications of archaeology.

ANTH 3600 MEDICAL ANTHROPOLOGY (3) LEC. 3. Any Social Science Core course. Explores biological and cultural dimensions of global health from an anthropological perspective. Topics include the political economy of health, gendered health disparities, cross-cultural healing traditions, pluralistic medical systems, and evolutionary medicine.

ANTH 3620 FORENSIC ANTHROPOLOGY II: ADVANCED METHODS, THEORY, AND CASE STUDIES (3) LAB. Pr. ANTH 2610. Forensic Anthropology II is a hybrid seminar and lab course that teaches practical applications and methods in forensic anthropology through the exploration of case studies and laboratory exercises.

ANTH 3700 ENVIRONMENTAL ANTHROPOLOGY (3) LEC. 3. Problems in environmental anthropology including ethnoecology, cultural ecology, political ecology and environmentalism.

ANTH 3810 ARCHAEOLOGY OF NORTH AMERICA (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores archaeological evidence for the history of indigenous peoples in North America during the past 10,000 years.

ANTH 3850 ARCHAEOLOGY OF THE SOUTHEASTERN AND MIDWESTERN U.S. (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Diversity and complexity of late prehistoric cultures of the Southeastern and Midwestern United States.

ANTH 3900 BIOARCHAEOLOGY (3) LEC. 3. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007). Archaeologically-derived skeletal remains provide essential information for reconstructing broad patterns of human health and behavior over time. Students will learn to apply methods and theory in social bioarchaeology to understand demography, diet, disease, and physical activity in past populations.

ANTH 3950 CURATION (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. History, legislation, and ethical concerns associated with the accumulation and curation of archaeological collections.

ANTH 4310 THEORIES OF CULTURE IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Major thinkers in anthropology and their theoretical models considered in historical perspective.

ANTH 4400 ARCHAEOLOGICAL FIELD SCHOOL (3) LEC. 1. LAB. 2. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Field methods, including archaeological surveying and excavation procedures at selected locations. Course may be repeated for a maximum of 6 credit hours.

ANTH 4910 BIOLOGICAL ANTHROPOLOGY LABORATORY PRACTICUM (3) LEC. 1. LAB. 2. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007). Investigation of specific biological anthropology problem or problems, involving students in laboratory techniques and research.

ANTH 4920 INTERNSHIP IN ANTHROPOLOGY (1-3) AAB/INT. 1-3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Internship for practical work with anthropological/archaeological collections or anthropological research in a professional setting, including federal or state agencies, NGOs, NPOs, community and voluntary organizations, and industry (e.g., healthcare and medicine, advertising/media, architecture/design, high technology, Cultural Resource Management and historic preservation, etc.). Course must be approved by the faculty advisor and department. Internship must be a supervised, closely monitored work experience, appropriate to the major. Course may be repeated for a maximum of 6 credit hours.

ANTH 4930 CULTURAL ANTHROPOLOGY FIELD SCHOOL (3) FLD. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. This practice anthropology course examines the relationship between culture, community, and environment in a particular field setting, in the United States or abroad.

ANTH 4940 ARCHAEOLOGY LABORATORY PRACTICUM (3) LEC. 1. LAB. 2. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Analysis, preservation, cataloging, and restoration of archaeological materials. May count either ANTH 4940 or ANTH 3910.

ANTH 4960 SPECIAL PROBLEMS (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College. ANTH 1000. Departmental approval. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 3 credit hours.

ANTH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ANTH 1000. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

ANTH 5200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Role of gender and culture in Third World development from an anthropological perspective.

ANTH 5600 CULTURE, MEDICINE, AND POWER (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Power in the context of illness and healing at local, national, and international levels.

ANTH 5700 CRITIQUE OF DEVELOPMENT (3) LEC. 3. Pr. ANTH 3700. Meanings and structures of national and international development.

ANTH 5930 DIRECTED STUDIES (1-3) IND. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 5970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

ANTH 6200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Role of gender and culture in Third World economic development from an anthropological perspective.

ANTH 6600 CULTURE MEDICINE AND POWER (3) LEC. 3. Power in the context of illness and healing at local, national, and international levels.

ANTH 6930 DIRECTED STUDY (1-3) IND. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 6970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

Applied Biotechnology - APBT

Courses

APBT 1000 INTRODUCTION TO APPLIED BIOTECHNOLOGY (1) LEC. 1. Introduction to the field of biotechnology including key concepts from biology, chemistry, and physics, and career opportunities.

APBT 2950 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Development of professional skills required for modern careers in entomology, plant pathology and applied biotechnology.

APBT 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH (1-4) IND/RES. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

APBT 3100 METHODS OF SYNTHETIC BIOLOGY (4) LEC. 2. LAB. 5. Pr. (BIOL 1030 or BIOL 1037) and APBT 1000. This course provides an overview of the basic cellular processes harnessed by synthetic biology and biotechnology. It also provides an introduction to recombinant DNA and its applications. It combines lectures with labs to provide hands-on experience with molecular techniques, DNA cloning, heterologous protein expression, and methodologies used to engineer organisms.

APBT 4100 APPLIED BIOTECHNOLOGY (4) LEC. 2. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and (BIOL 3000 or BIOL 3003 or AGRI 3000) and APBT 3100. or instructor's approval. Principle and up-to-date advances of genetic modification of organisms; its practices and influences in a broad range of basic and applied sciences which have revolutionized "mean" of sustainable agriculture.

APBT 4920 INTERNSHIP (3) LEC. 3. SU. Pr. APBT 1000. Practical professional experience under the supervision of internship faculty and/or representatives of state, federal or private agency.

APBT 4980 UNDERGRADUATE RESEARCH (1-4) LAB. 2-8. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

APBT 5660 FIGURE FUNDAMENTALS : SCIENTIFIC ILLUSTRATION (3) LEC/STU. 1. Scientific illustration and data visualization implemented through the Adobe creative cloud package. May count either APBT 5660, ENTM 5660, or ENTM 6660.

APBT 5800 OMICS IN AGRICULTURE (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 3000 or AGRI 3000. This course will introduce students to the recent advances in high-throughput technologies such as genomics, transcriptomics, metagenomics, metabolomics, phenomics, modeling, and digital agriculture and how these technologies can be applied to tackling new and old problems in agriculture and human health. Students will be able to gain hands-on experience in analyzing and interpreting datasets obtained using these technologies.

APBT 5820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Pr. STAT 2510. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

Architecture - ARCH

Courses

ARCH 1000 CAREERS IN DESIGN AND CONSTRUCTION (1) LEC. 1, LST. 1. Introduction to the environmental design and construction professions and the curricula in the chosen field.

ARCH 1010 INTRODUCTION TO ARCHITECTURE DESIGN (6) LEC/STU. 12. Coreq. ARCH 1060. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1020 INTRODUCTION TO ARCHITECTURE DESIGN II (6) LEC. 6, LST. 12. Pr. ARCH 1010 and ARCH 1000 and ARCH 1060. Coreq. ARCH 1420. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1060 VISUAL COMMUNICATION (2) LEC/STU. 2. Coreq. ARCH 1010. Introduction to graphic communication. Focus on developing graphic skills for the purpose of explaining form and communicating ideas via exercises in drafting, sketching, and diagramming.

ARCH 1420 INTRODUCTION TO DIGITAL MEDIA (3) LEC. 3, LST. 0. Pr. ARCH 1060. Coreq. ARCH 1020. Introduction to the principles of 2-D and 3-D digital media and how these principles are utilized in architectural design.

ARCH 2010 STUDIO I (6) LEC. 2, LST. 10. Pr. ARCH 1020 and ARCH 1420. Basic issues of architectural design centered around the thoughtful creation of exterior and interior space. Studies of light, material, texture, proportion, scale, and site are integrated into each project.

ARCH 2020 STUDIO II (6) LEC. 2, LST. 10. Pr. ARCH 2010. Fundamental design process skills including observation, analysis, and synthesis.

ARCH 2110 HISTORY OF WORLD ARCHITECTURE I (3) LEC. 3. Pr. ARCH 1020. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2210 ENVIRONMENTAL CONTROLS I (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2220 ENVIRONMENTAL CONTROLS II (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2600 THE ART OF ARCHITECTURE, PLACE, AND CULTURE (3) LEC. 3. The interrelationship of art, architecture, place, and culture with emphasis on the art of architecture from a global multicultural perspective. Illustrated lecture, readings, and essays.

ARCH 3010 STUDIO III (6) LEC. 2, LST. 10. Pr. ARCH 2020 and ARCH 3110. Builds on ARCH 2010 and 2020. The process of making architecture through critical inquiry and investigation. The physical, social, ethical contexts that inform the design of every building.

ARCH 3020 STUDIO IV (6) LEC. 2, AAB/LST. 10. Pr. ARCH 3010 or ARIA 3020. Builds on ARCH 3010 and adds an emphasis on the integration of construction tectonics in the development of architectural form.

ARCH 3110 HISTORY OF WORLD ARCHITECTURE II (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117. Introduction to key European buildings and towns from the Bronze Age to the Enlightenment. Examines how societal beliefs and practices influence the making of architecture.

ARCH 3120 HISTORY OF MODERN ARCHITECTURE (3) LEC. 3. Pr. ARCH 3110. The history of architecture, 1850-present, with an emphasis on the rise of the modern movement in Europe and the U.S.

ARCH 3320 MATERIALS AND METHODS OF CONSTRUCTION I (3) LEC. 3. Pr. ARCH 1020. The properties and potential design function of materials used in contemporary construction, with an emphasis on foundation systems, wood, and masonry.

ARCH 3410 DESSEIN ELECTIVES (3) LEC. 3. Explorations in the art of representation. Complete descriptions of specific courses and their prerequisites are available from the School of Architecture, Planning and Landscape Architecture Course may be repeated for a maximum of 9 credit hours.

ARCH 3500 SEMINAR IN METHODS AND PROCESSES (3) LEC. 3. The tools and techniques available to the design professional including specific design specializations, and design methodologies. Descriptions of specific seminars are available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3600 SEMINAR IN CONTEMPORARY ISSUES (3) LEC. 3. Pr. ARCH 2020. Investigation of significant topics that present opportunities and constraints to architectural thought and practice. Course may be repeated for a maximum of 9 credit hours.

ARCH 3700 SEMINAR IN HISTORY AND THEORY (3) LEC. 3. Pr. ARCH 2010. Investigation of theories, schools or periods to examine the potential and limitations of architecture. Descriptions of specific seminars available from School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3800 SEMINAR IN ASPECTS OF DESIGN (3) LEC. 3. Pr. ARCH 2020. Study of aspects of architectural design, such as form, space, style, meaning, perception, culture. Descriptions of specific seminars available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 4010 STUDIO V (6) LEC. 2, LST. 10. Pr. (ARCH 3010 or ARIA 3020) and BSCI 3440. The comprehensive design of buildings, building complexes, and spaces in an urban context. Lectures emphasize urban issues, research methods. Programming and analysis will parallel studio projects of increasing complexity.

ARCH 4020 STUDIO VI (6) LEC. 2, AAB/LST. 10. Pr. ARCH 4010 or ARIA 4020. The design of buildings, building complexes, and spaces with emphasis on the integration of building systems and tectonic development.

ARCH 4110 HISTORY OF URBAN ARCHITECTURE (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117 and ARCH 3110. The course surveys the history of the physical and formal manifestations of the urban environment from its inception to our days.

ARCH 4320 MATERIALS AND METHODS OF CONSTRUCTION II (3) LEC. 3. Pr. ARCH 3320. Properties and potential design applications of materials used in contemporary construction, with an emphasis on steel and concrete, roofing, glass and glazing, cladding, and interior finishes.

ARCH 4500 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. ARCH 3020 or ARIA 3020. Architects' legal responsibilities, frameworks of professional practice, office organization, business planning, marketing, project delivery, internship and professional ethics and leadership.

ARCH 4900 DIRECTED STUDIES (1-6) AAB. Development of an area of special interest through independent study. Evaluation of the work may be by faculty jury. School approval. Course may be repeated for a maximum of 6 credit hours.

ARCH 4910 RURAL STUDIO COMPLETION (0) DSL/LEC. Completion of construction project for ARCH 4120 Elective Studio. This studio is based in the School's remote facilities in Newbern, AL.

ARCH 4920 PROFESSIONAL INTERNSHIP (1-3) INT. Departmental approval. Application of principles and theories in a professional setting. Course may be repeated for a maximum of 9 credit hours.

ARCH 4960 SPECIAL PROBLEMS (1-6) LEC. Special problems Course may be repeated for a maximum of 6 credit hours.

ARCH 5010 STUDIO VII (6) LEC. 2, AAB/LST. 10. Pr. ARCH 4020 or ARIA 4020. Advanced problem-solving in the synthesis of previous design experiences. Development of a comprehensive design project.

ARCH 5020 THESIS STUDIO (6) LEC. 6, AAB/LST. 13. Pr. ARCH 5010 and ARCH 5990. Exploration and development of an architectural project under the direction of a faculty member.

ARCH 5100 TEACHING METHODS (1) LEC. 1.

ARCH 5240 BEING THERE (1) LEC. 1. Course may be repeated for a maximum of 2 credit hours.

ARCH 5340 METHODS IN COMMUNITY BASED LEARNING (3) LEC. 3.

ARCH 5990 THESIS RESEARCH (3) LEC. 3. Pr. ARCH 4020. Coreq. ARCH 5010. The tools, techniques, and strategies required to select, develop, refine, write, and present a thesis argument.

ARCH 5991 THESIS RESEARCH (1) LEC. 1. Pr. ARCH 5990. Expansion on the individual thesis argument and research begun in ARCH 5990 in parallel with the development of their thesis design project in ARCH 5020.

ARCH 7010 FALL STUDIO (6) STU. 12. This is one of three design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a schematic, client-driven architectural proposal.

ARCH 7020 SPRING STUDIO (6) STU. 12. This is one of three design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7030 SUMMER STUDIO (6) STU. 12. This is one of three design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7110 SEMINAR IN COLLABORATIVE DESIGN METHODS AND PROCESS (3) SEM. 3. Introduction to the core theories of collaboration within interdisciplinary design and construction project teams teams and community-based client groups. Students develop an understanding of the fundamentals of collaborative process design, principles negotiation, communication across disciplines, and conflict resolution.

ARCH 7120 SEMINAR IN DESIGN TECTONICS (3) SEM. 3. Taught as a series of workshops, this course provides the disciplinary framework necessary to apply technical research methods when evaluating options and reconciling the implications of design development decisions across systems and scales.

ARCH 7130 SEMINAR IN PROJECT COMMUNICATIONS (3) SEM. 3. This course provides the disciplinary framework necessary to develop all project documentation required for project construction, delivery, record keeping, as well as future research and analysis.

ARCH 7210 EXECUTIVE ISSUES: DISCIPLINARY FRAMEWORK (3) SEM. 3. Taught as a series “overlay” lectures and workshops. Provides the disciplinary framework to apply case study research methods when evaluating options and reconciling the implications of schematic design decisions across systems/scales.

ARCH 7220 EXECUTIVE ISSUES: RESEARCH METHODS (3) SEM. 3. Taught as a series "overlay" lectures and workshops. Provides the disciplinary framework necessary to apply case study research methods when evaluating options and reconciling the implications of design development decisions across systems/scales.

Art - ARTS

Courses

ARTS 1040 BASIC PAINTING FOR NON MAJORS (3) STU. 6. Instruction in painting concepts, materials, and techniques. Oil and water-based paints and other media are used to explore a variety of approaches and subject matter. Not open to ARTF, ARTH, and ATLA majors.

ARTS 1110 DRAWING I (3) AAB/STU. 6. Basic drawing with emphasis on accurate observation, pictorial organization, and the depiction of space; development of drawing skills using various black and white media.

ARTS 1210 STUDIO FOUNDATIONS I: MATERIALS AND CONCEPTS (3) STU. 6. An introductory course on the application of two-dimensional and three-dimensional art materials and conceptual development.

ARTS 1220 STUDIO FOUNDATIONS II: PROCESS AND CONCEPT (3) STU. 6. Pr. P/C ARTS 1210. An introductory art course focusing on in-depth creative research in conjunction with artmaking.

ARTS 1230 INTRODUCTION TO DIGITAL ART (3) STU. 6. An introduction to the skills and concepts of digital art such as imaging, time, and 3D modeling using computer-based tools and techniques.

ARTS 1250 ORIENTATION TO STUDIO ART FOR THE MAJOR (0) LEC. 0. SU. Introduction to the BA and BFA studio arts major, photo documentation, and portfolio development.

ARTS 1510 LOOKING AT ART: APPROACHES TO INTERPRETATION (3) LEC. 3. Introduces the fundamental structures of the art world and multiple approaches to looking at and responding to art.

ARTS 1610 INTRODUCTION TO ART HISTORY (3) LEC. 3. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 1617 HONORS INTRODUCTION TO ART HISTORY (3) LEC. 3. Pr. Honors College. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 2100 FOUNDATIONS OF ART HISTORY I (3) LEC. 3. A history of art from ancient cultures to approximately 1300 CE, with an introduction to basic art historical research and writing skills.

ARTS 2150 FOUNDATIONS OF ART HISTORY II (3) LEC. 3. A history of art from approximately 1300 CE to the contemporary period, with an introduction to basic art historical research and writing skills.

ARTS 2970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (3) LEC. 3. Topics in studio art and art history. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

ARTS 3020 2-D ANIMATION (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 and ARTS 1230. Introduction to the fundamental principles of animation and storytelling in 2-D traditional and digital formats.

ARTS 3030 B.F.A. PORTFOLIO REVIEW (0) IND. SU. Pr. ARTS 1110 and ARTS 1210 and ARTS 1220 and ARTS 1230 and ARTS 1250 and ARTS 2100 and ARTS 2150. Preparation, presentation, and faculty advisory review of a portfolio of artworks, a statement of academic and career goals, and a declaration of a BFA concentration area. Completed by ARTF students after 24 credit hours of ARTS courses.

ARTS 3110 FIGURE DRAWING I (3) STU. 6. Pr. ARTS 1110 and ARTS 1210 and (ARTS 2100 or ARTS 2150). The human figure as form and as compositional element. Measuring and sighting for proportion. Drawing from casts, skeletons, and nude models.

ARTS 3120 3-D ANIMATION (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 3020 and ARTS 3110. Introduction to the fundamental principles of 3D modeling and animation.

ARTS 3130 THEMES IN CONTEMPORARY ANIMATION (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 3120. Creative exploration of varying topics in contemporary animation. Studio work supplemented with lectures, critiques, and reading. Course may be repeated for a maximum of 6 credit hours.

ARTS 3140 ADVANCED DRAWING I (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3110. Concepts, materials and techniques with emphasis on the development of a personal vision and individual approach. Nude models may be used.

ARTS 3150 ADVANCED DRAWING II (3) STU. 6. Pr. ARTS 3140 and (ARTS 2100 and ARTS 2150). Medium and subject determined by student with approval of instructor. Emphasis on strengthening the student's aesthetic awareness and technical skills.

ARTS 3160 FIGURE DRAWING II (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3110. Continued study of life-drawing from nude models and casts. Materials and techniques emphasize building observational drawing skills and strengthening aesthetic awareness. Repeatable up to 6 hours. Course may be repeated for a maximum of 6 credit hours.

ARTS 3210 INTRODUCTION TO PHOTOGRAPHY (3) STU. 3. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Departmental approval. Fine art photographic concepts and techniques including camera operation, tonal control of black and white prints, presentations of historical and contemporary photography.

ARTS 3220 DIGITAL AND COLOR PHOTOGRAPHY (3) AAB/STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3210. Departmental approval. Concepts and practices of contemporary art photography including digital production techniques and color photographic theory.

ARTS 3230 INTERMEDIATE PHOTOGRAPHY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3210. Departmental approval. Intermediate study of photographic processes with emphasis on technique, classroom craftsmanship, medium and large camera formats, approaches to content and researching concepts to inform studio production.

ARTS 3310 PAINTING I (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Instruction in painting concepts, materials, and methods.

ARTS 3320 PAINTING II (3) AAB/STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3310. Departmental approval. Instruction in painting concepts, materials, and techniques with emphasis on the development of technical skills and a personal vision and individual approach.

ARTS 3330 PAINTING III (3) AAB/STU. 6. Pr. ARTS 3140 and ARTS 3320 or Departmental approval. Medium and subject determined by student and instructor. Emphasis on strengthening aesthetic awareness and technical skills.

ARTS 3410 PRINTMAKING: RELIEF (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Introduction to relief printmaking. Studio work supplemented with lectures, critiques, and readings.

ARTS 3420 PRINTMAKING: INTAGLIO (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and (ARTS 3410 or ARTS 3430) or Departmental approval. Introduction to intaglio printmaking. Studio work with lectures, critiques, and readings.

ARTS 3430 PRINTMAKING: SCREEN-PRINTING (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 and ARTS 1230. Departmental approval. Introduction to water based screen-printing. Studio work supplemented with lectures, critiques, and reading.

ARTS 3510 INTRODUCTION TO SCULPTURE (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Introduction to wood working, metal fabrication, casting, and additional materials, processes, and issues involved in mixed media sculpture production. Department approval.

ARTS 3520 INSTALLATION ART (3) STU. 6. Pr. ARTS 2100 and ARTS 2150 and ARTS 1220 and ARTS 1230 and ARTS 3510. Investigation of the methods, theory, and technologies involved in contemporary indoor and outdoor installations and site-specific intervention. Readings and discussions on relevant sculptural practices. Department approval.

ARTS 3530 CASTING AND FOUNDRY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and ARTS 3510. Instruction in mold making, casting, papermaking, and figure modeling as it applies to metal, plaster, and additional materials. Department approval.

ARTS 3620 COLONIAL LATIN AMERICAN ART (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. Study of the major art and architectural traditions of Latin America from the early 16th to the early 19th centuries.

ARTS 3630 ART OF THE ANCIENT NEAR EAST (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. This course examines the visual arts and architecture of the Near East within their social and historical contexts. Departmental Approval needed.

ARTS 3640 ANCIENT GREEK ART (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. This course examines the visual arts and architecture of ancient Greece (Early Bronze Age to Hellenistic Period) in their social and historical contexts. Departmental Approval needed.

ARTS 3650 HISTORY OF PHOTOGRAPHY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to the history and theory of photography from its 19th-century origins to contemporary global practices.

ARTS 3660 EIGHTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture in 18th-century Europe.

ARTS 3670 CONSTRUCTING RACE IN THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the role of visual imagery in inscribing and. challenging racial hierarchies in the history of art.

ARTS 3680 20TH-CENTURY ART II: 1945-2000 (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). An introduction to the artists, movements, institutions, concepts, and themes of late 20th-century art.

ARTS 3690 ARTS OF AFRICA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Introduction to the art, artists, themes and issues in African art from the pre-colonial period to the contemporary era.

ARTS 3700 ART OF THE UNITED STATES (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of architecture, painting, and sculpture from colonial to recent times. Selected movements and works are considered in relationship both to European and to indigenous conditions and attitudes.

ARTS 3710 ANCIENT ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Examination of major art traditions of the ancient world, including for example: Egypt, Near East, Aegean, Greece, and Rome.

ARTS 3720 MEDIEVAL ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of major art traditions of the West from the fall of Rome to CE 1400, with a selective focus on the major art traditions, including Migration period, Carolingian, Ottonian, Romanesque, Gothic, and Italo-Byzantine.

ARTS 3730 RENAISSANCE ART IN ITALY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of the architecture, painting, and sculpture of the 15th and 16th centuries in Italy.

ARTS 3740 SEVENTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture of 17th-century Europe.

ARTS 3750 19TH CENTURY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Introduction to major art movements from Neo-Classicism to Post-Impressionism and Art Nouveau.

ARTS 3760 20TH CENTURY ART I 1900–1945 (3) LEC. 3. Pr. ARTS 2100 and ARTS 2150. Study of major developments in painting, sculpture, and architecture in Europe and the United States from 1900 to 1945. Departmental Approval.

ARTS 3770 MESOAMERICAN ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Study of the major art and architectural traditions of Mesoamerica from 1800 BCE until 1519 CE.

ARTS 3790 ARTS OF ASIA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). Introduction to major art traditions of Asia from the beginnings to the present.

ARTS 3800 ISSUES AND CRITICISM IN CONTEMPORARY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). and one 3000-level art history class or Departmental approval. Readings and discussions about contemporary art.

ARTS 3810 GENDER AND THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to gender issues in the visual arts in historical and contemporary contexts. Examines the cultural notions of both masculine and feminine gender roles at play in works of art and explores key issues that have affected women's production of works of art in the past and present.

ARTS 3820 INTRODUCTION TO WHEEL-THROWN CERAMICS (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Departmental approval. Introduction to wheel-thrown pottery. Presentation of historical and contemporary contexts for fine arts ceramics. Work with glazes and firing.

ARTS 3840 INTRODUCTION TO HAND-BUILT CERAMICS (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210. Departmental approval. Introduction to handforming methods for sculpture and vessel forms in clay. Work with glazes and firing.

ARTS 3850 INTERMEDIATE CERAMICS (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 1220 and ARTS 1230 and (ARTS 3820 or ARTS 3840). Departmental approval. Individual approaches to ceramic sculpture and vessel forms, techniques building on previous experience with hand-building and/or wheel-throwing, with emphasis on stylistic and conceptual concerns.

ARTS 3920 INTERNSHIP IN STUDIO ART/ART HISTORY (3) AAB/PRA. 15. SU. Junior standing and 3.0 GPA in major and completion of at least two 3000-level courses in ARTF, ARTH, or ATLA major. Internships appropriate to the major with a departmental-approved sponsor providing hands-on, practical learning experiences in a professional setting.

ARTS 3930 STUDIO ART ABROAD (3) AAB/LEC. 6. Studio art taught on site in foreign destination.

ARTS 3940 ART HISTORY ABROAD (3) LEC. 3. Art History taught on site in foreign destination.

ARTS 4100 SEMINAR IN PRE-MODERN ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in art history from the ancient era until 1750 CE. Course may be repeated for a maximum of 6 credit hours.

ARTS 4140 ADVANCED ANIMATION (3) STU. 6. Pr. ARTS 3130. An advanced investigation of theory, history, contemporary practice, and techniques through research and studio practice. Emphasis on mature creative expression and production as an animator. Course may be repeated for a maximum of 6 credit hours.

ARTS 4150 SEMINAR IN MODERN AND CONTEMPORARY ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in modern and contemporary art history, 1750 CE-present. Course may be repeated for a maximum of 6 credit hours.

ARTS 4240 ADVANCED PHOTOGRAPHY (3) STU. 6. Pr. ARTS 3220 and ARTS 3230. Advanced investigations of theory, history, and methods to inform photographic practice. Emphasis on production of mature work and individual artistic identity. Frequent individual and group critiques. Course may be repeated for a maximum of 9 credit hours.

ARTS 4340 PAINTING IV (3) STU. 6. Pr. ARTS 3330. Advanced painting with medium and subject idea determined by student with approval of the instructor. Emphasis on strengthening the student's awareness and technical skills as a maturing painter. Nude models may be used. Course may be repeated for a maximum of 9 credit hours.

ARTS 4440 ADVANCED PRINTMAKING (3) STU. 6. Pr. ARTS 3410 and ARTS 3420 and ARTS 3430. Individual research in printmaking. Students focus on conceptual and technical development through continued research in relief, intaglio, or screen-printing. Course may be repeated for a maximum of 9 credit hours.

ARTS 4540 ADVANCED SCULPTURE (3) STU. 6. Pr. ARTS 3520 and ARTS 3530. Advanced study of sculpture techniques and concepts. Students create an independently designed, instructor-approved body of work. Individual instruction and supervision of material exploration, research and reading. Course may be repeated for a maximum of 9 credit hours.

ARTS 4700 SENIOR CAPSTONE: ART HISTORY (3) SEM. 3. Declared ARTH major or minor and completion of 18 hours of 3000-level art history courses. Capstone course for ARTH majors.

ARTS 4840 ADVANCED CERAMICS (3) STU. 6. Pr. ARTS 3820 and ARTS 3840 and ARTS 3850. Advanced study of ceramic techniques and concepts. Student will create an independently-designed, instructor-approved body of work. Individual instruction and supervision of material exploration, research and reading. Frequent individual and group critiques. Course may be repeated for a maximum of 6 credit hours.

ARTS 4850 PROFESSIONAL STUDIO PRACTICES (3) LEC. 3. Pr. ARTS 3030. Instruction in portfolio preparation, professional practices, and information on studio art careers and graduate study. Must have completed ARTS 3030 and nine credit hours in one concentration; taken concurrently with 4000-level studio in same concentration and prior to ARTS 4980 Senior Project in Studio Arts.

ARTS 4860 BFA CRITIQUE SEMINAR (1) LEC. 1. SU. Pr. ARTS 3030. Rigorous group critiques of artwork produced in media concentration courses, discussions and writing about art, art documentation, and exhibition practices. Course may be repeated for a maximum of 3 credit hours.

ARTS 4930 DIRECTED STUDIES (2-3) IND. Pr., Open only to ARTS students who have shown ability, initiative, and industry. Departmental approval and 3.0 minimum GPA in 3000-level ARTS courses in area of directed study. Directed studies are offered in painting, printmaking, sculpture, art history, photography, animation, and ceramics. Course may be repeated for a maximum of 6 credit hours.

ARTS 4950 BA STUDIO ART CAPSTONE (1) LEC. 1. SU. Students must have Senior Standing and have completed a minimum of 39 hours in the Major. Professional skills development and career strategies for BA Studio Art Majors.

ARTS 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

ARTS 4970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (3) ST1/STU. 3. Topics in studio art and art history. Focus will vary according to the instructor. Departmental approval needed. Course may be repeated for a maximum of 6 credit hours.

ARTS 4980 SENIOR PROJECT FOR STUDIO ARTS (3) STU. 6. Pr. ARTS 3030 and ARTS 4860 and (ARTS 3820 and ARTS 3840 and ARTS 3850 and ARTS 4840) or (ARTS 3310 and ARTS 3320 and ARTS 3330 and ARTS 4840) or (ARTS 3410 and ARTS 3420 and ARTS 3430 and ARTS 4440) or (ARTS 3510 and ARTS 3520 and ARTS 3530 and ARTS 4540) or (ARTS 3210 and ARTS 3220 and ARTS 3230 and ARTS 4240) or (ARTS 3020 and ARTS 3120 and ARTS 3130 and ARTS 4140). And three additional courses in a single studio art concentration. Must be taken in the student's final semester concurrent with third enrollment in ARTS 4860. Directed terminal studio project with faculty-approved choice of content and medium. Project will be exhibited.

ARTS 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours.

Auburn Global - GLOB

Courses

GLOB 0100 FOUNDATIONS OF AMERICAN UNIVERSITY LIFE (0) LEC. 1. International Students. This class orients and acclimates international students to Auburn University, the surrounding area, and American cultural contexts.

GLOB 0210 READING AND WRITING FOUNDATION (0) LEC. 10. SU. This course develops critical Reading and Writing skills for students learning English as a Second Language. The course seeks to bring students to the level of an Intermediate User (B1) as described by the Common European Framework and Reference (CEFR).

GLOB 0220 LISTENING AND SPEAKING FOUNDATION (0) LEC. 10. SU. This course develops critical listening and speaking skills for students learning English as a Second Language. The course seeks to bring students to the level of an Intermediate User (B1) as described by the Common European Framework and Reference (CEFR).

GLOB 0310 ENGLISH FOR ACADEMIC PURPOSES I: INTEGRATED SKILLS (0) LEC. 10. This is an integrated-skills ESL course: listening, speaking, reading, and writing skills are combined and mutually reinforce each other. Students practice language and academic skills through exercises and types of technology associated with academic pursuits, including University-specific technologies (Canvas, databases).

GLOB 0410 ENGLISH FOR ACADEMIC PURPOSES II: ORAL PROFICIENCY FOR IAP STUDENTS (0) LEC. 3. The purpose of this course is to help improve the students' listening and oral communication skills in English. The course will provide opportunities to work on language skills and pronunciation, make presentations and arguments, and discuss and debate academic topics.

GLOB 0420 ADVANCED ORAL PROFICIENCY (0) LEC. 3. Pr. GLOB 0410. International Accelerator. The course improves students' listening and oral communication skills in English on the advanced level; it provides opportunities to work on language skills and pronunciation, present, discuss and debate academic topics germane to the undergraduate experience at Auburn University. The focus is on academic language and advising, building on the suite of essential communication skills, speech acts, and conversational gambits which students learned in GLOB 0410.

GLOB 0430 ENGLISH SUPPLEMENT (0) LEC. 1. The English Supplement explains in-depth the key themes and concepts of a specific course topic to facilitate comprehension. Its field-specific content also assists in development of study skills for international students to use throughout their academic career. Course may be repeated for a maximum of 5 credit hours.

GLOB 0440 INTRODUCTION TO ACADEMIC WRITING PROFICIENCY (0) LEC. 6. International student. Develops critical academic writing skills necessary to successfully complete assignments related to academic coursework. Students will learn the fundamentals of effective academic writing including construction and flow management, as well.

GLOB 0450 ACADEMIC WRITING PROFICIENCY (0) LEC. 3. International students. Develops critical writing skills related to academic coursework. Students acquire key organizational concepts germane to academic writing including essay construction, patterns of organization, and a basic tool kit of attribution strategies and organizational concepts.

GLOB 0700 ENGLISH FOR ACADEMIC AND PROFESSIONAL PURPOSES (0) LEC. 6. SU. Acquisition of professional English language skills and field-specific, academic vocabulary. International Graduate students. Course may be repeated for a maximum of 12 credit hours.

GLOB 0710 ENGLISH FOR PROFESSIONAL PURPOSES (0) LEC. 4. LAB. 0. SU. Students will develop professional English language skills, both written and spoken.

GLOB 0720 ENGLISH FOR SPECIFIC PURPOSES (0) LEC. 2. Students will study and learn field-specific and academic vocabulary.

GLOB 0730 MAKING THE CASE: STRUCTURE. ARGUMENT, AND COMPOSITION IN RESEARCH CONTEXTS (0) LEC. 3. SU. This course provides students practice in skills necessary for graduate level research writing.

GLOB 0740 THE ART OF PRESENTING. ADVANCED ORAL COMMUNICATIONS (0) LEC. 2. SU. The purpose of this course is to help students improve oral communication skills in English. The course will provide students with activities designed to help them improve spoken English in presenting information, participating in discussions, and engaging in debates.

GLOB 0750 ENGLISH SUPPLEMENT: GRADUATE READING AND WRITING (0) LEC. 1. SU. The Graduate Reading and Writing course assists students to improve their academic reading and writing skills by using different reading and writing techniques.

GLOB 0810 PROFESSIONAL DEVELOPMENT SEQUENCE I (0) LEC. 1. SU. Understanding the workplace and enhancing the skills necessary to be an effective worker are the goals of this course. Expectations of employees in the American workplace and other cultures are explored. Students will participate in networking and a company visit.

GLOB 0820 PROFESSIONAL DEVELOPMENT SEQUENCE II (0) LEC. 1. SU. This course is designed to enhance the students' effectiveness in career planning. Resumes, cover letters and professional portfolios are developed and incorporated into classroom activities. Through the use of role plays and mock interviews, students demonstrate the professional skills introduced.

GLOB 0830 RESEARCH COLLOQUIUM AND METHODS 1 (0) LEC. 2. SU. Exploration of research methods and techniques, problem solving strategies, challenges graduate students face and how to successfully pursue graduate studies. Students interact with professors, advanced graduate students and professionals to learn from their expertise and observe different presentation styles. Course may be repeated for a maximum of 2 credit hours.

GLOB 0840 RESEARCH COLLOQUIUM AND METHODS 2 (0) LEC. 2. SU. Further exploration of research methods and techniques, problem solving strategies, challenges graduate students face and how to successfully pursue graduate studies. Students interact with professors, advanced graduate students and professionals to learn from their expertise and observe different presentation styles.

GLOB 0850 DATA MANAGEMENT: GATHERING, ANALYZING, AND INTERPRETING DATA (0) LEC. 3. SU. Pr., International graduate students. Introduction to the management of research data and the analysis and the interpretation of research data gathered in a number of settings including experiments and surveys. Students interact with professors and graduate students to understand data usage in research.

GLOB 0900 SPECIAL TOPICS (0) LEC. 1-9. SU. International student only. The course prepares international students for the rigors of graduate study in a variety of academic courses of the MAP (Masters Accelerator Program) curriculum. It is repeatable with change in topic. Course may be repeated for a maximum of 9 credit hours.

GLOB 1010 COLLEGIATE ACADEMIC PERFORMANCE AND EXPECTATIONS (1) LEC. 1. International Students. The Collegiate Academic Performance and Expectations class assists students in the International Accelerator Program in developing collegiate academic skills in order to perform well in Auburn University classes and meet the rigorous expectations of Auburn University for graduation.

GLOB 1020 FROM UNIVERSITY TO PROFESSIONAL LIFE (0) LEC. 1. International Students. This class is designed to help students be prepared for life after university by helping them better understand professional development and career skills to transition their success in the classroom to their professional life.

GLOB 1030 COLLEGIATE ACADEMIC PERFORMANCE AND EXPECTATIONS II (1) LEC. 1. The course is designed to help students prepare for their academic careers by helping them better understand their majors, including the core curriculum, major curriculum, and all requisites and expectations for successful navigation of their major program. Understanding of resources at Auburn University. Students participate in a variety of individual and group projects, online and in-class discussions, and reflective analysis activities.

GLOB 1100 ADVANCED ACADEMIC WRITING PROFICIENCY (1) LEC. 1. Develops advanced writing skills for Auburn Global Pathway students.Students acquire advanced concepts germane to academic writing including the use of a wide range of rhetorical devices, as well as advanced skills such as synthesis, critical analysis, and reflection.

Aviation Management - AVMG

Courses

AVMG 1010 INTRODUCTION TO AVIATION (3) LEC. 3. Orientation to aviation management career opportunities. The history of significant events and accomplishments in the attempt to move through the air and space.

AVMG 2050 INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS (UAS) (3) LEC. 3. Orientation to unmanned aircraft systems with emphasis on pilot and operating rules, National Airspace System (NAS) integration, safety, and commercial uses of Small UAS (sUAS).

AVMG 2400 THEORY OF FLIGHT (3) LEC. 2.5. Introduction to the many systems that make up the aviation ecosystem, including aircraft, the humans and organizations that interact with them, and the principles and aerodynamics of flight.

AVMG 2600 HUMAN FACTORS IN AVIATION (3) LEC. 3. Principles of human cognitive and physical performance, and man/machine interface and design, in aviation. Study of information processing, workload management, situational awareness, and decision-making.

AVMG 2810 LEADERSHIP FOR THE AVIATION PROFESSIONAL (3) LEC. 3. Pr. AVMG 1010. AVMN and AVPF majors only. The course is designed to socialize the student into the roles, activities, and responsibilities essential for the emerging aviation leader, and is foundational to preparation for a career in the aviation industry or aviation-related environments.

AVMG 3050 AVIATION WEATHER (3) LEC. 3. Pr. AVMG 1010. Meteorology as it applies to the operation of aircraft with emphasis on observation of weather elements and interpretation of flight planning weather information.

AVMG 3140 AIR TRANSPORT INDUSTRY DEVELOPMENT (3) LEC. 3. Pr. AVMG 1010. Principles and analysis of air transport industry development, its regulatory environment, and associated certification processes.

AVMG 3200 APPLIED ANALYSIS IN AIR TRANSPORTATION (3) LEC. 3. Pr. (AVMG 1010 or AVMG 1013) and (ECON 2020 or ECON 2023 or ECON 2027). Economic theory and applications in the evolving air transport industry. Analysis of market forces and government regulation that drive resource allocation and industry performance.

AVMG 3500 AIRPORT OPERATIONS (3) LEC. 3. Pr. (AVMG 1010 and AVMG 2400) or AVMF 2150. Practices in managing airport operational systems at air carrier airports.

AVMG 3600 AIRCRAFT MAINTENANCE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Aircraft maintenance program fundamentals, procedures, and practices, with an emphasis on regulatory requirements.

AVMG 3710 STRESS MANAGEMENT IN AVIATION (3) LEC. 3. Pr. AVMG 2600. Examine stress and stress management techniques related to pilot decision-making, situational awareness, crew coordination, communication, human error, fatigue, fitness, attitudes, workload management and Crew Resource Management (CRM). Senior, Junior, or departmental approval required.

AVMG 3810 PROFESSIONAL DEVELOPMENT IN AVIATION (1) LEC. 1. AVMN and AVPF majors only. Career planning and preparation for aviation internships and professional experience opportunities.

AVMG 4040 BUSINESS AVIATION MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Current principles and practices in commercial and business/corporate flight operations including organizational sources of revenue, functions, domestic and international operations, maintenance requirements, and the importance of a sound safety culture.

AVMG 4060 COMMERCIAL AVIATION SAFETY (3) LEC. 3. Pr. AVMG 1010. Analysis of safety principles and regulatory practices of the FAA, NTSB, and ICAO, emphasizing FAA and ICAO Safety Management Systems.

AVMG 4080 AIR TRANSPORT PLANNING (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 and AVMG 3600. Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers.

AVMG 4130 AIRPORT MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Practices in management of a civil public airport, including organization, functions, operations, sources of revenue, funding, maintenance and administration.

AVMG 4140 AIRPORT PLANNING AND DESIGN (3) LEC. 3. Pr. AVMG 4130. Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region.

AVMG 4190 AIRSPACE MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation.

AVMG 4200 AIR CARGO OPERATIONS (3) LEC. 3. Pr. AVMG 1010. Domestic and international air cargo operations with emphasis on cargo economics, equipment, domestic and international regulatory activities, agents, operational techniques, systems and problems.

AVMG 4920 INTERNSHIP IN AVIATION MANAGEMENT (1-6) INT. Practical on-the-job training under supervision with aviation agencies. Written reports are required by designated faculty supervisors. Course may be repeated for a maximum of 6 credit hours.

AVMG 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. 1-3. Pr. Honors College. Honors College. Special topics presented to Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Honors College. Thesis for Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 5090 AVIATION LAW AND POLICY (3) LEC. 3. Pr. AVMG 1010. The legal structure of aviation including federal, local and state statutes, contracts, insurance and liability, regulatory statutes, and case law.

AVMG 5170 AIRLINE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010 and AVMG 3050. Airline manufacturing, economic, and operational/ managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 5180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200. Junior Standing or departmental approval. The economic development of international air transportation from its beginnings to present day. Explores a wide range of international aviation issues such as bilateral and open skies agreements, airline mega alliances, and joint ventures.

AVMG 5970 SPECIAL TOPICS IN AVIATION MANAGEMENT (3) LEC. 3. Investigation of current issues in the aviation industry.

AVMG 6090 AVIATION LAW AND POLICY (3) LEC. 3. The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes and case law.

AVMG 6170 AIRLINE MANAGEMENT (3) LEC. 3. Departmental approval. Airline manufacturing, economic, and operation/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 6180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 or departmental approval. International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares/ Junior standing

AVMG 6970 SPECIAL TOPICS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Investigation of current issues in the aviation industry. Credit will not be given for both AVMG 5970 and AVMG 6970. Course may be repeated for a maximum of 9 credit hours.

AVMG 7930 SPECIAL PROBLEMS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Special problems and current status of the aviation and aerospace industries are analyzed though a problem solving exercise. Course may be repeated for a maximum of 6 credit hours.

Biological & Agricultural Technology Management - BATM

Courses

BATM 1110 INTRODUCTION TO TECHNOLOGY DESIGN (3) LEC. 2. LAB. 3. Introduction to the design process, 2D and 3D parametric solid modeling, and both manual and automated fabrication processes.

BATM 2110 DIGITAL ANALYTICS IN AGRICULTURE AND TECHNOLOGY (3) LEC. 2. LAB. 1. Pr. BATM 1110 or BIOP 2120. An introduction to creative and analytical methods to solve technological problems. Define the problem, explore strategies, select and implement solutions, and evaluate results.

BATM 3100 COMPUTER AIDED DESIGN TECHNOLOGY (3) LEC. 2. LAB. 1. Introductory course in computer aided design (CAD) and land mapping. Students gain competence in CAD operations used to fabricate parts and to develop field- and watershed-scale maps. Class and project topics include drawing for mechanical part fabrication and scale mapping for construction site development and agricultural field management. Must be in Junior standing Course may be repeated for a maximum of 6 credit hours.

BATM 3110 AG TECHNOLOGY GEOSPATIAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 1110 and (PHYS 1500 or PHYS 1600). Geospatial applications for agricultural land resource management. Course introduces equipment and practices used in conventional land surveying and geospatial mapping as they interface with global positioning systems (GPS), geographic information systems (GIS), and computer-aided design (CAD).

BATM 3500 NATURAL RESOURCE SYSTEMS CONSERVATION (3) LLB. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680) and (PHYS 1500 or PHYS 1600). Natural resource conservation technologies including rainfall-runoff relationships, sediment transport capacity, runoff control structures, water supply development, surveying techniques including GPS methods.

BATM 3510 AGRICULTURAL POWER AND MACHINERY FUNDAMENTALS (3) LLB. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680) and (PHYS 1500 or PHYS 1600). Power unit fundamentals with emphasis on diesel and small gasoline engines; mechanics of operation, safety, use, and adjustment of machines used for horticultural and agronomic crop production; and precision agriculturr principles and technology.

BATM 3530 AGRICULTURAL PRODUCTION AND PROCESSING FACILITY TECHNOLOGY (3) LEC. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680. Fundamental requirements for the design and operation of agricultural production and processing facilities.

BATM 3560 TURF SYSTEMS IRRIGATION DESIGN (3) LEC. 3. Pr. MATH 1120 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1680. Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.

BATM 4100 PROFESSIONAL PRACTICE IN TECHNOLOGY MANAGEMENT (2) LEC. 1. LAB. 3. Pr. BATM 5110. First in the two-course capstone experience. This course focuses on professional topics that prepare students for technical careers; teamwork, communication, standards and codes, economics, project and time management. Teams initiate the capstone design project.

BATM 4110 TECHNOLOGY CAPSTONE (3) LEC. 1. LAB. 6. Pr. BATM 4100. Development and evaluation of a team-based capstone project using tools from the technology curriculum; emphasizing communication, critical thinking, and technical and economic analyses.

BATM 4960 SPECIAL PROBLEMS IN AGRICULTURAL TECHNOLOGY MANAGEMENT (3-6) IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biological and agricultural technology management. May be repeated with change in problem. Course may be repeated for a maximum of 6 credit hours.

BATM 4970 SPECIAL TOPICS IN AGRICULTURAL TECHNOLOGY MANAGEMENT (3) LLB. Departmental approval. Investigation of current issues in biological and agricultural technology management. Course may be repeated for a maximum of 6 credit hours.

BATM 4980 UNDERGRADUATE RESEARCH (3) LLB. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BATM 5110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 2110 and (PHYS 1500 or PHYS 1600). An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 5120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 5110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 5130 PRECISION AG TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. BATM 3510. An overview of the principles of precision agriculture with focus on prescriptive agriculture and the ability to effectively execute input management plans using today's technologies. Course material and discussions will include how technologies such as GPS, agricultural GIS, sensors for qualitative and quantitative measurement of soil and plant variables, variable-rate technology are being implement with data informing sub-field level management and subsequent farm business decisions.

BATM 5140 COMMERCIAL POULTRY & LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. Pr. STAT 2510. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BATM 5150 DRONE TECHNOLOGIES IN AGRICULTURAL AND BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 and PHYS 1500. Drone or Unmanned Aerial Vehicles (UAV) technologies and the data generated from these systems are being utilized in agricultural, biological and natural resource systems. Topics will include UAV types, sensors and application systems for drones, sensor resolution and calibration, flight and mission planning techniques. Image and date collection techniques, analysis, interpretation and decision making, generation of prescriptive maps, and other emerging drone technologies.

BATM 5550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1000 or PHYS 1003 or PHYS 1007 or PHYS 1500 or PHYS 1600 or PHYS 1607). Engineering concepts and unit operations used in processing food products. Fall.

BATM 6110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Departmental approval. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 6120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 6110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 6130 PRECISION AG TECHNOLOGY (3) LEC. 2. LAB. 3. An overview of the principles of precision agriculture with focus on prescriptive agriculture and the ability to effectively execute input management plans using today's technologies. Course material and discussions will include how technologies such as GPS, agricultural GIS, sensors for qualitative and quantitative measurement of soil and plant variables, variable-rate technology are being implement with data informing sub-field level management and subsequent farm business decisions.

BATM 6140 COMMERCIAL POULTRY AND LIVESTOCK HOUSING (3) LEC. 2. LAB. 1. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BATM 6150 DRONE TECHNOLOGIES IN AGRICULTURAL AND BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Drone or Unmanned Aerial Vehicles (UAV) technologies and the data generated from these systems are being utilized in agricultural, biological and natural resource systems. Topics will include UAV types, sensors and application systems for drones, sensor resolution and calibration, flight and mission planning techniques. Image and date collection techniques, analysis, interpretation and decision making, generation of prescriptive maps, and other emerging drone technologies.

BATM 6550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133) and (PHYS 1000 or PHYS 1003 or PHYS 1007). Engineering concepts and unit operations used in processing food products. Fall.

Biochemistry - BCHE

Courses

BCHE 3180 NUTRITIONAL BIOCHEMISTRY (3) LEC. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077 or CHEM 2080 or CHEM 2087. Fundamental pathways of carbohydrate, lipid, and amino acid metabolism in human beings.

BCHE 3200 PRINCIPLES OF BIOCHEMISTRY (3) LEC. 3. Pr. (BIOL 1010 or BIOL 1020 or BIOL 1030 or BIOL 1027 or BIOL 1037) and (CHEM 2030 or CHEM 2070 or CHEM 2077 or CHEM 2080 or CHEM 2087). Structure and function of biomolecules, enzyme catalysis, processing of genetic information, bioenergetics and metabolism, and regulatory mechanisms in cellular processes.

BCHE 5180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways. Bioenergetics.

BCHE 5181 BIOCHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C BCHE 5180 or P/C CHEM 5180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

BCHE 5190 BIOCHEMISTRY II (3) LEC. 3. Pr. BCHE 5180 or BCHE 6180. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

BCHE 5191 BIOCHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C BCHE 5190 or P/C CHEM 5190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals and bacteria.

BCHE 6180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. Fundamentals of the classification, structure, and reactions of the major constituents of living matter and evaluation of binding phenomena and bioenergetics.

BCHE 6181 BIOCHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C BCHE 6180 or P/C CHEM 6180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

BCHE 6190 BIOCHEMISTRY II (3) LEC. 3. Pr. BCHE 6180. Departmental approval. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

BCHE 6191 BIOCHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 6190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals, and bacteria.

BCHE 7200 ADVANCED BIOCHEMISTRY I (3) LEC. 3. Graduate credit will not be given for both BCHE 6190 and BCHE 7200.

BCHE 7210 ADVANCED BIOCHEMISTRY II (3) LEC. 3. Structure and function of macromolecules participating in the flow of molecular information. Graduate credit will not be given for both BCHE 6180 and BCHE 7210. Or equivalent.

BCHE 7220 PRINCIPLES OF CELLULAR AND MOLECULAR ENZYMOLOGY (3) LEC. 3. Pr. BCHE 6190 or CHEM 6190 or BCHE 7200. Departmental approval. The principles of enzyme chemistry including the physical, chemical, and catalytic properties of enzymes.

BCHE 7230 BIOCHEMISTRY OF MACROMOLECULES (3) LEC. 3. Pr. BCHE 6180 or BCHE 7200. Departmental approval. Advanced study of the structure of protein and nucleic acids: DNA replication, RNA transcription and protein synthesis.

BCHE 7260 BIOINFORMATICS (3) LEC. 3. Pr. BCHE 7210. Departmental approval. Advanced study of main concepts and tools of genomics and proteomics.

BCHE 7270 BIOCHEMICAL RESEARCH TECHNIQUES (3) LEC. 3. Pr. BCHE 6190. Modern biochemical laboratory techniques. Course may be repeated for a maximum of 6 credit hours.

BCHE 7280 TOPICS IN BIOCHEMISTRY (1-3) LEC. Pr. BCHE 7210. Departmental approval. Directed studies in biochemistry. BCHE 7210 or equivalent. Course may be repeated for a maximum of 3 credit hours.

Biology - BIOL

Courses

BIOL 1000 INTRODUCTION TO BIOLOGY (3) LEC. 3. Science Core. Introduction to biological principles relevant to human society. Designed for non-science majors. Credit will not be given for both BIOL 1000 and BIOL 1020 or BIOL 1027.

BIOL 1001 INTRODUCTION TO BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1000 or P/C BIOL 1003. Laboratory course for BIOL 1000 or BIOL 1003.

BIOL 1010 A SURVEY OF LIFE (3) LEC. 3. Pr. BIOL 1000 or BIOL 1020 or BIOL 1023 or BIOL 1027 or SCMH 1010 or SCMH 1013 or SCMH 1017 or SCMH 1020 or SCMH 1023 or SCMH 1027. Science Core. Emphasis on contrasting strategies employed by organisms to meet similar biological needs. Credit will not be given for both BIOL 1010 and BIOL 1030 or BIOL 1037.

BIOL 1011 A SURVEY OF LIFE LABORATORY (1) LAB. 2. Pr. P/C BIOL 1010 or P/C BIOL 1013. Laboratory course for BIOL 1010.

BIOL 1020 PRINCIPLES OF BIOLOGY (3) LEC. 3. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1020 and BIOL 1000 or BIOL 1027.

BIOL 1021 PRINCIPLES OF BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1020 or P/C BIOL 1023 or P/C BIOL 1027. Laboratory Course for BIOL 1020.

BIOL 1027 HONORS BIOLOGY (4) LEC. 3. LAB. 2. Pr. Honors College. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1027 and BIOL 1000 or BIOL 1020.

BIOL 1030 ORGANISMAL BIOLOGY (3) LEC. 3. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1030 and BIOL 1010 or BIOL 1037.

BIOL 1031 ORGANISMAL BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1030. Laboratory Course for BIOL 1030.

BIOL 1037 HONORS ORGANISMAL BIOLOGY (4) LEC. 3. LAB. 1. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1037 and BIOL 1010 or BIOL 1030.

BIOL 2100 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities and student development options for majors in biological sciences. Students will investigate post-graduation academic and professional options, develop writing skills by creating resumes and ePortfolios, and explore course and research options with the department. Biology majors only.

BIOL 2425 MARINE BIOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. The invertebrates, vertebrates and marine plants as communities with emphasis on local examples. Taught only at Dauphin Island Sea Lab. (DISL).

BIOL 2500 HUMAN ANATOMY AND PHYSIOLOGY I (3) LEC. 3. Pr. BIOL 1000 or BIOL 1020 or BIOL 1023 or BIOL 1027. Study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2501 HUMAN ANATOMY AND PHYSIOLOGY I LABORATORY (1) LAB. 1. Pr. (BIOL 1000 or BIOL 1020 or BIOL 1027) and (P/C BIOL 2500 or P/C BIOL 2503 or P/C BIOL 2507). Lab course for study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2507 HONORS HUMAN ANATOMY AND PHYSIOLOGY I (3) LEC. 3. Pr. Honors College. BIOL 1000 or BIOL 1020 or BIOL 1023 or BIOL 1027. Study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2510 HUMAN ANATOMY AND PHYSIOLOGY II (3) LEC. 3. Pr. (BIOL 2500 or BIOL 2503 or BIOL 2507) and BIOL 2501. Study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500/2501, concentrating on cardiovascular, respiratory, digestive, urinary, reproductive, and endocrine systems.

BIOL 2511 HUMAN ANATOMY AND PHYSIOLOGY II LABORATORY (1) LAB. 1. Pr. (BIOL 2500 or BIOL 2503 or BIOL 2507) and BIOL 2501 and (P/C BIOL 2510 or P/C BIOL 2517). Lab course for study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500, concentrating on the individual organ systems.

BIOL 2517 HONORS HUMAN ANATOMY AND PHYSIOLOGY II (3) LEC. 3. Pr. Honors College. BIOL 2501 and BIOL 2500 or BIOL 2503 or BIOL 2507. Study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500/2501, concentrating on cardiovascular, respiratory, digestive, urinary, reproductive, and endocrine systems.

BIOL 3000 GENETICS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027). An overview of theoretical principles of transmission, cytological, molecular, and population genetics. Problem solving will be emphasized. May count either BIOL 3000 or BIOL 3003 or AGRI 3000.

BIOL 3001 GENERAL GENETICS LABORATORY (1) LAB. 2. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (P/C BIOL 3000 or P/C BIOL 3003). Laboratory provides practical experience in the areas of transmission, cytological, molecular, and population genetics. Problem solving is emphasized though analysis of simulated and real genetics data sets.

BIOL 3010 COMPARATIVE ANATOMY (4) LEC. 3. LAB. 1. Pr. BIOL 1030 or BIOL 1037. We will examine evolution of anatomical structures from early chordates through vertebrates (both living and extinct). Students will learn the main vertebrate taxa and how each anatomical system appears in them. Students will also examine the linkage of these systems through all vertebrates. The phylogenetic tree (evolutionary relationships of the vertebrates) will be the backbone on which we explore the diversity of anatomy. In lab, students will use and develop their integrative skills by examining the anatomy of a wide variety of organisms.

BIOL 3011 COMPARATIVE ANATOMY LABORATORY (1) LAB. 1. Pr. P/C BIOL 1030 or BIOL 1037. Laboratory to accompany Comparative Anatomy Lecture. This lab course will explore the diverse morphologies of vertebrates.

BIOL 3020 GENOMIC BIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000. An overview of genes, genomes, and genomic and proteomic approaches and methodology. Application of principles of biology at the genomic level. Includes an introduction to bioinformatic approaches to genomic problems in a computer laboratory setting.

BIOL 3030 EVOLUTION AND SYSTEMATICS (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. An introduction to evolutionary processes, classification, of organisms and scientific nomenclature.

BIOL 3040 BIOLOGY OF MARINE SYSTEMS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Introduction to marine systems and biological investigations of coastal, near shore and open ocean organisms and processes.

BIOL 3060 ECOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems. 8 hours of Biology.

BIOL 3075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 4. Pr. (MATH 1150 or MATH 1153) and (CHEM 1110 or CHEM 1117 or CHEM 1030 or CHEM 1033) and PHYS 1500. Departmental approval. The physics, chemistry, biology, and geology of the oceans. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 3100 PLANT BIOLOGY (4) LEC. 4. LAB. 1. Pr. (BIOL 1030 or BIOL 1037) and (CHEM 1010 or CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117). Introduction to the morphology, anatomy, physiology and classification of plants with laboratory.

BIOL 3200 GENERAL MICROBIOLOGY (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and P/C BIOL 3201. Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, and the role in human affairs.

BIOL 3201 GENERAL MICROBIOLOGY LABORATORY (1) LAB. 2. Pr. (BIOL 1020 or BIOL 1023 or BIOL 1027) and (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and (P/C BIOL 3200 or P/C BIOL 3203 or P/C BIOL 3207). Fundamental laboratory techniques required to safely handle, enumerate, identify, and provide basic biochemical characterization of microorganisms.

BIOL 3207 HONORS GENERAL MICROBIOLOGY (3) LEC. 3. Pr. Honors College. CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and BIOL 3201. and BIOL 1020 or BIOL 1023 or BIOL 1027. Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, and the role in human affairs.

BIOL 4000 HISTOLOGY (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 1031 and (BIOL 2500 or BIOL 2507 or BIOL 2510 or BIOL 2517 or BIOL 3010 or BIOL 5240). Coreq. BIOL 4001. Morphology and classification of tissues; arrangement of tissues in organs and systems of vertebrate animals.

BIOL 4001 HISTOLOGY LABORATORY (1) LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Coreq. BIOL 4000. Laboratory investigation of the morphology and classification of tissues using prepared slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

BIOL 4010 INVERTEBRATE BIODIVERSITY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Survey of the phyla of invertebrates with emphasis on morphology, anatomy, ecology, evolution, and systematics.

BIOL 4015 BIOLOGY AND CONSERVATION OF MARINE TURTLES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. OR permission of Marine Biology coordinator. An introductory overview of the biology of marine turtles. Topics include: identification, distribution, nesting & migratory behavior, feeding, population biology, development, paleontology and conservation. Extensive laboratory and field studies of multiple species of turtles. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4020 VERTEBRATE BIODIVERSITY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Ecology and evolution of living vertebrates of the world.

BIOL 4025 ECOLOGY OF THE FLORIDA EVERGLADES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Examines the natural history, ecology and evolution, and human impact on the Everglades. Includes intensive lectures and a more than 1-week long campsite based field trip in the Everglades. Multiple short trips to various locales within the Everglades. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4035 INTRODUCTION TO MARINE ANIMAL NEUROBIOLOGY (3) LEC. 15. LAB. 60. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037. The neuroanatomy and neurophysiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses and neurotransmitters, muscle contraction, sensorimotor integration; neurophysiological bases of behavior; labs include computer simulation of cellular neurobiology. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4045 MARINE MAMMAL BIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Introduction to the evolution, taxonomy and classification, anatomy, physiology, behavior, conservation and management issues of marine mammals, including cetaceans, pinnipeds, mustelids, sirenians and the polar bear. Lab and field research methods used to study marine mammals will be covered. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4065 MARINE CONSERVATION BIOLOGY (4) LEC. 45. LAB. 30. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and (BIOL 3040 or BIOL 3060). Study of major threats to marine biodiversity as and potential solutions to the threats. Students discuss current topics in marine conservation biology and critically debate marine conservation literature. Field trips to impacted and pristine sites will demonstrate principles. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4085 HURRICANES OF THE GULF OF MEXICO (2) LEC. 30. An introductory survey with emphasis on Gulf of Mexico hurricanes. Hurricane features. Basic principles of the atmosphere, review of Gulf, Atlantic and Caribbean hurricanes, El Nino, changes in the Atlantic circulation, hurricane formation, development, features, movement, steering and forecasting. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4095 COASTAL BIRDS OF ALABAMA (2) LEC. 15. LAB. 30. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Behavior and ecology-oriented avian field biology. Identification, banding, record/broadcast, other survey methods. Emphasis on behavioral ecology. Extensive field effort along the Gulf Coast and in the Mobile/Alabama/Tombigbee/Tensaw River Delta, other riparian environments, and salt marshes. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4100 CELL BIOLOGY (3) LEC. 3. Pr. CHEM 2030 or (CHEM 2070 or CHEM 2077) and (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 1030 or BIOL 1037). Introduction to cellular structure and processes, including evolution, organization, physiology, molecular biology of cells, membranes, cytoplasm, and organelles as well as energy, transport, motility, cell division, signaling, transcription, and translation.

BIOL 4101 CELL BIOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 4100 or P/C BIOL 4103. Light/electron microscopy, cell structure, origins of life, centrifugation, protein/nucleic acid electrophoresis, and blotting, motility, DNA purification, chromatography, pH, fluorescence microscopy.

BIOL 4135 MARINE BEHAVIORAL ECOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Animal behavior in the context of the marine environment. Students study the ecological and evolutionary significance of behavior in a marine setting. Topics include principles of marine behavioral ecology, techniques for observing behavior, conducting behavior experiments, and data collection. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4150 HUMAN GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000 and BIOL 4100 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

BIOL 4410 VERTEBRATE DEVELOPMENT (5) LEC. 3. LAB. 4. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Morphogenesis and organogenesis of frog, chick, pig, and human from a descriptive and analytical viewpoint.

BIOL 4415 SHARK AND RAY BIOLOGY (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. An introduction to the biology of sharks and rays with special emphasis on regional shark fauna and field technique. Topics: chondrichthyan origin, systematics, sensory biology, trophic ecology, reproductive biology, life history, ecology, fisheries and conservation. Extensive lab and field work. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 4445 SPECIAL PROBLEMS IN MARINE SCIENCE (1-6) AAB/LEC. Departmental approval. Individualized research-oriented experience. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours.

BIOL 4455 MARINE INVERTEBRATE ZOOLOGY (6) LEC. 6. Departmental approval. Structure, classification, phyogenetics, larval development and functional processes of marine and estuarine invertebrates. Taught at Gulf Coast Research Laboratory.

BIOL 4475 MARINE ICHTHYOLOGY (6) LEC. 6. Departmental approval. Biology of the major piscine taxa in Mississippi Sound. Principles involved in classification and evolutionary relationships of these organisms. Taught at Gulf Coast Research Laboratory.

BIOL 4515 MARINE INVERTEBRATE ZOOLOGY (4) LEC. 4. Pr. At least 10 credits in BIOL 2000-8990. Departmental approval. The natural history, systematics, and morphology of marine invertebrates from the Gulf of Mexico; oriented toward a field and laboratory approach. Participation in extended field trips is part of the course. Taught at DISL.

BIOL 4525 DOLPHINS AND WHALES (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Classification, anatomy, and ecology of the cetaceans. Taught at DISL.

BIOL 4565 MARINE VERTEBRATE ZOOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Systematics, zoogeography and ecology of marine fishes, reptiles, and mammals. Taught at DISL. May not be substituted for BIOL 4020.

BIOL 4575 MARINE ECOLOGY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Prerequisites: BIOL1020 or marine biology. Departmental approval. Experimental ecological theory and its application to interactions of marine organisms with each other and the environment. Includes laboratory, extensive field trip experience. Taught at DISL.

BIOL 4585 PLANKTON BIOLOGY (2) LEC. 15. LAB. 15. Pr. ((BIOL 1020 and BIOL 1021) or BIOL 1027) and ((BIOL 1030 and BIOL 1031) or BIOL 1037). Students will learn about the biology of all forms of plankton and the methods for their study including optical and chemical techniques. Students will understand the basic methods of study and be able to sight-identify major groups. Taught at Dauphin Island Sea Lab (DISL).

BIOL 4700 PEDAGOGY OF PEER-LED INSTRUCTION (1) LEC. 1. Departmental approval. This is the pedagogical training course designed for students serving as peer instructors who are interested in effective instructional strategies in the STEM disciplines. This course helps peer instructors integrate educational theory, pedagogy, content, and practice. Course meetings will focus on practical concerns as well as associated theoretical models. This is a seminar course where students are responsible for weekly readings, in-class discussions, reflections and projects which are coordinated with students' practice.

BIOL 4920 INTERNSHIP IN BIOLOGY (1-4) INT. SU. Application of biology concepts and skills in a professional experience. 12 credit hours in 3000-level or higher BIOL courses. Departmental approval. Student must be enrolled in a major offered by the Department of Biological Sciences. Course may be repeated for a maximum of 4 credit hours.

BIOL 4950 SENIOR SEMINAR (1) LEC. 1. Oral presentation and discussion of recent scientific publications from a selected area of biological sciences. One hour is required for all majors. Course may be repeated for a maximum of 3 credit hours.

BIOL 4967 HONORS SPECIAL PROBLEMS (1-3) DSL/LEC. Pr. Honors College. Departmental approval and membership in the Honor College. Course may be repeated for a maximum of 3 credit hours.

BIOL 4970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in Biological Sciences. Course may be repeated for a maximum of 8 credit hours.

BIOL 4980 UNDERGRADUATE RESEARCH (2-4) AAB/IND. Directed research in an area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BIOL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Undergraduate research and thesis. Course may be repeated for a maximum of 3 credit hours.

BIOL 4AA0 PROFESSIONAL DEVELOPMENT II (0) PRA. SU. Students enrolled in this course will complete the ePortfolio that they began developing as Freshmen, in BIOL 2100 - Professional Development I. Successfully designing and completing a professional ePortfolio will provide students with: 1. An opportunity to create a unified, polished and coherent educational and professional history of themselves. 2. A platform to organize their thinking about skills and experiences and the opportunity to connect them to the next step in career development. 3. A place to collect, present and reflect on evidence of professional development and growth during the undergraduate experience.

BIOL 5000 HUMAN CARDIOVASCULAR PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 2510 or BIOL 2517 or BIOL 5240 or BIOL 5600. An in-depth exploration of molecular events and mechanisms governing heart and vascular function in health and disease. Laboratory will provide hands-on experiences with ECG, local blood flow, and case study examples.

BIOL 5020 EMBRYONIC DEVELOPMENT (3) LEC. 3. Pr. (BIOL 4100 or BIOL 4103). This course is designed to teach students the evolution of the molecular mechanisms used by developing embryos to form the adult body plan with a focus on the vertebrate model systems used to understand human developmental biology. In addition, the course will expose students to current research on these processes and the techniques used to carry out these studies.

BIOL 5050 FUNDAMENTALS OF BIOPHYSICS (2) LEC. 2. Pr. PHYS 1510 or BIOL 4100. Introduction to use of theories and methods of physics in biology, illustrated by discussion of organism size, metabolism, physiology, vision, hearing, cell cellular and molecular processesern medicine, physiology and molecular biology.

BIOL 5090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

BIOL 5110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037 or BIOL 2500 or BIOL 2503 or BIOL 2507. Students must have Junior or Senior standing. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals and wildlife. May count either BIOL 5110 or LABT 4050.

BIOL 5120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 5130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 5131 ADVANCED PLANT PHYSIOLOGY LABORATORY (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or BIOL 5130). Laboratory exercises in plant physiology. Including water relations, metabolism and growth, and development.

BIOL 5140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 5150 POPULATION AND COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Quantitative study of natural population and ecological communities. Selected topics include density-dependent population growth, life-history theory, mark-recapture analysis, eco-evolutionary dynamics, and species interactions especially how they relate to questions of species distributions in time and space.

BIOL 5160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3. Prereq. 15 hours of biology. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours.

BIOL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 5200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. (BIOL 3200 or BIOL 3203 or BIOL 3207) and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 5210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 5220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Principles of gene expression including replication, transcription, and translation; structure and regulation of genes; concepts and techniques in recombinant DNA.

BIOL 5230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 5240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or (CHEM 2030 or CHEM 2070 or CHEM 2077). General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 5250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 5260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Credit will not be given for both BIOL 5260 and BIOL 6260.

BIOL 5270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and (BIOL 3201) and (BIOL 5220 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and 6270.

BIOL 5280 GENETHICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Twenty-first century biotechnology and related ethical issues, including human cloning, stem cells, neuroenhancement, age retardation, genetic enhancement, and nanobiology. May count BIOL 5280 or 6280.

BIOL 5290 CASE STUDIES IN INFECTION AND IMMUNITY (3) LEC. 3. Pr. BIOL 5500. This course is designed to enrich student understanding of infection and immunity in the context of clinical presentations. Students will learn to use deductive reasoning to narrow down potential causes of symptoms and then use scientific literature to gain a detailed understanding of the mechanisms underlying disease. Cases covered will include infectious disease, immunodeficiency, neoplasms and/or autoimmunity.

BIOL 5300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 3. LAB. 4. Pr. BIOL 3100. Investigation of the various levels of plant organization from subcellular to organ through use of light and scanning electron microscopes.

BIOL 5320 PLANT GENE EXPRESSION (3) LEC. 3. Pr. BIOL 3100. Departmental approval. Genetic expression of genetic elements in plants from the recent literature.

BIOL 5330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 5330 or BIOL 6330.

BIOL 5340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 5350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 5370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3060. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 5380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 5425 MARINE BOTANY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. Departmental approval. Pr. BIOL 1020 or equiv. Survey of microscopic and macroscopic algae, salt marsh vegetation, sea grasses, mangroves and maritime forests with regard to identification, distribution, structure, ecology and physiology. Field trips and laboratory work. Taught at DISL.

BIOL 5440 CLIMATE CHANGE PHYSIOLOGY AND EVOLUTION (3) LEC. 3. LAB. 0. This class investigates on the basic mechanisms of climate change and its impact on living organisms, focusing on their physiological, evolutionary, behavioral and molecular responses. Special interest is given to plants and marine organisms.

BIOL 5500 IMMUNOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203 or BIOL 3207) and BIOL 3201 and (BIOL 3000 or BIOL 3003 or BIOL 3020). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology. May count either BIOL 3500 or BIOL 5500.

BIOL 5501 IMMUNOLOGY LAB (2) LAB. 2. Pr. P/C BIOL 5500 or P/C BIOL 3500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 5521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or P/C BIOL 5260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 5550 NANOMEDICINE (2) LEC. 2. Pr. PHYS 1510 and CHEM 2080 and (P/C BCHE 5180 or P/C BIOL 4100). Nanomedicine is a branch of medicine that applies the knowledge and tools of nanotechnology to the prevention and treatment of disease. It involves the use of nanoscale materials, such as biocompatible nanoparticles, nanorobots and nanosensors, for diagnosis, drug delivery, and sensing in living organisms.

BIOL 5560 RNA IN BIOMEDICINE (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003. This course introduces the basic and novel types and functions of RNAs, as well as the integration of these molecules in biomedical contexts. Students will learn about the 'RNA World' theory, the diverse roles of RNA in cellular processes, and pathogenesis. Technological approaches to RNA research will be covered, as well as the application of this research to the diagnosis and therapy of genetic diseases.

BIOL 5600 BIOMEDICAL PHYSIOLOGY (5) LEC. 4. LAB. 3. Pr. ((BIOL 1030 or BIOL 1037) or ((BIOL 2500 or BIOL 2507) and BIOL 2501)) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation into the physiology of major mammalian organ systems, with a special focus on their biomedical functions and applications.

BIOL 5650 ANIMAL BEHAVIOR (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 5660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6600, or BIOL 6600.

BIOL 5700 APPLIED AND ENVIRONMENTAL MICROBIOLOGY (4) LEC. 3. LAB. 2. Pr. (BIOL 3200 or BIOL 3207 or BIOL 3203) and BIOL 3201. Introduction to the ecology, systematics, interrelationships, and role of micro-organisms in geochemical cycles, bioremediation and pharmaceutical production.

BIOL 5740 HERPETOLOGY (4) LEC. 3. LAB. 3. Ecology and evolution of living amphibians and reptiles of the world.

BIOL 5750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Taxonomy, evolution, ecology, and behavior of birds.

BIOL 5760 MAMMALOGY (4) LEC. 3. LAB. 3. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, field trips, data analysis, and report preparation.

BIOL 5800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510 or STAT 2513. Overview of computational approaches to biological data analysis. Additionally, students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.

BIOL 5850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. An active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 5860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging 'omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 6020 EMBRYONIC DEVELOPMENT (3) LEC. 3. Pr. BIOL 4100 or BIOL 4103. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

BIOL 6050 FUNDAMENTALS OF BIOPHYSICS (2) LEC. 2. Pr. PHYS 1510 or BIOL 4100. Introduction to use of theories and methods of physics in biology, illustrated by discussion of organism size, metabolism, physiology, vision, hearing, cell cellular and molecular processesern medicine, physiology and molecular biology.

BIOL 6090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

BIOL 6110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) or (BIOL 2500 or BIOL 2503) and BIOL 2501. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals, and wildlife.

BIOL 6120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 6130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 6131 ADV PLANT PHYSIOLOGY LAB (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or CHEM 2088). Laboratory exercises in plant physiology. Including water relations, metabolism, and growth and development.

BIOL 6140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Departmental approval. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 6150 POPULATION AND COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Quantitative study of natural population and ecological communities. Selected topics include density-dependent population growth, life-history theory, mark-recapture analysis, eco-evolutionary dynamics, and species interactions especially how they relate to questions of species distributions in time and space.

BIOL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220 and (CHEM 2080 or CHEM 2087). Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 6200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 6210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 6220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both BIOL 6220 and CMBL 6220.

BIOL 6230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 6240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or CHEM 2030 or CHEM 2070 or CHEM 2077. General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 6250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 6260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Course will not be given for both BIOL 5260 and BIOL 6260.

BIOL 6270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203) and (BIOL 3201) and (BIOL 5200 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and BIOL 6270.

BIOL 6290 CASE STUDIES IN INFECTION AND IMMUNITY (3) LEC. 3. Pr. BIOL 6500. This course is designed to enrich student understanding of infection and immunity in the context of clinical presentations. Students will learn to use deductive reasoning to narrow down potential causes of symptoms and then use scientific literature to gain a detailed understanding of the mechanisms underlying disease. Cases covered will include infectious disease, immunodeficiency, neoplasms and/or autoimmunity.

BIOL 6300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 2. LAB. 4. Pr. BIOL 6130. The study of the structure and ontogeny of plant cells, tissues, and organs. Fall.

BIOL 6320 PLANT GENE EXPRESSION (3) LEC. 3. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL 6320 and CMBL 6320.

BIOL 6330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 6330 or BIOL 5330.

BIOL 6340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 6350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 6370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3060 and BIOL 6800. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 6440 CLIMATE CHANGE PHYSIOLOGY AND EVOLUTION (3) LEC. 3. LAB. 0. Pr. BIOL 1030. This class investigates on the basic mechanisms of climate change and its impact on living organisms, focusing on their physiological, evolutionary, behavioral and molecular responses. Special interest is given to plants and marine organisms.

BIOL 6500 IMMUNOLOGY (3) LEC. 3. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201 and (BIOL 3000 or BIOL 3003 or FISH 3000 or BIOL 3020) and P/C BIOL 6501. The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

BIOL 6501 IMMUNOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 5500 or P/C BIOL 6500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 6521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or BIOL 6220 or BIOL 5260 or BIOL 6260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 6525 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Vertebrate and Invertebrate Zoology required. Taught at DISL.

BIOL 6550 NANOMEDICINE (2) LEC. 2. Pr. PHYS 1510 and CHEM 2080 and BCHE 5180. Nanomedicine is a branch of medicine that applies the knowledge and tools of nanotechnology to the prevention and treatment of disease. It involves the use of nanoscale materials, such as biocompatible nanoparticles, nanorobots and nanosensors, for diagnosis, drug delivery, and sensing in living organisms.

BIOL 6560 RNA IN BIOMEDICINE (3) LEC. 3. This course introduces the basic and novel types and functions of RNAs, as well as the integration of these molecules in biomedical contexts. Students will learn about the ‘RNA World’ theory, the diverse roles of RNA in cellular processes, and pathogenesis. Technological approaches to RNA research will be covered, as well as the application of this research to the diagnosis and therapy of genetic diseases.

BIOL 6600 BIOMEDICAL PHYSIOLOGY (5) LEC. 4. LAB. 3. Pr. ((BIOL 1030 or BIOL 1037) or (BIOL 2500 and BIOL 2501)) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation into the physiology of major mammalian organ systems, with a special focus on their biomedical functions and applications.

BIOL 6650 ANIMAL BEHAVIOR (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6600, or BIOL 6600.

BIOL 6700 APPLIED AND ENVIRONMENTAL MICROBIOLOGY (4) LEC. 3. LAB. 2. Pr. (BIOL 3200 or BIOL 3203) and BIOL 3201. An advanced treatment of bacteria comprising the Kingdom Prokaryotae, emphasizing ecology, systematics, interrelationships, geochemical cycles, and bioremediation.

BIOL 6740 HERPETOLOGY (4) LEC. 3. LAB. 3. Ecology and evolution of living amphibians and reptiles of the world.

BIOL 6750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Departmental approval. An intensive investigation of the current literature and relevant research dealing with birds.

BIOL 6760 MAMMALOGY (4) LEC. 3. LAB. 3. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, fieldtrips, data analysis and report preparation.

BIOL 6800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510 or STAT 2513. Overview of computational approaches to the analysis of biological data. Students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.

BIOL 6850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. Active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 6860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging 'omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 7035 MARINE ANIMAL NEUROBIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1023 and BIOL 1021 and BIOL 1030 and BIOL 1031 and BIOL 4100. Biophysical neurobiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses, neurotransmitters, muscle contraction, sensorimotor integration, computer simulation and extensive technical methods: extra-, intracellular, patch recording, molecular neuroimmunology, confocal fluorescence microscopy. Evening/Saturday classes.

BIOL 7075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 30. LAB. 60. Pr. MATH 1150 or MATH 1153 and CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and PHYS 1500 and BIOL 3040. An in-depth examination of the physics, chemistry, geology and biology of the oceans. Lectures cover the interrelationships of these components to each other. Field and lab work will introduce students to research on oceanographic processes of the Gulf of Mexico. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 7170 POPULATION GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Examination of the theories relating to maintenance of variation in natural populations of plants and animals.

BIOL 7180 SCRIPTING FOR BIOLOGISTS (3) LEC. 2. LAB. 1. Pr. BIOL 6800 and STAT 7000. or Instructor approval. A hands-on course to teach students concepts, applications, and best practices of utilizing computer scripting languages in the life sciences.

BIOL 7200 EVOLUTIONARY BIOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 3200 or BIOL 3203) and BIOL 3201. Topics of current interest in evolution. Readings and presentation required.

BIOL 7210 EVOLUTIONARY ECOLOGY (3) LEC. 3. The Evolutionary Ecology research paradigm is a key approach to the study of behavioral, evolutionary, and ecological processes in the context of realistic or natural environmental settings. We will investigate a number of current "hot" research topics in Evolutionary Ecology, discuss the leading hypotheses being developed and how they are cast as statistica.

BIOL 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 3. Pr. STAT 7020 or WILD 7150. or equivalent; or permission of the instructor. Data from the life sciences and advanced statistical techniques for data analyses and computation are brought together through a cross-fertilization of graduate student students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects. May count either BIOL 7250 or STAT 7250.

BIOL 7290 EVOLUTIONARY GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 6170. Departmental approval. The role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both BIOL 7290 and CMBL 7290.

BIOL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both BIOL 7440 and CMBL 7440.

BIOL 7470 GENOME EVOLUTION (3) LEC. 3. Provides a broad evolutionary perspective on the origin, composition, and architecture of eukaryotic genomes. Students will participate in a literature-driven discussion format and will complete weekly writing assignments.

BIOL 7485 ADVANCED MARINE ECOLOGY (4) LEC. 2. LAB. 2. Pr. (BIOL 1020 or BIOL 1023) and BIOL 1021 and BIOL 1030 and BIOL 1031 and (BIOL 3060 or BIOL 3040). An advanced course open only to MS or PhD students. Interactions between marine organisms and the environment. In-depth discussion of ecological theory with emphasis on the latest research, using extensive reference to the literature. Lecture, lab and overnight field trips.

BIOL 7490 PHYSIOLOGICAL ECOLOGY (3) LEC. 3. Pr. BIOL 3060. A study of the physiological adaptations that allow animals to survive in unusual environments. A course in ecology required.

BIOL 7500 STRESS PHYSIOLOGY (2) LEC. 2. Pr. (BIOL 4100 or BIOL 5240 or BIOL 5600). This course is a discussion-based course focusing on physiological stress responses at various levels of organization and communication among them, from molecules, cells, organ, to whole organism.

BIOL 7510 NATURAL HISTORY MUSEUM PRACTICUM (1) LAB. 3. Practical methods in natural history museum curation. Students will assist in curating collections at the Auburn University Museum of Natural History. Course may be repeated for a maximum of 4 credit hours.

BIOL 7525 MARINE INVERTEBRATES (4) LEC. 2. LAB. 2. Morphology, natural history, physiology, evolution and ecology. Students examine modern literature and develop an advanced presentation on invertebrate biology involving problem solving in an area such as sensory biology, molecular evolution or management. Term paper, classroom presentation and lecture.

BIOL 7540 PROFESSIONAL ASPECTS OF BIOLOGY (3) LEC. 3. Departmental approval. Instruction on practical aspects of a career in biological sciences.

BIOL 7550 PHYSIOLOGICAL ECOLOGY OF REPRODUCTION (3) LEC. 3. This course focuses on physiological ecology of reproduction by identifying key physiological mechanisms linking the environmental change, reproductive constraints, and reproductive performance and describing how variation in reproductive performance are impacted by ecological and evolutionary processes.

BIOL 7800 COMPUTATIONAL BIOLOGY COLLOQUIUM (2) LEC. 0. LAB. 0, LEC. 0. Pr. (BIOL 7180) or (PLPA 6820). Oral presentations and discussions of recent scientific publications, challenges, and opportunities within the field of computational biology. Hands-on experience in data analysis and presentation.

BIOL 7880 MITONUCLEAR ECOLOGY (2) LEC. 2. Pr. BIOL 3030. This course will explore the implications of the necessity of mitonuclear coadaptation for the evolution of quintessential eukaryotic characteristics, including sex and two sexes, a sequestered germ line, senescence, discrete species, mate choice, and adaptation. Permission of instructor may be needed.

BIOL 7950 MASTERS THESIS SEMINAR (1) LEC. 1. SU. Departmental approval. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 2 credit hours.

BIOL 7960 SPECIAL PROBLEMS (1-4) DSL/LEC. Pr. P/C BIOL 6220. Oral presentation and discussion of recent scientific publications from a selected area molecular biology. Credit will not be given for both BIOL 7960 and CMBL 7960. Course may be repeated for a maximum of 4 credit hours.

BIOL 7970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in botany, microbiology, molecular biology, or zoology. A different topic for advanced study will be selected each semester this course is offered. Course may be repeated for a maximum of 8 credit hours.

BIOL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BIOL 8950 DOCTORAL SEMINAR (1) SEM. 1. SU. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 3 credit hours.

BIOL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

Biomaterials and Packaging - BIOP

Courses

BIOP 1390 INTRODUCTION TO FOREST PRODUCTS AND PACKAGING (3) LEC. 2. LAB. 4. Basic properties of wood and their impact on the manufacture of forest products. Identification of important products and woods.

BIOP 2120 FRONTIERS FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Introduction to the sustainability of biomaterials and resource efficiency to produce materials, food, energy and services, that decrease society's dependency on fossil fuels.

BIOP 2140 FUNDAMENTALS OF PACKAGING TECHNOLOGY (3) LEC. 3. An introduction into basic concepts and theories of packaging design, manufacturing, characterization, and development. The packaging materials covered in this course include paper and paperboard, metal, and plastics.

BIOP 3391 FOREST AND MANUFACTURING OPERATIONS (1) LEC. .5. LAB. 2. Introduction to basic field operations in Forestry including site preparation and planting, harvesting and primary manufacturing processes relative to specific geographic locations.

BIOP 3840 SUSTAINABLE PACKAGING CONCEPTS (3) LEC. 3. Examines the performance and durability of products and packaging, including sustainability of raw materials and society energy needs, the use of sustainable materials to meet these needs and reduce impact on environment, and associated methods.

BIOP 4060 ECONOMICS OF SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Pr. ECON 2020. The course will familiarize students with the economic theory of resource allocation in a market economy as applied to the specific sustainable biomaterials and packaging industry. This will include; production and consumption theory, engineering and financial decision making.

BIOP 4080 BUSINESS MANAGEMENT FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Introduction to key forest products and sustainable biomaterials business management topics including supply chain management policies and limitations specific to the forest products, sustainable biomaterials and packaging industry.

BIOP 4360 SUSTAINABLE BIOMATERIALS TRADE AND MARKETING (3) LEC. 3. Covers the general structure of the sustainable bioproducts/biomaterials industry and the major product markets. Students will be provided an overview of structure of both traditional forest products as well as emerging sustainable biomaterial industry segments.

BIOP 4400 SUSTAINABLE BIOMATERIALS & PRODUCT DEVELOPMENT (4) LEC. 4. Pr. BIOP 5080 or BIOP 5800. Examines the stages of product development, providing a blend of economics, engineering, marketing, and sustainability to design a product that meets the needs of a chosen/participating customer.

BIOP 4410 SUSTAINABLE BIOMATERIALS & PRODUCT DEVELOPMENT II (2) LAB. 2. Pr. BIOP 4400. Continues and completes the final stages of product development (initiated in BIOP 4400), providing a blend of economics, engineering, marketing, and sustainability to finalize the product design that meets the needs of a chosen/participating customer.

BIOP 4700 PACKAGING FOR DISTRIBUTION SYSTEMS (3) LEC. 3. Pr. BIOP 3000. This course explores the role of sustainable raw materials in packaging for distribution systems. Students will learn about the properties, design, and optimization of renewable and recyclable materials to ensure product protection, efficiency, and environmental responsibility throughout the supply chain. Emphasis is placed on material selection, performance in distribution environments, and innovative solutions for sustainable packaging.

BIOP 4920 INTERNSHIP IN SUSTAINABLE PACKAGING (4) INT. 4. Pr. FOWS 3850. Supervised work experience in a Sustainable Packaging (BIOP) setting for a minimum of 50 hours/credit hour. BIOP major, 2.2 cumulative GPA, and senior standing required. Department approval.

BIOP 5050 BIOMASS PROCESSING CHEMISTRY (3) LEC. 3. Wood and fiber morphology, cellulose, hemicellulose and lignin chemistry; biodegradations of cellulose, hemicellulose and lignin. Emphasis on bioenergy and bio-products.

BIOP 5060 PRODUCTION PACKAGING EVALUATION LAB (1) LAB. 3. Pr. BIOP 2140. This lab course provides hands-on experience in evaluating packaging materials and products made from wood, cellulose fibers, and plastics. Students will assess the performance of packaging materials, focusing on real-world applications in product packaging design and manufacturing. The evaluation lab mainly focusses on testing physical, mechanical, and chemical properties of the packaging materials.

BIOP 5070 PERFORMANCE AND DURABILITY OF PRODUCTS AND PACKAGING (3) LEC. 3. Examines the performance and durability of products and packaging, including physics and mechanics properties of solid wood and wood- and bio-based products and packaging materials, as well as notions about durability, thermal, electric and acoustic properties.

BIOP 5080 FIBER-BASED PRODUCTS IN PACKAGING (3) LEC. 3. Pr. BIOP 2140. The manufacturing process of fiber-based products and the applications of the products in packaging industry. Characteristics of wood fibers, including the chemical composition of wood and fibers. Various pulping processes used to separate fibers from other components of the renewable materials. Fiber preparation for papermaking. Property characterization methods for fibers and their products.

BIOP 5250 WOOD COMPOSITES FOR BIOMATERIALS & PACKAGING (3) LEC. 3. Pr. BIOP 3390. Relationships between various biomass feedstock properties and the physical, chemical, and mechanical properties of the biocomposite from various manufacturing processes.

BIOP 5800 BIOPOLYMERS FOR SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Students will learn packaging functions, classification, and regulations; polymers classification and properties; as well as engineering principles applied to biomaterials and packaging materials. Thermo-mechanical properties and polymers processing methods of natural and sustainable biomaterials will be discussed. An understanding of the advantages and limitations/challenges of bio-based polymers for packaging systems will be gained through the course.

BIOP 6050 BIOMASS PROCESSING CHEMISTRY (3) LEC. 3. Wood and fiber morphology, cellulose, hemicellulose and lignin chemistry; biodegradations of cellulose, hemicellulose and lignin. Emphasis on bio-energy and bio-products.

BIOP 6060 PRODUCTION PACKAGING EVALUATION LAB (1) LAB. 3. This lab course provides hands-on experience in evaluating packaging materials and products made from wood, cellulose fibers, and plastics. Students will assess the performance of packaging materials, focusing on real-world applications in product packaging design and manufacturing. The evaluation lab mainly focusses on testing physical, mechanical, and chemical properties of the packaging materials.

BIOP 6070 PERFORMANCE AND DURABILITY OF PRODUCTS AND PACKAGING (3) LEC. 3. Examines the performance and durability of products and packaging, including physics and mechanics properties of solid wood and wood- and bio-based products and packaging materials, as well as notions about durability, thermal, electric and acoustic properties.

BIOP 6080 FIBER-BASED PRODUCTS IN PACKAGING (3) LEC. 3. The manufacturing process of fiber-based products and the applications of the products in packaging industry. Characteristics of wood fibers, including the chemical composition of wood and fibers. Various pulping processes used to separate fibers from other components of the renewable materials. Fiber preparation for papermaking. Property characterization methods for fibers and their products.

BIOP 6250 BIOCOMPOSITES (3) LEC. 3. Relationships between various biomass feedstock properties and the physical, chemical, and mechanical properties of the biocomposite from various manufacturing processes.

BIOP 6800 BIOPOLYMERS FOR SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Students will learn packaging functions, classification, and regulations; polymers classification and properties; as well as engineering principles applied to biomaterials and packaging materials. Thermo-mechanical properties and polymers processing methods of natural and sustainable biomaterials will be discussed. An understanding of the advantages and limitations/challenges of bio-based polymers for packaging systems will be gained through the course.

Biosystems Engineering - BSEN

Courses

BSEN 2210 ENGINEERING METHODS FOR BIOLOGICAL SYSTEMS (2) LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607) or Departmental approval. Introduction to experimental design methodology, basic engineering design and problem solving methodology for Biological Engineering. Visualization skills, computer-aided 3-D solid modeling of parts, 3-D assembly of solid part geometries, computation of mass properties, 2-D engineering drawings, engineering design process, safety, tools and fabrication processes and design, and hands-on shop fabrication of semester project.

BSEN 2240 BIOLOGICAL AND BIOENVIRONMENTAL HEAT AND MASS TRANSFER (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1600 or PHYS 1607) and P/C ENGR 2010. Basic principles of heat and mass transfer with special applications to biological and environmental systems. Introduction to steady state and transient heat conduction. Convection, radiation, diffusion, simultaneous heat and mass transfer, and generation and depletion of heat and mass in biological systems.

BSEN 3210 MECHANICAL POWER FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. ENGR 2010 and MATH 2650 and P/C ENGR 2350. Basic engineering analysis, synthesis, and design concepts applied to power sources, mobile equipment, and machinery applications for agricultural, forestry, and natural resource systems.

BSEN 3230 NATURAL RESOURCE CONSERVATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Engineering analysis applied to natural resource systems. Design principles and practices in rainfall-runoff relationships, soil erosion and its prediction and control, hydraulic structures, and open channel hydraulics.

BSEN 3240 PROCESS ENGINEERING IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. Theory and application of process operations in biological, food and agricultural systems. Heat transfer, fluid flow, thermal processing, evaporation, psychrometrics, refrigeration, drying freezing.

BSEN 3260 ENGINEERING FOR PRECISION AGRICULTURE AND FORESTRY (3) LEC. 2. LAB. 3. Pr. BSEN 3610 and MATH 2650. Departmental approval. Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site specific applications. Fall.

BSEN 3310 HYDRAULIC TRANSPORT IN BIOLOGICAL SYSTEMS (4) LEC. 3. LAB. 3. Pr. (ENGR 2050 or ENGR 2053) and MATH 2650 or Departmental approval. Fluid properties, Non-Newtonian fluids and biological systems, Fluid statics, Energy equation, mass and momentum balance, pipe flow for Newtonian and Non-Newtonian fluids, dimensional analysis, compressible flows.

BSEN 3610 INSTRUMENTATION AND CONTROLS FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and BSEN 2210. Departmental approval. Understanding of fundamentals of electrical circuits, sensing and sensors, simple digital electronics, analog measurement circuits, introductory digital signal processing, computer data acquisition.

BSEN 4200 POLYMERS FROM RENEWABLE RESOURCES (2) LEC. 2. Fundamental aspects of natural, biodegradable polymers, including fibers, adhesives, films and coatings, their synthesis, their structure/properties relationships, and the microbiology of their degradation.

BSEN 4210 IRRIGATION SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. Theory and design of irrigation systems for the application of water and wastewater including surveying techniques for system design. Systems include solid-set, traveler, center-pivot, and trickle. Fall.

BSEN 4250 HYDRAULIC CONTROL SYSTEMS DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3310 or Departmental approval. Principles of energy transfer by means of fluid power. Design of hydraulic control systems using prime movers, valves, actuators, and accessories. Spring.

BSEN 4300 PROFESSIONAL PRACTICE IN BIOSYSTEMS ENGINEERING (2) LEC. 1. LAB. 3. Pr. ENGR 2070 and (BSEN 4240 or BSEN 3230). This course focuses on issues related to the professional practice of biological engineering including preparing students for transition to careers as professional engineers.

BSEN 4310 ENGINEERING DESIGN FOR BIOSYSTEMS (3) LEC. 1. LAB. 6. Pr. BSEN 4300. Departmental approval. Capstone design course in biosystems engineering emphasizing teamwork, communication, safety engineering, and economic analysis to complete an engineering design project. Spring.

BSEN 4960 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) AAB/IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biosystems engineering. May be repeated with change in problem. Course may be repeated with change in topics.

BSEN 4970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) DSL. Departmental approval. Individual or small group study of a specialized area in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

BSEN 5220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 5230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. (CHEM 1040 or CHEM 1120) and BIOL 3200 and (BSEN 3230 or BSEN 4240). Introduction to animal waste management problems of confined production systems, and characterization of animal waste types. Design of biological treatment and processing systems. Departmental approval. May count either BSEN 5230 or BSEN 6230.

BSEN 5240 BULK BIOLOGICAL SOLIDS BEHAVIOR, HANDLING AND PROCESSING (3) LEC. 3. Pr. BSEN 3310 or CIVL 3310. Understanding of the properties of bulk solids and how these properties influence the behavior, handling and processability of biological solids.

BSEN 5250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. LAB. 2. Pr. MATH 2650. Modeling of biosystems, methods to deal with complexity, and validation tools.

BSEN 5260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Application and use of renewable energy in biological, food, forest and agricultural systems including bioenergy, solar energy, wind power and geothermal. Departmental approval. May count either BSEN 5260 or BSEN 6260.

BSEN 5270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Pr. BIOL 3200 and (CHEM 1040 or CHEM 1120). Or with the consent of the instructor. Introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries.

BSEN 5280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 1. Pr. BSEN 2240 and BSEN 3310. Introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 5510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities. Departmental approval. May count either BSEN 5510 or BSEN 6510.

BSEN 5520 WATERSHED MODELING (3) LEC. 3. Pr. BSEN 3230. Modeling of non-point source pollution at watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants. Departmental approval. May count either BSEN 5520 or BSEN 6520.

BSEN 5540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 1040 or CHEM 1120) and MATH 2650 and BSEN 3310. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 5560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230 or (CIVL 3110 and CIVL 3010). Development of student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts. Departmental approval. May count either BSEN 5560 or BSEN 6560.

BSEN 5570 COASTAL ECOLOGICAL ENGINEERING (3) LEC. 1. LAB. 4. Pr. BSEN 3310. Fundamentals of coastal processes and engineering and also provide an introduction to modeling the flow of water in coastal systems

BSEN 6220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 6230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Coreq. BSEN 3230. Introduction to the animal waste management problems of confined production systems and characterization of animal waste types. Design of biological treatment and processing systems.

BSEN 6240 BULK BIOLOGICAL SOLIDS BEHAVIOR, HANDLING AND PROCESSING (3) LEC. 3. Understanding of the properties of bulk solids and how these properties influence the behavior, handling and processing ability of biological bulk solids.

BSEN 6250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Modeling of biosystems, methods to deal with complexity, and validation tools.

BSEN 6260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Application and use of renewable energy in biological, food forest and agricultural systems including biomass and bioenergy, solar energy, wind power and geothermal.

BSEN 6270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Department/instructor approval. An introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries. May count either BSEN 5270 or BSE 6270.

BSEN 6280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. This course introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 6510 ECOLOGICAL ENGINEERING (3) LEC. 3. Departmental approval. The course introduces students to ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities.

BSEN 6520 WATERSHED MODELING (3) LEC. 3. Departmental approval. The course covers modeling of non-point source pollution at the watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants.

BSEN 6540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 6560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. The course is designed to develop student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts.

BSEN 6570 COASTAL ECOLOGICAL ENGINEERING (3) LEC. 1. LAB. 4. Fundamentals of coastal processes and engineering. Introduction to modeling the flow of water in coastal systems.

BSEN 7110 FUNDAMENTALS OF INSTRUMENTATION FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Students will gain an understanding of the fundamentals of sensing and sensors, simple digital electronics and measurement circuits, introductory digital signal processing, and computer data acquisition. They will be required to build and test instrumentation to collect data on biological systems that might include fluid flow, pressure, force, or other transducers.

BSEN 7140 ALGAE SYSTEMS ENGINEERING (3) LEC. 2. LAB. 1. This course is a study of engineered systems for cultivating algae for various uses in society. To develop an understanding of engineering principles applied to growing, cultivating, and producing algal biomass for a number of applications, study into the biology, physiology, and ecology of algae and similar species will be a major part of the course. Departmental Approval.

BSEN 7510 INTRODUCTION TO LAND AND WATER ENGINEERING (3) LEC. 3. This course aims at equipping students with the engineering tools and knowledge needed for advanced courses in land and water engineering.

BSEN 7520 INTRODUCTION TO FLUVIAL GEOMORPHOLOGY (3) LEC. 3. Pr. BSEN 3230. This course provides an overview of stream geomorphology as it relates to natural stream physical processes.

BSEN 7900 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in biosystems engineering at the graduate level. Pr., Course may be repeated with change in topics.

BSEN 7950 SEMINAR (1) SEM. SU. Reviews and discussions of research techniques, current scientific literature, and recent developments in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 7970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) AAB. Departmental approval. Individual or small group study of an advanced specialized area in biosystems engineering at the graduate level. Course may be repeated with change in topics.

BSEN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BSEN 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Building Science - BSCI

Courses

BSCI 1100 INTRODUCTION TO CONSTRUCTION (3) LEC. 3. Introduction to construction industry and education, current issues, and career opportunities.

BSCI 2200 CONSTRUCTION DOCUMENTS (3) LEC. 2. LAB. 3. Pr. BSCI 2300. Reading and interpreting working drawings, specifications, shop drawings, and digital 3D models for use in estimating and administrating various types of construction projects.

BSCI 2300 CONSTRUCTION METHODS AND MATERIALS (3) LEC. 3. Materials, methods and construction equipment used in the construction of buildings.

BSCI 2400 STRUCTURE OF BUILDINGS I (3) LEC. 3. Pr. (PHYS 1500 or PHYS 1600) and (MATH 1610 or MATH 1150 or (MATH 1120 and MATH 1130)). Principles of mechanics and materials behavior related to building structures. Includes force systems, frame analysis, gravity load tracing, wind and seismic resistance for concrete and steel buildings.

BSCI 3200 CONSTRUCTION COMMUNICATION (3) LEC. 3. Overview of communication skills and tools required to succeed as a construction manager. Oral communication, written communication, ethics, visual literacy, and video capture in the context of construction risk management.

BSCI 3300 FIELD SURVEYING (2) LEC. 1. LAB. 6. Surveying techniques, construction layout, use of equipment, and dimensional controls for buildings. Surveying camp, a concentrated, 10 working day course held during breaks.

BSCI 3400 STRUCTURES FOR ARCHITECTS II (3) LEC. 3. Pr. BSCI 2400. Primary and secondary member design, connection design, temporary bracing/shoring, and steel shop drawing review.

BSCI 3440 STRUCTURE OF BUILDINGS II (3) LEC. 3. Pr. BSCI 2400. Principles of static equilibrium and materials behavior related to building structures. Includes force systems, frame analysis, section properties, stress, basic design of structural elements in buildings.

BSCI 3450 STRUCTURES FOR ARCHITECTS III (3) LEC. 3. Pr. BSCI 3400. Introduction to the design of reinforced concrete and related formwork including beams, columns, slabs, footings, retaining walls, and pre-stressed members.

BSCI 3500 CONSTRUCTION AND INFORMATION TECHNOLOGY I (3) LEC. 2. LAB. 2. To explore, discover and create applications of information communication technology (ICT) for Construction Processes.

BSCI 3600 ESTIMATING AND COSTING (4) LEC. 3. LAB. 3. BSCI Major. Introduction to construction estimating for CSI Divisions 1-33. Students perform quanity take-of (QTO), pricing, and preparation for a commercial construction project using computer-based techniques.

BSCI 3660 PRECONSTRUCTION AND PROJECT MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BSCI 3600. Project(s) simulation as a context to discuss, negotiated procurement, pre-construction services in the alternative delivery environment and construction phase management procedures.

BSCI 3700 CONSTRUCTION SAFETY (3) LEC. 3. Construction safety, including OSHA guidelines, accident investigation, and the creating of construction safety plans and worker training program.

BSCI 3800 CONTRACTING BUSINESS (4) LEC. 4. Pr. BSCI 3600. Construction-specific look at the business functions associated with the industry; includes organizational structures, construction finance, risk analysis, construction contracts, project delivery, and associated documents with these functions.

BSCI 4200 RESIDENTIAL CONSTRUCTION (3) LEC. 3. Provides an overview of residential construction and development practices and professional issues including: local ordinances and codes, land use law, financing practices, architect-builder relationship, spec homes vs. custom homes, etc.

BSCI 4300 PRINCIPLES OF CONSTRUCTION & DESIGN (3) LEC. 3. Provides a basic overview of the design and construction process with a focus on project planning and management practices which relate to interactions between thearchitect, constructor, and project developer. Includes: aspects of the roles and responsibilities of the designer and contractor, design process, pre-construction and construction phase contractor activities.

BSCI 4350 CONSTRUCTION PROJECT ANALYSIS (3) LEC. 3. Pr. BSCI 3660. Analysis of methods, materials and equipment used to construct projects. Methods used to assure the quality of construction projects.

BSCI 4360 SERVICE LEARNING IN CONSTRUCTION (2-3) LEC. 2. LAB. 2. Pr. BSCI 3700 and BSCI 3660. Application of Construction Management-relevant knowledge to real-life situations through active participation in a directed community service experience. Course may be repeated for a maximum of 3 credit hours.

BSCI 4410 PROBLEMS IN CONSTRUCTION MEANS AND METHODS (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Solving challenging problems encountered in construction processes, including form work, scaffolding, framing, steel erection, rigging, lifting, safety,and site management.

BSCI 4420 MANAGEMENT FOR CONSTRUCTION SUPERINTENDENTS (3) LEC. 1. LAB. 4. Pr. BSCI 3660. Senior Standing in Building Science. Development of expanded management strategies for construction superintendents including field conditions analysis, direction of tradesmen, communication skills, and project hoisting and equipment.

BSCI 4500 INFORMATION AND COMMUNICATION TECHNOLOGY FOR CONSTRUCTION II (3) LEC. 2. LAB. 2. To recognize, experiment and practice the applications of advanced information and communication technology (ICT) for Construction Processes.

BSCI 4610 SCHEDULING AND FIELD OPERATIONS (4) LEC. 4. Pr. BSCI 3660. The third of a sequence of three project controls classes; an in-depth study of construction project sequencing and scheduling, jobsite cost control measures, construction cash flow analysis, and a variety of leadership and management issues associated with field operations.

BSCI 4700 MECHANICAL SYSTEMS IN BUILDINGS (3) LEC. 2. LAB. 2. Pr. BSCI 3500 and BSCI 3600. Overview of the plumbing and mechanical systems of buildings. Basic design, sustainability concepts, systems, installation and testing are covered.

BSCI 4710 MECHANICAL CONSTRUCTION ESTIMATING AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BSCI 4700. Advance study of mechanical construction industry. Study and application of design principles, estimating and management techniques used in the industry.

BSCI 4750 ELECTRICAL SYSTEMS IN BUILDINGS (3) LEC. 3. Pr. BSCI 3500. Electrical systems commonly used in buildings; basic theory and design concepts, with emphasis on lighting and electrical distribution equipment and its installation.

BSCI 4850 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Pr. BSCI 3660. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages, and dispute resolution.

BSCI 4860 ADVANCED CONSTRUCTION INFORMATION TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Exploration and creation of advanced applications of Information and Communication Technology (ICT) for planning, decision making, projects monitoring, and controls.

BSCI 4870 CONSTRUCTION HISTORY (3) LEC. 3. Survey of historic construction projects to analyze how and why buildings and structures were constructed in the way they were.

BSCI 4880 CONSTRUCTION EQUIPMENT MANAGEMENT (3) LEC. 3. Pr. BSCI 3660. Construction equipment management and ownership. Equipment acquisition and disposition options, production costs and productivity, cost analysis and control, management staffing and responsibilities.

BSCI 4890 LEAN CONSTRUCTION PRINCIPLES AND PRACTICES (3) LEC. 3. Pr. BSCI 3660. This course provides an understanding of lean construction principles involving lean design, assembly, supply, production and work processes.

BSCI 4960 SPECIAL PROBLEMS (1-6) IND. Special problems in construction topics. Course may be repeated for a maximum of 6 credit hours.

BSCI 4990 BUILDING SCIENCE THESIS (4) LAB. 12. Individual project demonstrating mastery of curriculum content through the application of skills/knowledge to a theoretical construction company and project. Requires a written thesis and oral defense of work.

BSCI 5430 SITE & EARTHWORK CONSTRUCTION (3) LEC. 3. Pr. BSCI 3660. This course provides a general overview of means and methods associated with sitework-related construction through evaluation of Earthwork Operations, Equipment Selection and Productivity, Optimizing crew and productivity, Cost Estimating, Risks related Sitework-Related Projects, Concrete Construction, Erosion and Sediment Control, and an overview of Bridge and Highway Construction.

BSCI 5450 BUILDING GREAT STRUCTURES (3) LEC. 3. Departmental approval. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 5460 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Pr. BSCI 3660. Departmental approval. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. May count either BSCI 5460 or BSCI 6460.

BSCI 5470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 3. Departmental consent. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 5810 SERVICE LEARNING IN CONSTRUCTION MANAGEMENT - STUDY ABROAD OR STUDY AWAY (3) LEC. 1. LAB. 4. Pr. BSCI 3700. Departmental approval. Application of Construction Management-relevant knowledge to real-life situations through active participation in a directed community service experience at an international or domestic location. Repeatable with instructor permission.

BSCI 5830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 5840 MULTI-CULTURAL ISSUES IN CONSTRUCTION (3) LEC. 3.

BSCI 5920 INTERNSHIP IN CONSTRUCTION MANAGEMENT (0) INT. SU. Professional work experience in a construction management position. Students participating in BSCI 5920/6920 are expected to work in a full-time, 40 hour/week, construction management job. Course may be repeated for a maximum of 10 credit hours.

BSCI 5960 SPECIAL PROBLEMS (1-6) AAB. Departmental approval. Special problems in construction topics. Offered only at the discretion of the department head. Course may be repeated for a maximum of 6 credit hours.

BSCI 5970 SPECIAL TOPICS IN CONSTRUCTION (1-3) AAB. 1-3. Departmental approval. Special topics in construction focuses on topics in Building Science that are in addition to the regular curriculum. Offered only at the discretion of the department head. Course may be repeated for a maximum of 6 credit hours.

BSCI 6430 SITE & EARTHWORK CONSTRUCTION (3) LEC. 3. Pr. BSCI 7020. This course provides an overview of sitework-related construction through evaluation of Earthwork Operations, Equipment Selection and Productivity, Optimizing crew and productivity, Cost Estimating, Risks related Sitework-Related Projects, Concrete Construction, Erosion and Sediment Control, and an overview of Bridge and Highway Construction.

BSCI 6450 BUILDING GREAT STRUCTURES (3) LEC. 3. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 6460 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Departmental approval. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. May count either BSCI 5460 or BSCI 6460.

BSCI 6470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 3. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 6810 SERVICE LEARNING IN CONSTRUCTION MANAGEMENT - STUDY ABROAD OR STUDY AWAY (3) LEC. 1. LAB. 4. Pr. BSCI 7020. Departmental approval. Application of Construction Management-relevant knowledge to real-life situations through active participation in a directed community service experience at an international or domestic location. Repeatable with instructor approval. Must complete Construction Safety elective course prior to taking this course. Course may be repeated for a maximum of 6 credit hours.

BSCI 6830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 6840 MULTI-CULTURAL ISSUES IN CONSTRUCTION LABOR (3) LEC. 3.

BSCI 6920 INTERNSHIP IN CONSTRUCTION MANAGEMENT (0) INT. SU. Professional work experience in a construction management position. Students participating in BSCI 5920/6920 are expected to work in a full-time, 40 hour/week, construction management job. Course may be repeated for a maximum of 10 credit hours.

BSCI 6960 SPECIAL PROBLEMS IN CONSTRUCTION (1-5) AAB. Departmental approval. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 5 credit hours.

BSCI 6970 SPECIAL TOPICS IN CONSTRUCTION (1-3) AAB. Departmental approval. Special topics in construction focuses on topics in Building Science that are in addition to the regular curriculum. Course may be repeated for a maximum of 3 credit hours.

BSCI 7010 CONSTRUCTION LABOR AND PRODUCTIVITY (3) LEC. 3. Departmental approval. Construction labor issues, productivity measurement, and productivity improvement in the construction industry. Includes reading, research, and an out of class project.

BSCI 7020 INTEGRATED BUILDING PROCESSES I (3) LEC. 3. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability.

BSCI 7030 CONSTRUCTION INFORMATION MANAGEMENT (3) LEC. 3. Applications of advanced information technology in construction.

BSCI 7040 INTEGRATED BUILDING PROCESSES II (3) LEC. 3. Departmental approval. Construction project delivery, from pre-construction service through ownership. Topics include project management, pre-construction services, pre-planning, procurement, site utilization, subcontracts, commissioning, closeout, building operation, and long-term ownership.

BSCI 7050 EXECUTIVE ISSUES IN CONSTRUCTION (3) LEC. 3. Construction industry executives will present 6 to 10 topics that represent a cross-section of significant management issues.

BSCI 7060 RESEARCH METHODS IN BUILDING SCIENCE (3) LEC. 3. A study of the academic research process, with an emphasis on defining research problems in construction and the development of a research proposal.

BSCI 7100 GRADUATE ELECTIVE IN PROJECT MANAGEMENT: PROJECT MANAGEMENT AND SCHEDULING (3) LEC. 3. This course develops advanced student knowledge and skills in construction business facets such as delivery, contracts and financial management; and develops tactile skills in producing advanced construction schedules in current software applications. Credit will not be given for both BSCI 7100 and BSCI 7106. Course may be repeated with change in topics.

BSCI 7110 CONSTRUCTION CONTRACTING BUSINESS (3) LEC. 3. Business functions associated with construction industry; organizational structure, construction finance; risk analysis, construction contracts, project delivery, and associated documents. Admission to Certificate in Construction Management.

BSCI 7120 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages and dispute resolution. Admission to Certificate in Construction Management.

BSCI 7130 BUILDING CONSTRUCTION SUSTAINABILITY (3) DSL. Students must be admitted to the Executive Technical Certificate in Construction Management. The role of sustainable practices & processes in the construction industry. Role of built environment in consuming resources. Minimizing construction waste. Standards for sustainable construction.

BSCI 7140 STRUCTURAL SYSTEMS OF BUILDINGS (3) LEC. 3. Students must be admitted to the Executive Technical Certificate in Construction Management. Role of structural systems of buildings. Forces in buildings. Temporary structures in construction. Common failure models of structures.

BSCI 7150 HEAVY CIVIL CONSTRUCTION (3) LEC. 3. Students must be admitted to the Executive Integrated Processes Certificate in Construction Management. Principles of heavy civil construction including budget, planning, excavation, haul, equipment, temporary structures and types of projects involved.

BSCI 7200 ELECTIVES IN CONSTRUCTION LABOR (3) LEC. 3. Departmental approval. Special course offerings related to construction labor topics. Course may be repeated with change in topic.

BSCI 7300 ELECTIVES IN INFORMATION TECHNOLOGY AND INNOVATION (3) LEC. 3. Departmental approval. Special course offerings related to information technology, innovation, and robotics in construction. Course may be repeated with change in topic.

BSCI 7900 DIRECTED READING IN CONST (1-3) IND. Departmental approval. Individually proposed exploration of a construction industry related topic not covered in existing course offerings. Students must prepare a written proposal of the topic. Course may be repeated for a maximum of 3 credit hours.

BSCI 7950 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability. Course may be repeated for a maximum of 3 credit hours.

BSCI 7980 CAPSTONE PROJECT (3) LAB. 6. Departmental approval. Independent exploration of an approved topic with final written report of findings and an oral defense of the work. Specific capstone project requirements are established by the supervising committee and vary based on the chosen topic.

BSCI 8060 ADVANCED RESEARCH METHODS IN BUILDING SCIENCE-I (3) LEC. 3. Current areas and topics of research in building construction, study of academic research process, defining a research problem, develop effective search and analytical evaluation skills of published literature, analyze research products and write a comprehensive review of literature, and understand ethical principles and methods to successfully carry out research projects. The course is designed to provide a comprehensive introduction to the doctoral research process and methods used in building construction research.

BSCI 8070 ADVANCED RESEARCH METHODS IN BUILDING SCIENCE-II (3) LEC. 3. A study of the practical skills necessary to produce and disseminate doctoral level research in Building Construction. The course is designed to provide comprehensive knowledge about research design and selecting an appropriate methodology, qualitative, quantitative and mixed data collection and analysis methods appropriate for Building Construction research, research validation techniques, and technical writing strategies appropriate for a PhD dissertation.

BSCI 8950 DISSERTATION SEMINAR (1) LEC. 1. Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking; and preparation of students to develop pedagogical skills. Departmental Permission Required. Course may be repeated for a maximum of 6 credit hours.

BSCI 8990 RESEARCH AND DISSERTATION (1-10) LEC. 1-10. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

Business Administration - BUSI

Courses

BUSI 1010 PROFESSIONAL AND CAREER DEVELOPMENT IN BUSINESS I (1) LEC. 1. Introduction to career readiness including exploration and discovery of career interests and values, with an emphasis on personal and professional development opportunities that enhance career preparedness.

BUSI 1040 FINANCIAL WELLNESS (3) LEC. 3. This course gives students an understanding of relevant personal finance topics and the tools needed to plan and execute their financial goals. The course covers topics currently relevant to college students as well as those that will have long-term implications for careers and retirement. The course is designed to be accessible and relevant to all students regardless of major.

BUSI 2010 PROFESSIONAL AND CAREER DEVELOPMENT IN BUSINESS II (1) LEC. 1. Articulation and creation of personal branding through learning job search essentials including resumes, cover letters, social media, interviewing, networking, and internships.

BUSI 2100 ORAL COMMUNICATION FOR BUSINESS (1) LEC. 1. Theories and techniques of strong oral communication skills, with real-world applications for business.

BUSI 2900 DIRECTED STUDIES (1-3) AAB/IND. SU. Independent study option for freshmen and sophomores in the College of Business for students who seek general or free elective credit. Course may be repeated for a maximum of 3 credit hours.

BUSI 3010 PROFESSIONAL DEVELOPMENT IN BUSINESS III (1) LEC. 1. Pr. P/C BUSI 2010. Preparation for conducting an intern/career position job search. Develop career planning and job search skills.

BUSI 3250 INTERNATIONAL BUSINESS (3) LEC. 3. Beginning with a foundation in the movement of goods, services, people, money, technology, and information across borders students will learn how culture, social issues, economic, regulatory, legal and political factors impact businesses and consumers alike. A running theme will be the diversity of environments and people that impact international business.

BUSI 3257 INTERNATIONAL BUSINESS (3) DSL/LEC. Beginning with a foundation in the movement of goods, services, people, money, technology, and information across borders students will learn how culture, social issues, economic, regulatory, legal and political factors impact businesses and consumers alike. A running theme will be the diversity of environments and people that impact international business.

BUSI 3500 LEADERSHIP IN ENGINEERING & BUSINESS THEORY (4) LEC. 3. LAB. 3. This class investigates the challenges of integrating engineering design with business requirements as they related to product innovation. Specific focus is placed on strategic planning and leadership needs to successfully steer product ideas into business reality. Case study problems from business and engineering practice.

BUSI 3510 PRODUCT INNOVATION: FROM CONCEPT TO PRODUCTION (4) LEC. 3. LAB. 2.33. Pr. BUSI 3500 and BUSI 3520 and BUSI 3560. This course takes students on a journey from conceptualization (concept) to production to market (production). Students are introduced to the basics of modern computer-aided design (CAD), classic manufacturing processes, and design tools. They will learn how to use Fusion 360 to create 2D and 3D models, as well as how to use CAD to generate concepts, conduct market research, benchmark designs, and create prototypes. Students will also learn about classic manufacturing processes such as casting. Department approval.

BUSI 3560 LEADERSHIP FOR BUSINESS AND ENGINEERS (1) LEC. 1. Overview of leadership concepts and skills.

BUSI 4010 PROFESSIONAL AND CAREER DEVELOPMENT IN BUSINESS IV (1) LEC. 1. Execution of career readiness concepts, integrating ethical leadership and decision making in order to assist in the transition from the classroom to the workforce.

BUSI 4920 BUSINESS INTERNSHIP (1-3) AAB/INT. SU. Internship option for students to gain work experience who seek general or free elective credit. Approval of instructor prior to internship, and completion of or current enrollment in two or more of the following: ACCT 2110, ECON 2020, ECON 2030, FINC 3610, MNGT 3100, or MKTG 3310. Course may be repeated for a maximum of 3 credit hours.

BUSI 4970 SPECIAL TOPICS IN BUSINESS (3) LEC. 3. Coreq. BUSI 4540. A special topics course to encompass a variety of interdisciplinary business topics. Course may be repeated for a maximum of 6 credit hours.

BUSI 5500 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. (BUSI 3500 or BUSI 3520) and BUSI 3560 and BUSI 3510. Acceptance into the BET minor program. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products and processes that influence the competitiveness of the firm. Department approval.

BUSI 5510 BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 6. Pr. (BUSI 3500 or BUSI 3520) and BUSI 3560 and BUSI 3510 or BUSI 5500 or ENGR 6500. Department approval. Must be admitted to BET minor. You will be required to apply everything you've learned in the Business Engineering Technology minor to deliver a “fully realized” working product along with supporting project documentation.

BUSI 5550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Must be enrolled in BET minor. Processes to develop and present design proposal for cooperating industry.

BUSI 5600 INTERNATIONAL ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. BUSI 3500 or BUSI 3520 and BUSI 3560 and BUSI 3510. Department approval. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products, and processes that influence the firm's competitiveness. The main emphasis of this course will be on the process of commercializing an innovation - bringing the innovation to market via the creation of a company. Must be enrolled in the Business-Engineering-Technology minor and participating in the International BET.

BUSI 5610 INTERNATIONAL BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 4. Pr. (BUSI 3500 or BUSI 3520) and BUSI 3560 and BUSI 3510 and BUSI 5600 or ENGR 6600. Department approval. Must be admitted to International BET minor. This course is intended to immerse the student in the new product design and development experience. Students will work directly with international companies and fellow international students to generate working prototypes that offer solutions. Students are expected to develop a successful new product development plan and execute all necessary activities to bring a functional prototype to life by semester's end. Specific focus is placed on creative product ideas.

BUSI 7110 FINANCIAL ANALYSIS (3) LEC. 3. Departmental approval. Integrated course combining financial accounting and corporate finance for MBA students.

BUSI 7120 QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS (3) LEC. 3. Departmental approval. Integrated course in statistical methods and management science for MBA students.

BUSI 7130 STRATEGIC ANALYSIS AND THE COMPETITIVE ENVIRONMENT (3) LEC. 3. Departmental approval. Integrated course covering business strategy and the external environment in a global context.

BUSI 7140 ORGANIZATIONAL LEADERSHIP, ETHICS AND CHANGE (3) LEC. 3. Integrated course covering individual and group behavior in organizations, effective team building, motivation, and communications, ethical behavior, and leading organizations through change. May count either BUSI 7140 or BUSI 7146.

BUSI 7150 OPERATIONAL EXCELLENCE THROUGH SUPPLY CHAIN AND QUALITY MANAGEMENT (3) LEC. 3. An examination of the strategic roles of supply chain and quality management in the creation of outstanding product and service operations. Departmental approval. May count either BUSI 7150 or BUSI 7156.

BUSI 7160 ADVANCED PROFESSIONAL DEVELOPMENT (1) LEC. 1. This course prepares students for career success by focusing on self-assessment, industry/job/company research, personal brand identification, resumes and cover letters, interviewing, career and company research, presentation skills, and benefits and negotiation. Course may be repeated for a maximum of 3 credit hours.

BUSI 7210 STRATEGIC MARKETING MANAGEMENT (3) LEC. 3. Departmental approval. Covers key aspects of marketing, including product, pricing, distribution, and promotion strategies. Emphasis is placed on marketing analysis and strategy development.

BUSI 7220 INFORMATION TECHNOLOGY FOR COMPETITIVE ADVANTAGE (3) LEC. 3. Examines the strategic role information technology plays in influencing competitive advantage. Departmental approval. May count either BUSI 7220 or BUSI 7226.

BUSI 7230 COST ANALYSIS AND SYSTEMS (3) LEC. 3. Departmental approval. Integrates production and cost theory from economics with managerial and cost accounting theory and systems for MBA

BUSI 7250 INTERNATIONAL BUSINESS OPERATIONS (3) AAB. Departmental approval. Examines the economic, financial, legal, political, social, and cultural factors impacting international business operations. Participation in a specified global experience is a requirement of this course.

BUSI 7310 INTEGRATED BUSINESS PROJECT AND CASE ANALYSIS (3) LEC. 3. Integrates knowledge gained from MBA classes and applies that knowledge to address actual business problems. May count either BUSI 7310 or BUSI 7316.

BUSI 7920 MBA INTERNSHIP (0-6) DSL. SU. Departmental approval. Internship for MBA students in business organizations. Course may be repeated for a maximum of 6 credit hours.

BUSI 7970 SPECIAL TOPICS IN BUSINESS ADMINISTRATION (1-3) AAB. Departmental approval. Specialized topics in business administration not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

Business Analytics - BUAL

Courses

BUAL 2600 BUSINESS ANALYTICS I (3) LEC. 3. Pr. (MATH 1610 or MATH 1617 or MATH 1680 or MATH 1683). Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results.

BUAL 2650 BUSINESS ANALYTICS II (3) LEC. 3. Pr. BUAL 2600 or STAT 2610 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 3010 or STAT 2513. A second course in quantitative analysis in business including statistical inference, classification analysis, predictive modeling, forecasting, introduction to data mining.

BUAL 3010 PROFESSIONAL DEVELOPMENT IN BUSINESS ANALYTICS (1) LEC. 1. SU. Pr. P/C BUAL 2650. Career planning and preparation for employment as an analytics professional.

BUAL 3100 INTRODUCTION TO ARTIFICIAL INTELLIGENCE (3) LEC. 3. Pr. BUAL 2600. This course introduces business students to the foundational concepts of Artificial Intelligence (AI) and its applications in business environments. It focuses on how AI technologies like machine learning, natural language processing, and data analytics drive innovation and enhance decision-making. Students will explore real-world business applications of AI, covering topics such as automation, predictive analytics, customer service, and AI-driven strategy. The course is designed to

BUAL 4910 PRACTICUM (1-3) PRA. SU. Supervised practical application of business analytics theory and methods. Course may be repeated for a maximum of 3 credit hours.

BUAL 4920 BUSINESS ANALYTICS INTERNSHIP (1-3) INT. SU. Pr. BUAL 3010. The internship program represents an opportunity for students to be exposed to analytics environments first-hand and to integrate this experience with their formal education. The practical nature of the internship facilitates the educational process and provides valuable work experience. Departmental approval required. Course may be repeated for a maximum of 3 credit hours.

BUAL 5500 BUSINESS DATA MANAGEMENT AND ACQUISITION (3) LEC. 3. Pr. BUAL 2600 and P/C BUAL 3010. Management and governance of the big data environment that is necessary to support extracting, merging, and preparing large data sets for analysis.

BUAL 5600 PRINCIPLES OF PREDICTIVE MODELING (3) DSL/LEC. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

BUAL 5610 PREDICTIVE MODELING FOR BUSINESS DECISIONS (3) DSL/LEC. Pr. BUAL 2650 and (BUAL 5500 or BUAL 5650). Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. Credit will not be given for both BUAL 5610 and BUAL 6610/6616.

BUAL 5660 DESCRIPTIVE ANALYTICS FOR BUSINESS DECISIONS (3) LEC. 3. Pr. BUAL 5500 or BUAL 5650. Advanced topics in big data management, with emphasis on various technical environments used in the big data environment. Credit will not be given for both BUAL 5660 and BUAL 6660/6666.

BUAL 5700 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650. Advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6706.

BUAL 5710 ADVANCED DATA AND TEXT ANALYTICS (3) LEC. 3. Pr. (BUAL 5700 or BUAL 6700 or BUAL 6706) and (P/C BUAL 5660 or P/C BUAL 6660 or P/C BUAL 6666). This course covers advanced approaches used for writing crawlers and spiders, text analytics, sentiment analysis, social media analytics, network analytics, and deep learning for solving business and organizational problems. The course provides conceptual and hand-on understanding of such state-of-art analytics approaches using various python libraries. Knowledge of python programming is necessary to do well in the course.

BUAL 5800 DATA VISUALIZATION (3) LEC. 3. Pr. BUAL 2650. The course will focus on learning the challenges of big data and how effectively utilizing data visualization techniques can help with decision-making. The course will cover the principles of effective visualization designs as well as get hands-on experience with developing dashboards and presenting analysis in other visual formats.

BUAL 5850 FOUNDATIONS OF SPORTS ANALYTICS (3) LEC. 3. Pr. BUAL 2650. This course provides an introduction to analyzing and representing sports data. Students will learn how to develop narratives about team and player performance. Students will also learn various techniques that are suitable for analyzing sports data. Examples will be used from various sports to generate results that can explain outcomes.

BUAL 5860 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 5610 and BUAL 5660. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 5900 DIRECTED STUDIES (1-3) IND. SU. Faculty led individualized or group-oriented in-depth study of a topic in business analytics. May include literary research, algorithm development, programming, data analysis, or a combination of these. Course may be repeated for a maximum of 6 credit hours.

BUAL 5960 SPECIAL PROBLEMS (3) DSL. This course may be either a self-learning course or a lecture course designed to enhance the student's knowledge of a selected topic. If self-learning, the course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the course objectives. Course may be repeated for a maximum of 6 credit hours.

BUAL 6600 PRINCIPLES OF PREDICTIVE MODELING (3) DSL/LEC. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

BUAL 6610 PREDICTIVE MODELING FOR BUSINESS DECISIONS (3) DSL/LEC. Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. Credit will not be given for both BUAL 5610 and BUAL 6610/6616.

BUAL 6650 BUSINESS DATA MANAGEMENT AND ACQUISITION (3) LEC. 3. Managing, governing, extracting, merging, and preparing large data sets for analysis.

BUAL 6660 DESCRIPTIVE ANALYTICS FOR BUSINESS DECISIONS (3) LEC. 3. Advanced topics in big data management, with emphasis on loading and cleansing the data for analysis. May count either BUAL 5660 or BUAL 6660/6666.

BUAL 6700 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650 or ISMN 6650 or ISMN 6656. This course covers advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6.

BUAL 6710 ADVANCED DATA AND TEXT ANALYTICS (3) LEC. 3. Pr. (BUAL 5700 or BUAL 6700 or BUAL 6706) and (P/C BUAL 5660 or P/C BUAL 6660 or P/C BUAL 6666). This course covers advanced approaches used for writing crawlers and spiders, text analytics, sentiment analysis, social media analytics, network analytics, and deep learning for solving business and organizational problems. The course provides conceptual and hand-on understanding of such state-of-art analytics approaches using various python libraries. Knowledge of python programming is necessary to do well in the course.

BUAL 6800 DATA VISUALIZATION (3) DSL. This course is designed as a graduate level class in which graduate students will learn the various elements and techniques of data visualization. The focus of the course will be to learn the challenges of big data and how effective utilization of data visualization techniques can help with decision making. Course will cover the principles of effective visualization designs as well as get hands on experience with developing dashboards and present analysis in other visual formats.

BUAL 6850 FOUNDATIONS OF SPORTS ANALYTICS (3) DSL/LEC. This course provides an introduction to analyzing and representing sports data. Students will learn how to develop narratives about team and player performance. Students will also learn various techniques that are suitable for analyzing sports data. Examples will be used from various sports to generate results that can explain outcomes.

BUAL 6860 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 6610 or BUAL 6616. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 6900 DIRECTED STUDIES (3) IND. 3. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

BUAL 6960 SPECIAL PROBLEMS (3) IND/LEC. 3. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

BUAL 7000 INTRODUCTION TO ARTIFICIAL INTELLIGENCE (3) DSL/LEC. This course introduces business students to the foundational concepts of Artificial Intelligence (AI) and its applications in business environments. It focuses on how AI technologies like machine learning, natural language processing, and data analytics drive innovation and enhance decision-making. Students will explore real-world business applications of AI, covering topics such as automation, predictive analytics, customer service, and AI-driven strategy. The course is designed to help students understand practical AI applications

Career and Technical - CTCT

Courses

CTCT 2100 POWER EQUIPMENT TECHNOLOGY (3) LEC. 2. LAB. 3. Repair and maintenance of small air-cooled engines and power equipment in Agriculture. May count either CTCT 2100 or CTCT 3100.

CTCT 2200 COMPUTER LITERACY IN BUSINESS EDUCATION (3) LEC. 1. LAB. 4. Advanced formatting, processing, and evaluation of business correspondence, as well as administrative and employment documents. Includes basic computer literacy skills. May count either CTCT 2200 or CTCT 2203.

CTCT 3000 LEADERSHIP SKILLS FOR PERSONAL AND ORGANIZATIONAL DEVELOPMENT (3) LEC. 3. Organizational and leadership skills needed to become successful professionals in work or community activities; skills and strategies for conducting efficient meetings.

CTCT 3250 INFORMATION ANALYSIS (3) LEC. 3. Decision-making and business problem solving using microcomputer software applications including spreadsheets, database management programs, and operating systems. May count either CTCT 3250 or CTCT 3253.

CTCT 4000 CLASSROOM/LABORATORY MANAGEMENT, ORGANIZATION AND EVALUATION IN CAREER AND TECHNICAL EDUCATION (2) LEC. 2. Admission to Teacher Education. Organization, objectives, principles, management, and evaluation of career and technical education classrooms, laboratories, and programs. May count either CTCT 4000 or CTCT 4003.

CTCT 4030 CAREER AND TECHNICAL STUDENT ORGANIZATIONS (3) LEC. 3. Survey of career and technical student organizations; procedures involved in developing and implementing informal and co-curricular educational programs for students and preparing students for state and national competitions.

CTCT 4140 AGRICULTURAL STRUCTURE AND METAL FABRICATION TECHNOLOGY (3) LEC. 2. LAB. 3. Materials selection and construction procedures for carpentry, concrete, masonry, electricity, plumbing, and metal fabrication.

CTCT 4160 SUPERVISED AGRICULTURAL EXPERIENCE PROGRAMS (2) LEC. 2. Responsibility for SAEP planning, supervision, and evaluation of entrepreneurship, placement, exploratory, analytical, and experimental SAEPs and record books; completing award applications.

CTCT 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. The student's learning efforts are guided toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTCT 4920 CLINICAL RESIDENCY (12) AAB/DSL. 40. SU. Admission to Clinical Residency. Supervised clinical residency experiences abroad in a school or other appropriate setting. Evaluation and analysis of the clinical residency experience. May count either CTCT 4920 or CTCT 4923.

CTCT 4940 DIRECTED FIELD EXPERIENCE IN AREA OF SPECIALIZATION (1-3) DAG/FLD. SU. Supervised occupational work experience in an approved specialization-related occupation. Departmental approval. May count either CTCT 4940 or CTCT 4943. Course may be repeated for a maximum of 3 credit hours.

CTCT 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) DSL. Departmental approval. Current or special topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 5050 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Admission to Teacher Education. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within career and technical education. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 5060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Admission to Teacher Education. Introduction to principles and practices involved in designing education programs in the area of specialization. May count CTCT 5060, CTCT 5063, CTCT 6060, or CTCT 6066.

CTCT 5080 PRINCIPLES OF COORDINATION (3) LEC. 3. Admission to Teacher Education. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080 or 6080.

CTCT 5200 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, systems, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 6200 or CTCT 6200/CTCT 6206.

CTCT 5240 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 5240/CTCT 5243 or CTCT 6240/CTCT 6246.

CTCT 5250 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May Count Either CTCT 3250/CTCT 3253 or CTCT 5250/CTCT 5253 CTCT 6250/CTCT 6256.

CTCT 5260 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/CTCT 6266.

CTCT 5940 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience in a Commerce and Information Technology environment. May count either CTCT 4940/CTCT 4943 or CTCT 5940/CTCT 5943 or CTCT 6940/CTCT 6946.

CTCT 6050 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within the area of specialization. Admission to alternative master's program. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 6060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Introduction to principles and practices involved in designing educational programs in the area of specialization. Admission to alternative master's program. May count CTCT 5060, CTCT 6060, or CTCT 6066.

CTCT 6080 PRINCIPLES OF COORDINATION (3) LEC. 3. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080, CTCT 5083, CTCT 6080, or CTCT 6086.

CTCT 6200 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 5203 or CTCT 6200/CTCT 6206.

CTCT 6240 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 6240/CTCT 62406 or CTCT 5240/5243.

CTCT 6250 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May count either CTCT 6250/CTCT 6256 or CTCT 5250/5253.

CTCT 6260 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/6266.

CTCT 6940 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience and software application in a Commerce and Information Technology environment. May count either CTCT 6940/CTCT 6946 or CTCT 5940/5943.

CTCT 7000 FOUNDATIONS OF CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Philosophical, historical, economic, and sociological perspectives of vocational education in relation to the organization of vocational education programs. May count either CTCT 7000 or CTCT 7006.

CTCT 7010 YOUTH PROGRAM DEVELOPMENT (3) LEC. 3. Developing, managing, and evaluating formal and informal youth education programs; training volunteers for youth development programs; securing and developing supporting resources. Departmental approval. May count either CTCT 7010 or CTCT 7016.

CTCT 7100 TEACHING MECHANICAL TECHNOLOGY (3) LEC. 2. LAB. 2. Theory and practice of managing agricultural mechanics laboratories, theories of machine operation, and maintaining laboratory equipment. May count either CTCT 7100 or CTCT 7106.

CTCT 7120 COURSES OF STUDY IN AGRISCIENCE EDUCATION (3) LEC. 3. Departmental approval. Emerging technologies in agriscience education; principles and procedures of curriculum construction applied to courses of study in agriscience education.

CTCT 7200 CAREER AND OCCUPATIONAL INFORMATION (3) LEC. 3. Trends and issues in occupational structure, job qualifications and requirements, and sources of occupational information for new and emerging occupations; analysis of career education models for students.

CTCT 7240 ADMINISTRATIVE MANAGEMENT (3) LEC. 3. Management of office systems, information and personnel. Managing and controlling administrative services.

CTCT 7300 INTEGRATING TECHNOLOGY IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

CTCT 7400 AGRICULTURAL LITERACY EDUCATION (3) LEC. 3. Theories and application of agricultural literacy related scientific and technologically based concepts and processes required for personal decision making, participating in civic and cultural affairs, and economic productivity.

CTCT 7710 ADVANCED TEACHING METHODS (3) LEC. 3. Analysis of research in theories of teaching and learning, effective teacher characteristics, learning styles, teaching methodologies, and diversity in teaching.

CTCT 7720 ADVANCED PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Issues affecting the development and management of educational programs; strategies for improving educational programs.

CTCT 7730 PROGRAM EVALUATION (3) LEC. 3. Principles and procedures used in evaluating academic- related programs. Alternative approaches to evaluation and practical guidelines for conducting evaluations.

CTCT 7750 ADMINISTRATION OF CAREER AND TECHNICAL EDUCATION (3) DAG. Introduction to concepts, theories and practices related to administration, organizational behavior, and leadership in secondary and post-secondary vocational education programs.

CTCT 7760 COMPREHENSIVE PLANNING IN CAREER AND TECHNICAL EDUCATION (3) LLB. Processes of comprehensive planning for vocational education programs at high school and secondary school levels using local, state, and regional data.

CTCT 7770 CLINICAL SUPERVISION (3) LEC. 3. Theories, concepts, models, and techniques of student teacher and beginning teacher supervision by administrators, school district personnel, and university supervisors. Recommended for individuals who supervise or plan to supervise student teachers.

CTCT 7780 RESEARCH IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Review, analysis and interpretation of research procedures and data with emphasis on designing new research in vocational and adult education.

CTCT 7810 SUPERVISED COLLEGE TEACHING (1) LEC. 1. SU. Departmental approval. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 2 credit hours.

CTCT 7900 DIRECTED STUDIES (1-3) DAG. SU. Departmental approval. Independent learning effort directed toward desired objectives. Includes evaluation at regular intervals by student and professor. Course may be repeated for a maximum of 3 credit hours.

CTCT 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-3) DAG. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 3 credit hours.

CTCT 7920 CLINICAL RESIDENCY (9-12) AAB. 40. SU. Admission to Clinical Residency. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Departmental approval. May count either CTCT 7920 or CTCT 7926. Course may be repeated for a maximum of 12 credit hours.

CTCT 7950 SEMINAR IN AREA OF SPECIALIZATION (1-3) DBU/SEM. SU. Presentation by graduate students of research projects and/or findings. Analysis of procedures and findings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) DAG. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTCT 8730 CURRICULUM DEVELOPMENT IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Principles of career and technical education curriculum planning, identification of educational needs of students, selecting technical content, and evaluating materials.

CTCT 8770 SUPERVISION OF INSTRUCTION (3) LEC. 3. Theories and models to become effective supervisors of vocational and adult education programs; philosophies and styles of supervision used to improve schools, instruction, curriculum and personnel.

CTCT 8800 TEACHER EDUCATION (3) LEC. 3. Emphasis on beliefs, philosophy, issues, research, roles, student selection, curriculum, methodology, internships, organization, and administration of teacher education programs.

CTCT 8810 SUPERVISED COLLEGE TEACHING (1-10) LEC. 3. SU. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 10 credit hours.

CTCT 8900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent learning efforts at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 8910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 6 credit hours.

CTCT 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

CTCT 8950 SEMINAR IN AREA OF SPECIALIZATION (1-6) DSL/SEM. Departmental approval. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 6 credit hours.

CTCT 8960 SPECIAL PROBLEMS (1-6) DSL/IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

CTCT 8970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) DSL. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 8980 FIELD PROJECT (1-10) DAG. 1. SU. Departmental approval. Field project. Course may be repeated for a maximum of 10 credit hours.

CTCT 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated for a maximum of 20 credit hours.

Chemical Engineering - CHEN

Courses

CHEN 1000 CONCEPTS OF CHEMICAL ENGINEERING: THE DESIGN OF COFFEE (3) LEC. 2. LAB. 2. This course is an introduction to chemical engineering concepts and approaches to innovation and problem solving. Qualitative overviews are presented for principles and practices of engineering analysis and design, with corresponding hands-on laboratories applying the concepts to processes for roasting and brewing coffee. The course is intended as a free elective for all majors.

CHEN 1007 HONORS CONCEPTS OF CHEMICAL ENGINEERING: THE DESIGN OF COFFEE (3) LEC. 2. LAB. 2. Pr. Honors College. This course is an introduction to chemical engineering concepts and approaches to innovation and problem solving. Qualitative overviews are presented for principles and practices of engineering analysis and design, with corresponding hands-on laboratories applying the concepts to processes for roasting and brewing coffee. The course is intended as a free elective for all majors.

CHEN 2100 PRINCIPLES OF CHEMICAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. (CHEM 1110 or CHEM 1117 or CHEM 1030 or CHEM 1033) and (MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1600 or PHYS 1607) and (P/C CHEM 1120 or P/C CHEM 1127 or P/C CHEM 1040 or P/C CHEM 1043). Application of multicomponent material and energy balances to chemical processes involving phase changes and chemical reactions.

CHEN 2110 CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3. Pr. CHEN 2100 and (P/C PHYS 1600 or P/C PHYS 1607) and (P/C MATH 2630 or P/C MATH 2633 or P/C MATH 2637) and (P/C CHEN 2650). This course is intended to comprehensively introduce the thermodynamics of single- and multi-phase, pure systems, including the first and second laws of thermodynamics, equations of state, simple processes and cycles, and their applications in chemical engineering. CHEN 2100 requires a grade of C or better.

CHEN 2610 TRANSPORT I (3) LEC. 3. Pr. (PHYS 1600 or PHYS 1607) and CHEN 2100 and P/C MATH 2650 and P/C CHEN 2110. CHEN 2100 requires a grade of C or better. Introduction to fluid statics and dynamics; dimensional analysis; compressible and incompressible flows; design of flow systems, introduction to fluid solids transport including fluidization, flow through process media and multiphase flows.

CHEN 2650 CHEMICAL ENGINEERING APPLICATIONS OF MATHEMATICAL TECHNIQUES (3) LEC. 3. Pr. CHEN 2100 and (P/C MATH 2630 or P/C MATH 2637) and P/C MATH 2650 and (COMP 1200 or COMP 1220 or COMP 1230). CHEN 2100 requires a grade of C or better. CHEN 2610 and MATH 2650 are Prerequisites with Concurrency. Application of a broad range of mathematical techniques to chemical engineering problems. Emphasis on engineering significance and interpretation of mathematical operations.

CHEN 2AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Pr. CHEN 2100. Progress assessment examination in basic science, general chemistry, physics, basic math principles (geometry, algebra), multivariable calculus, chemical engineering process principles (mass and energy balances). CHEN 2100 requires a grade of C or better. Course may be repeated with change in topics.

CHEN 3370 PHASE AND REACTION EQUILIBRIA (3) LEC. 3. Pr. (MATH 2630 or MATH 2633 or MATH 2637) and CHEN 2110 and CHEN 2100 and CHEN 2650. Molecular thermodynamics of phase and chemical reaction equilibria including non-ideal thermodynamics and multicomponent applications. ((ENGR 2010 or CHEN 2110) and CHEN 2100 require a grade of C or better.)

CHEN 3600 COMPUTER-AIDED CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. (COMP 1200 or COMP 1220 or COMP 1230) and MATH 2650 and CHEN 2610 and P/C CHEN 2650 and (MATH 2630 or MATH 2637) and CHEN 2110 and CHEN 2100. CHEN 2650 is prerequisite with concurrency. General and structured programming concepts, numerical methods, and introductory probability and statistics concepts. Application to chemical engineering problems involving material and energy balances and transport process, data validation, and analysis. (CHEN 2100 and (CHEN 2110 or ENGR 2010) and CHEN 2610 all require a grade of C or better.)

CHEN 3620 TRANSPORT II (3) LEC. 3. Pr. CHEN 2110 and CHEN 2610 and MATH 2650 and P/C CHEN 2650. Fundamentals and applications of heat and mass transfer in chemical processes including conduction, convection, and radiation, heat exchange, evaporation, chemical reaction gas absorption, drying and humidification. ((ENGR 2010 or CHEN 2110) and CHEN 2610 require a grade of C or better.)

CHEN 3650 CHEMICAL ENGINEERING ANALYSIS (3) LEC. 2. LAB. 3. Pr. CHEN 2650 and CHEN 3600 and CHEN 3620 and CHEN 2AA0 and MATH 2650 and P/C CHEN 3700. CHEN 2650, CHEN 3600 and CHEN 3620 all require a grade of C or better. Mathematical modeling, analytical, numerical and statistical analysis of chemical processes.

CHEN 3660 CHEMICAL ENGINEERING SEPARATIONS (3) LEC. 3. Pr. CHEN 2100 and CHEN 3370 and CHEN 3620. Separations processes including distillation, extraction, membrane separation, and other separation operations. (CHEN 3370, CHEN 3600, and CHEN 3620 all require a grade of C or better.)

CHEN 3700 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. MATH 2650 and CHEN 2610 and CHEN 2110 and P/C CHEN 3620 and P/C CHEN 3600. Design of chemical reactors with homogeneous reaction systems. CHEN 2610 and (ENGR 2010 or CHEN 2110) require a grade of C or better.

CHEN 3820 CHEMICAL ENGINEERING LABORATORY I (2) LEC. 1. LAB. 3. Pr. CHEN 3600 and CHEN 3620 and MATH 2650. Experimental study of chemical thermodynamics, heat and momentum transfer with analytical, numerical, and statistical analysis. CHEN 3600 and CHEN 3620 require a grade of C or better.

CHEN 3AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr. CHEN 2AA0 and P/C CHEN 3370 and P/C CHEN 3650 and P/C CHEN 3700 and P/C CHEN 3660 and CHEN 2650. Progress assessment examination in thermodynamics, linear differential equations, organic chemistry, transport phenomena (fluid mechanics, heat, mass transfer), phase and reaction equilibria, reaction engineering, design and conduction of experiments, analysis and interpretation of data, professional, ethical, societal and contemporary issues. CHEN 2650 requires a grade of C or better. Course may be repeated with change in topics.

CHEN 4100 PULP AND PAPER PROCESSING LABORATORY (2) LAB. 6. Pr. CHEN 5090 or Departmental approval. Experimental study of pulping and papermaking operations.

CHEN 4170 DIGITAL PROCESS CONTROL (3) LEC. 3. Pr. (CHEN 3650 or CHEN 3653) and CHEN 3600 and CHEN 3660. Introduction of basic concepts and principles for control system. Analysis of open loop and closed-loop processes using transfer functions. CHEN 3600, CHEN 3650, and CHEN 3660 all require a grade of C or better.

CHEN 4450 PROCESS ECONOMICS AND SAFETY (3) LEC. 2. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and (CHEN 3650 or CHEN 3653) and CHEN 3660 and CHEN 3700 and CHEN 3600. Fundamentals and applications of process economics and design, computer-aided cost estimation, profitability analysis and process improvement. Application of chemical process safety, risk assessment and management, hazard and operability analysis, chemical engineering principles for risk reduction. (CHEN 3370, CHEN 3600, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4460 PROCESS SIMULATION SYNTHESIS AND OPTIMIZATION (2) LEC. 1. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and CHEN 3650 and CHEN 3660 and CHEN 3700 and CHEN 3600. Fundamentals of computer-aided simulation and synthesis. Process integration and optimization principles including their applications in design, retrofitting and operation of chemical processes. (CHEN 3370, CHEN 3600, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4470 PROCESS DESIGN PRACTICE (3) LEC. 2. LAB. 3. Pr. CHEN 3AA0 and CHEN 4450 and CHEN 4460 and CHEN 3650 and CHEN 3660 and CHEN 3700 and PHYS 1610. Flow sheet simulation and techno-economic analysis applied to complex, open-ended chemical processes. Screening of alternatives and economic optimizations. Capstone design course. CHEN 3650, CHEN 3660, and CHEN 3700 all require a grade of C or better.

CHEN 4860 CHEMICAL ENGINEERING LABORATORY II (2) LEC. 1. LAB. 3. Pr. CHEN 3660 and CHEN 3820 and P/C CHEN 3700 and CHEN 3650 and P/C CHEN 4170 and PHYS 1610. Experimental study of mass transfer, separations and reaction engineering. Emphasis is on open-ended laboratory projects with electronic instrumentation; experimental design with numerical and statistical analysis of data. CHEN 3650 requires a grade of C or better.

CHEN 4970 SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-10) AAB. Departmental approval. Topical courses in special areas. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 10 credit hours.

CHEN 4980 UNDERGRADUATE RESEARCH (1-3) IND. Pr. 3.00 GPA. Departmental approval. GPA of 3.0 or higher and junior standing. Individual and small group projects. Topic must be arranged with instructor during preregistration. Research Report. Course may be repeated for a maximum of 3 credit hours.

CHEN 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

CHEN 5090 PULP AND PAPER TECHNOLOGY (3) LEC. 3. Pr. (ENGR 2010 or CHEN 2110) and (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and MATH 2650. An introductory course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.

CHEN 5110 PULP AND PAPER ENGINEERING (3) LEC. 3. Pr. CHEN 3620 and CHEN 3700 and P/C CHEN 4450. Chemical and engineering principles in the manufacturing of pulp and paper. (CHEN 3620 and CHEN 3700 require a grade of C or better.)

CHEN 5120 SURFACE AND COLLOID SCIENCE (3) LEC. 3. Pr. CHEN 3620 and CHEN 4100. Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits. (CHEN 3620 and CHEN 4100 require a grade of C or better).

CHEN 5130 INTEGRATED BIOREFINERIES (3) LEC. 3. Pr. CHEN 5090 or CHEN 6090. Departmental approval. Chemical and engineering principles in biomass conversion processes with emphasis on producing value-added materials and chemicals. By the end of the semester students should understand the principles and reasoning behind emerging biorefinery processes integrated to the pulp and paper manufacturing.

CHEN 5410 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reputation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers. (CHEN 3370 requires a grade of C or better.)

CHEN 5420 POLYMER CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 2070 or CHEM 2077) and CHEN 3620 and CHEN 5410. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing. (CHEN 3620 and CHEN 5410 require a grade of C or better).

CHEN 5430 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3. Pr., Departmental Approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.

CHEN 5660 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Departmental approval. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials.

CHEN 5800 BIOCHEMICAL ENGINEERING (3) LEC. 3. Pr. P/C CHEN 3700. Bioreactor design. Analysis of enzyme and microbial processes. (CHEN 3700 requires a grade of C or better).

CHEN 5810 BIOMEDICAL ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and P/C CHEN 3620. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 5970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 6090 PULP AND PAPER TECHNOLOGY (3) LEC. 3. An introductory graduate level course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.CHEN Department Approval and Alabama Center for Paper and Bioresource Engineering Director approval.

CHEN 6110 PULP AND PAPER ENGINEERING (3) LEC. 3. Chemical and engineering principles in the manufacturing of pulp and paper.

CHEN 6130 INTEGRATED BIOREFINERIES (3) LEC. 3. Pr. CHEN 5090 or CHEN 6090. Departmental approval. Chemical and engineering principles in biomass conversion processes with emphasis on producing value-added materials and chemicals. By the end of the semester students should understand the principles and reasoning behind emerging biorefinery processes integrated to the pulp and paper manufacturing.

CHEN 6410 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reptation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers.

CHEN 6660 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials. Or departmental approval. May count either CHEN 6660 or CHEN 6666.

CHEN 6800 BIOCHEMICAL ENGINEERING (3) LEC. 3. Bioreactor design. Analysis of enzyme and microbial processes.

CHEN 6810 BIOMEDICAL ENGINEERING (3) LEC. 3. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy, and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 6970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) DSL. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 7100 TRANSPORT PHENOMENA (3) LEC. 3. Principles of heat, mass and momentum transport in application of intermediate complexity. Mathematical analysis of transport problems.

CHEN 7110 CHEMICAL ENGINEERING ANALYSIS AND ADVANCED TRANSPORT PHENOMENA (3) LEC. 3. Pr. CHEN 7100 or CHEN 7106. Analytical solutions of ordinary and partial differential equations pertaining to transport phenomena and other areas of chemical engineering.

CHEN 7200 CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3. Chemical reaction and phase equilibrium applied to chemical engineering problems. Properties of multicomponent real gases, liquids, and solids and property relationships. Criteria for thermodynamic equilibrium and stability, molecular thermodynamics.

CHEN 7250 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. P/C CHEN 7100 or P/C CHEN 7106. Analysis and design of homogeneous and heterogeneous chemical reactors. Physicochemical factors and analysis of non-ideal chemical reactor behavior.

CHEN 7900 INDEPENDENT STUDY (1-10) DSL/IND. SU. Departmental approval. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 20 credit hours.

CHEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Seminar. Course may be repeated for a maximum of 12 credit hours.

CHEN 7970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) DSL. Departmental approval. Topical courses for graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 12 credit hours.

CHEN 7990 RESEARCH AND THESIS (1-20) MST. Credit hours to be arranged. Course may be repeated with change in topics.

CHEN 8990 RESEARCH AND DISSERTATION (1-20) DSR. Credit hours to be arranged. Course may be repeated with change in topics.

Chemistry - CHEM

Courses

CHEM 1010 SURVEY OF CHEMISTRY I (3) LEC. 3. Science Core. Survey of important topics from general and organic chemistry. Atomic and bonding theory, chemical reactions and stoichiometry, gas laws, solutions, acids and bases, hydrocarbons, alcohols, ethers and amines.

CHEM 1011 SURVEY OF CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1010. Science Core. Laboratory experiments emphasizing course material in CHEM 1010.

CHEM 1020 SURVEY OF CHEMISTRY II (3) LEC. 3. Pr. CHEM 1010. Science Core. Survey of important topics from organic and biochemistry. Aldehydes and ketones, carboxylic acids, carbohydrates, lipids, proteins, enzymes, extracellular fluids, metabolism, nucleic acids, radioactivity.

CHEM 1021 SURVEY OF CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 1020 and CHEM 1011. Science Core. Laboratory experiments emphasizing course material in CHEM 1020.

CHEM 1030 FUNDAMENTALS CHEMISTRY I (3) DSL/LEC. Science Core. Atomic and molecular theory, chemical equations, stoichiometry, gas laws, thermochemistry, bonding, electronic structure, molecular geometries, solids, liquids, properties of solutions, problem-solving techniques. Credit will not be given for both CHEM 1030 and CHEM 1110 or CHEM 1117.

CHEM 1031 FUNDAMENTAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1030 or P/C CHEM 1033. Science Core. Laboratory experiments emphasizing course material in CHEM 1030. Credit will not be given for both CHEM 1031 and CHEM 1111 or CHEM 1118.

CHEM 1040 FUNDAMENTAL CHEMISTRY II (3) LEC. 3. Pr. CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Science Core. Chemical kinetics; chemical equilibrium; acids and bases; calculations of pH; equilibrium constants and thermodynamical properties; electrochemistry; descriptive chemistry. Credit will not be given for both CHEM 1040 and CHEM 1120 or CHEM 1127.

CHEM 1041 FUNDAMENTAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. (P/C CHEM 1040 or P/C CHEM 1043) and (CHEM 1031 or CHEM 1111 or CHEM 1118). Science Core. Laboratory experiments emphasizing course material in CHEM 1040. Credit will not be given for both CHEM 1041 and CHEM 1121 or CHEM 1128.

CHEM 1110 GENERAL CHEMISTRY I (3) LEC. 3. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Science Core. Chemical principles for chemistry and related majors. Atomic and molecular theory, periodicity, chemical reactions, Stoichiometry, gases, thermochemistry, bonding, molecular geometries, liquids, solids, and solutions. Credit will not be given for both CHEM 1110 and CHEM 1030 or CHEM 1117.

CHEM 1111 GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1110 or P/C CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1110. Credit will not be given for both CHEM 1111 and CHEM 1031 or CHEM 1118.

CHEM 1117 HONORS GENERAL CHEMISTRY I (3) LEC. 3. Pr. Honors College. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1110, but covered in more depth. Credit will not be given for both CHEM 1117 and CHEM 1030 or CHEM 1110.

CHEM 1118 HONORS GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. Honors College. CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1117. Credit will not be given for both CHEM 1118 and CHEM 1031 or CHEM 1111.

CHEM 1120 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS II (3) LEC. 3. Pr. CHEM 1110 or CHEM 1117. Science Core. Continuation of CHEM 1110. Chemical kinetics, chemical equilibrium, acids and bases, thermodynamics, electrochemistry, representative element and transition metal chemistry. Credit will not be given for both CHEM 1120 and CHEM 1040 or CHEM 1127.

CHEM 1121 GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. (P/C CHEM 1120 or P/C CHEM 1127) and (CHEM 1111 or CHEM 1118). Science Core. Laboratory experiments emphasizing course material in CHEM 1120. Credit will not be given for both CHEM 1121 and CHEM 1041 or CHEM 1128.

CHEM 1127 HONORS GENERAL CHEMISTRY II (3) LEC. 3. Pr. Honors College. CHEM 1117. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1120, but covered in more depth. Credit will not be given for both CHEM 1127 and CHEM 1040 or CHEM 1120.

CHEM 1128 HONORS GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. Honors College. Science Core. Laboratory experiments emphasizing course material in CHEM 1127. Credit will not be given for both CHEM 1128 and CHEM 1041 or CHEM 1121.

CHEM 2030 SURVEY OF ORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Structure, nomenclature and reactions of the functional group classes of organic compounds polymers, and molecules of biological interest. Credit will not be given for both CHEM 2030 and CHEM 2070.

CHEM 2070 ORGANIC CHEMISTRY I (3) LEC. 3. Pr. CHEM 1040 or CHEM 1043 or CHEM 1120 or CHEM 1127. In-depth study of organic chemistry including structure, nomenclature, reactions, reaction mechanisms, stereochemistry, synthesis and spectroscopic structure determination organized by the functional group approach. Considers alkanes, alkenes, alkynes, alkyl halides, alcohols, ethers, and aromatic compounds. Credit will not be given for both CHEM 2070 and CHEM 2030.

CHEM 2071 ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. (P/C CHEM 2070 or P/C CHEM 2077) and (CHEM 1041 or CHEM 1128 or CHEM 1121). Laboratory for CHEM 2070.

CHEM 2077 HONORS ORGANIC CHEMISTRY I (3) LEC. 3. Pr. Honors College. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2070, but covered in more depth. Additional credit will not be given for CHEM 2070. Member of the Honors College or CHEM 1110 with grade of A or B or CHEM 1040 with grade of A.

CHEM 2078 HONORS ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 2070 or P/C CHEM 2077. Laboratory experiments emphasizing course material in CHEM 2077. Additional credit will not be given for CHEM 2071. Course may be repeated for a maximum of 3 credit hours.

CHEM 2080 ORGANIC CHEMISTRY II (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Continuation of CHEM 2070. Aldehydes, ketones, amines, carboxylic acids, esters, amides, anhydrides, polymers, carbohydrates and amino acids.

CHEM 2081 ORGANIC CHEMISTRY II LABORATORY (1) LAB. 1. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2071 or CHEM 2078) and (P/C CHEM 2080 or P/C CHEM 2087). Laboratory for CHEM 2080.

CHEM 2087 HONORS ORGANIC CHEMISTRY II (3) LEC. 3. Pr. Honors College or departmental approval. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2080, but covered in more depth. Additional credit will not be given for CHEM 2080. Member of the Honors College or CHEM 2077

CHEM 2088 HONORS ORGANIC CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 2080 or P/C CHEM 2087. Laboratory experiments emphasizing course material in CHEM 2087. Additional credit will not be given for CHEM 2081. May count either CHEM 2081 or CHEM 2088. Course may be repeated for a maximum of 3 credit hours.

CHEM 2100 PROFESSIONAL DEVELOPMENT (1) LEC. 1. This course is designed to introduce students to the many opportunities available in chemistry, both as a career choice and while as a student. Students will have the opportunity to investigate available options, will reflect on what career success means to the student, and will chart a pathway to student professional success.

CHEM 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN CHEMISTRY (1-3) LAB. SU. Individual problems course. Students will work under the direction of a staff member on some problem of mutual interest. Departmental approval required. Only Freshman or Sophomore. Course may be repeated for a maximum of 6 credit hours.

CHEM 3000 CHEMICAL LITERATURE (1) LEC. 1. Pr. CHEM 2080 or CHEM 2087. Chemical literature with emphasis on primary and secondary sources and the various computer data bases available.

CHEM 3050 ANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Theory and application of volumetric, potentiometric and photometric chemical analysis.

CHEM 3051 ANALYTICAL CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 3050. Analytical techniques applied to chemical analysis.

CHEM 3160 SURVEY OF PHYSICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127). The principles of physical chemistry.

CHEM 4070 PHYSICAL CHEMISTRY I (3) LEC. 3. Pr. (CHEM 1040 or CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and (MATH 2650 or PHYS 2400) and (PHYS 1610 or PHYS 1617). Principles of chemical thermodynamics, principles of application to problems of chemical interest.

CHEM 4071 PHYSICAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 4070.

CHEM 4080 PHYSICAL CHEMISTRY II (3) LEC. 3. Pr. (CHEM 1040 or CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and (MATH 2650 or PHYS 2400) and (PHYS 1610 or PHYS 1617). Principles of quantum mechanics and spectroscopy; application in molecular structure and in statistical thermodynamics.

CHEM 4081 PHYSICAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 4080. Laboratory for CHEM 4080.

CHEM 4100 INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 4080 or CHEM 3160. Principles of inorganic chemistry emphasizing periodic properties, bonding, structure and symmetry, the solid state, acid-base theory and coordination chemistry.

CHEM 4101 INORGANIC CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 4100. Synthesis and characterization of a variety of inorganic compounds.

CHEM 4110 ORGANOMETALLICS AND CATALYSIS (3) LEC. 3. Pr. CHEM 4100. Departmental approval. Survey of organometallic chemistry and catalysis with main group, transition metal, and f-block elements.

CHEM 4130 INSTRUMENTAL ANALYSIS (3) LEC. 3. Pr. P/C CHEM 3050. Fundamental concepts used in instrumental analytical chemistry emphasizing spectrophotometric, electroanalytical and chromatographic analysis.

CHEM 4131 INSTRUMENTAL ANALYSIS LABORATORY (1) LAB. 3. Pr. P/C CHEM 4130. Laboratory for CHEM 4130.

CHEM 4920 CHEMISTRY INTERNSHIP (3) INT. 12. Departmental approval. Application of chemistry concepts and skills in a professional setting. The course may be repeated for a maximum of 6 credit hours.

CHEM 4950 UNDERGRADUATE SEMINAR (1) LEC. 1. Oral presentation and discussion of research in the area of specialization.

CHEM 4980 UNDERGRADUATE RESEARCH IN CHEMISTRY (3) LAB. 9. Departmental approval. This is an individual problem course. Each student will work under the direction of a staff member on some problem of mutual interest. Course may be repeated for a maximum of 9 credit hours.

CHEM 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Departmental approval. Honors College Members Only; Course may be repeated for a maximum of 6 credit hours.

CHEM 5200 PYTHON PROGRAMMING IN CHEMISTRY (3) LEC. 3. Pr. CHEM 3160 or CHEM 4080. Computer programming in the Python language using specific examples relevant to different branches of chemistry. Emphasizes best practices for collaborative writing, documenting, and validating the program so that it is readable and maintainable.

CHEM 5280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 5450 FOUNDATIONS OF R FOR DBER (3) LEC. 3. R is an open-source statistical software that allows nearly limitless data manipulation, statistical analysis, and advance data visualizations for both the social and physical sciences required for quality research in discipline-based education research (DBER). This course will dedicate approximately one half to learning the basics of coding in R for many common tasks found in DBER (focusing on how to independently find and apply new functions as only a portion of functions can possibly be discussed) and the second half on applying these principles into real data from students' thesis or dissertation (or data can be provided by instructor).

CHEM 6200 PYTHON PROGRAMMING IN CHEMISTRY (3) LEC. 3. Computer programming in the Python language using specific examples relevant to different branches of chemistry. Emphasizes best practices for collaborative writing, documenting, and validating the program so that it is readable and maintainable.

CHEM 6280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 6450 FOUNDATIONS OF R FOR DBER (3) LEC. 3. R is an open-source statistical software that allows nearly limitless data manipulation, statistical analysis, and advance data visualizations for both the social and physical sciences required for quality research in discipline-based education research (DBER). This course will dedicate approximately one half to learning the basics of coding in R for many common tasks found in DBER (focusing on how to independently find and apply new functions as only a portion of functions can possibly be discussed) and the second half on applying these principles into real data from students' thesis or dissertation (or data can be provided by instructor).

CHEM 7100 ADVANCED INORGANIC CHEMISTRY (3) LEC. 3. Departmental approval. Current concepts of inorganic chemistry with an emphasis on theory, structure, bonding and reactivity.

CHEM 7110 PHYSICAL METHODS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Or equivalent. Theory and application of techniques for obtaining information inorganic compounds including magnetism, multinuclear nmr, mass spectrometry, x-ray diffraction, vibrational and electronic spectroscopies.

CHEM 7120 ORGANOMETALLIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Main group and transition metal organometallic chemistry.

CHEM 7160 ADVANCED TOPICS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Currently active research areas in inorganic chemistry. Course may be repeated for a maximum of 12 credit hours.

CHEM 7200 PHYSICAL ORGANIC CHEMISTRY (3) LEC. 3. This course will combine the foundations of undergraduate organic chemistry reactions and add to this the physical properties of chemical reactions as affected by real laboratory applications.

CHEM 7210 STRUCTURE ELUCIDATION OF ORGANIC COMPOUNDS (3) LEC. 3. Pr. CHEM 7200 or CHEM 7220. The early stages of this course will focus on the identification of functional groups, saturated, unsaturated and cyclic compounds using IR and NMR spectroscopy, as well as mass spectrometry. Detailed analyses of 1H NMR spectra, i.e., chemical shift, multiplet shape, and coupling constants will demonstrate the power of these methods in ascertaining atom connectivity in simple organic molecules. More advanced two-dimensional NMR techniques such as COSY, HSQC and HMBC will be discussed and used for determining the structures of more complex organic molecules. The determination of absolute and relative stereochemistry using Mosher ester analyses and NOESY, respectively, in chiral molecules will also be covered. Most of the structures that will be discussed and analyzed will be stereochemically complex systems and polycyclic molecules that require a combination of multiple one-dimensional and two-dimensional NMR techniques.

CHEM 7220 ORGANIC REACTIONS (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2073 or CHEM 2077) and (CHEM 2080 or CHEM 2083 or CHEM 2087). Organic reactions are described in the context of oxidation; reduction; C-C, C-N, C-O bond forming; olefination; aldol (and related) condensations; pericyclic, fragmentation, ring-expansion and ring-contraction reactions; and, named organic reactions and their reaction mechanisms and their application to chemical synthesis. Concurrent enrollment with CHEM 7200 is highly recommended.

CHEM 7230 COMPLEX MOLECULE SYNTHESIS (3) LEC. 3. Pr. CHEM 7220. This class is focused on target-oriented chemical synthesis of complex organic molecules. The main objective is to teach students how to use retrosynthetic analysis, a method for disconnecting a complex molecule into simpler starting materials, as well classical and modern organic reactions to plan syntheses of organic compounds that are biologically relevant and important in the development of better pharmaceuticals. During the course of the semester, students will be introduced to important classes of natural products including terpenes, terpenoids, alkaloids, macrolides, polycyclic ethers, as well as designed molecules that are biologically relevant, but not natural products themselves. Identifying key structural components (i.e., retrons), stereogenic centers, and substructures that can be derived from the chiral pool will be emphasized in synthesis planning. All lecture content will come from the current literature, with only manuscripts published in the past 12 months being discussed in class. Students will be responsible for reading Classics in Total Synthesis on their own and tested on the content of this book as well as assigned current literature in class. Emphasis will be placed on identifying economical and streamlined synthetic protocols that can employ cascade or domino reaction sequences.

CHEM 7260 SPECIAL TOPICS IN ORGANIC CHEMISTRY (1-3) LEC. Pr. CHEM 7200. Advanced course in a research area in organic chemistry which is of mutual interest to graduate students and the instructor. Course may be repeated for a maximum of 6 credit hours.

CHEM 7270 SUPRAMOLECULAR CHEMISTRY: SYNTHESIS, STRUCTURES, AND APPLICATIONS (3) ST1. 3. Pr. CHEM 2080. Supramolecular Chemistry bridges organic, inorganic, surface science, and analytical chemistries. It is a topical area that explores synthesis, spatial organization, weak bonding interactions, hydrogen bonding or covalent bonding, and is interest for numerous industrial or pharmacy applications.

CHEM 7300 ADVANCED PHYSICAL CHEMISTRY (3) LEC. 3. Topics of general and current interest; may vary from year to year.

CHEM 7330 CHEMICAL KINETICS (3) LEC. 3. Theoretical and experimental aspects of reaction rates. The mathematics and characterization of chemically reacting systems.

CHEM 7350 QUANTUM AND STATISTICAL MECHANICS (3) LEC. 3. Pr. CHEM 7300. A quantum mechanical and statistical approach to molecular structure and chemistry.

CHEM 7370 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (1-3) LEC. 3. Pr. CHEM 7300. Modern topics in advanced physical chemistry. Course may be repeated for a maximum of 3 credit hours.

CHEM 7380 MOLECULAR SPECTROSCOPY (3) LEC. 3. Pr. CHEM 7300. Theory and application of optical and magnetic resonance spectroscopy.

CHEM 7410 A DBER APPROACH TO TEACHING AND LEARNING IN CHEMISTRY (3) LEC. 3. Pr. CHEM 1030 and CHEM 1040. Discipline-based education research (DBER) theory andtrends, consuming and evaluating DBER research, activelearning in advanced chemistry topics, action research,review of pedagogical tools, assessment. This coursewill be of use to chemistry graduate students aimingfor careers in academia, masters education studentslooking to take a chemistry course for the fulfillmentof their degree requirements, and other fields that wantto know more about evaluating and critiquing current DBERliterature and methods.

CHEM 7500 ADVANCED ANALYTICAL CHEMISTRY (3) LEC. 3. Analytical principles, applications and methods, mathematical interpretations and current developments.

CHEM 7510 ELECTROANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical applications of electrochemistry.

CHEM 7530 ADVANCES IN BIOANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical Chemistry of microfluidic devices and "Lab on a chip." New methods of miniaturization of separations and analysis with emphasis on bioanalytical applications.

CHEM 7540 FLUORESCENCE IN BIOANALYTICAL CHEMISTRY: SPECTROSCOPY AND IMAGING (3) LEC. 3. Pr. CHEM 7500. Modern fluorescence-based bioanalytical methods as well as an advanced study of related literature. Standard approaches such as biosensors, nucleic acid analysis will be covered, as well as modern techniques such as Fluorescence microscopy, FRET, immunoassays, ELISAs and single-molecule detection.

CHEM 7550 PHOTO AND ELECTROCHEMISTRY (3) ST1. The course offers a simultaneous and comprehensive treatment of photochemistry and electrochemistry.

CHEM 7560 MASS SPECTROMETRY: INSTRUMENTATION AND APPLICATIONS (3) LEC. 3. Departmental approval. Several notable developments in mass spectrometry instrumentation platforms have been introduced which has led to significant increase in their implementations to various research and clinical applications. Learning about the fundamental principles of these instrumentation platforms will guide the users in selecting the correct instrument for a specific application. This course is designed to offer such an approach.

CHEM 7610 BIOCHEMISTRY AND BIOPHYSICS TECHNIQUES (3) LEC. 3. Fundamental concepts in biochemistry, molecular microbiology, and principles of physics will be introduced. This will be followed by presentations on the theory and practical application of common biophysical techniques. The techniques discussed will include, but will not be limited to: Raman, NMR, and Mass Spectrometry of biological molecules, X-ray Diffraction, Ion Mobility, Fluorescence Microscopy, Single-Molecule Approaches, EM/Cryo-EM, and Nano-particle techniques.

CHEM 7750 FORMAL PRESENTATIONS IN MODERN CHEMISTRY (1) LEC. 1. Oral presentations skills will be developed with a focus on the dissemination of new discoveries in the field of Chemistry. Course may be repeated for a maximum of 6 credit hours.

CHEM 7930 DIRECTED INDIVIDUAL STUDY (1-15) IND. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.

CHEM 7950 SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CHEM 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CHEM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Civil Engineering - CIVL

Courses

CIVL 2010 SURVEYING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 1610 or MATH 1613 or MATH 1617) and (COMP 1200 or COMP 1220 or COMP 1230). Civil engineering surveying theory and practice including history of land surveys and U.S. datums; field measurements, office calculations and graphical/digital presentation of spatial data.

CIVL 3010 CIVIL ENGINEERING ANALYSIS (4) LEC. 3. LAB. 3. Pr. MATH 2650 and (COMP 1200 or COMP 1220 or COMP 1230) and (ENGR 2050 or ENGR 2053) and STAT 3010. Applications of calculus and ordinary differential equations, numerical methods, vector algebra, and linear algebraic expressions to practical civil engineering problems. Heavy emphasis on computerized techniques and civil engineering software.

CIVL 3110 HYDRAULICS (4) LEC. 3. LAB. 3. Pr. (ENGR 2010 or ENGR 2200) and MATH 2650 and P/C ENGR 2350 and P/C CIVL 3010. Pr. ENGR 2010 is only allowed for students who transfer into Civil Engineering. Students already enrolled in Civil Engineering should take ENGR 2200. Introduction to fluid mechanics, fluid properties, hydrostatics, kinematics, dynamics, energy equation, ideal flow and energy losses. Applications of fluid mechanics, pipe flow, fluid measurements, pumps, open channel flow, dimensional analysis and theory of modeling.

CIVL 3220 WATER AND WASTE TREATMENT (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and BIOL 3200. Fundamentals of potable water treatment and wastewater treatment and disposal. Treatment systems; operation/ process physics, chemistry, and biology; operation and maintenance issues; regulatory requirements. Credit will not be given to students majoring in Civil Engineering.

CIVL 3230 ENVIRONMENTAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. BSEN 3310 or CIVL 3010 or ENGR 2200 and CHEM 1040 or CHEM 1043. Fundamental principles of environmental engineering, including basic environmental chemistry and microbiology; materials and energy balances; diffusion; chemical equilibrium; kinetics; and chemical reaction engineering.

CIVL 3310 GEOTECHNICAL ENGINEERING I (4) LEC. 3. LAB. 3. Pr. (CHEM 1040 or CHEM 1043) and (ENGR 2070 or ENGR 2077). Soil-forming processes, physical properties of soils, subsurface investigations, clay mineralogy, soil classification, permeability, effective stress, consolidation theory, time-settlement analysis, compaction, shear strength, geosynthetics.

CIVL 3410 CONSTRUCTION ENGINEERING (3) LEC. 3. Pr. CIVL 2010 and P/C CIVL 3010. Basic concepts of the construction industry, contractual methods, estimating and scheduling.

CIVL 3510 TRANSPORTATION ENGINEERING (4) LEC. 4. Pr. CIVL 2010 and STAT 3010. Introduction to transportation engineering practice with emphasis on highway facility design, traffic operations, and life-cycle costing.

CIVL 3610 STRUCTURAL ANALYSIS (4) LEC. 3. LAB. 3. Pr. (ENGR 2070 or ENGR 2077) and P/C CIVL 3010. Basic structural analysis of determinate and indeterminate structures, deflections by moment-area and virtual work, influence lines, force method and moment-distribution methods of analysis.

CIVL 3820 CIVIL ENGINEERING MATERIALS (3) LEC. 2. LAB. 3. Pr. P/C CIVL 3310. Introduction to common materials used in construction of civil facilities including highways; aggregate, concrete, asphalt, and steel.

CIVL 4210 WATER AND WASTEWATER TREATMENT AND DESIGN (3) LEC. 3. Pr. CIVL 3230. Departmental approval. The fundamentals of theory, design, and operation of water and wastewater treatment systems are covered.

CIVL 4211 WATER AND WASTEWATER LABORATORY (1) LAB. 3. Pr. CHEM 1040 and BIOL 3200. Coreq. CIVL 4210. Introduction to analytical techniques used to assess water quality. Credit will not be given to students majoring in Civil Engineering.

CIVL 4220 ENVIRONMENTAL ENGINEERING DESIGN (3) LEC. 3. Pr. CIVL 4210 or CIVL 4230. Process design of environmental engineering systems.

CIVL 4230 URBAN HYDRAULIC SYSTEM DESIGN (3) LEC. 3. Pr. CIVL 3230 and CIVL 3110. Engineering approaches to designing and managing urban water supply, sanitary sewer, storm water collection systems and flood control works.

CIVL 4310 GEOTECHNICAL ENGINEERING II (3) LEC. 3. Pr. CIVL 3310. Analysis and design in geotechnical engineering based on principles of soil mechanics and soil behavior. Problems of slope stability, earth pressure and design of earth retaining structures, foundation bearing capacity and settlement.

CIVL 4420 PROJECT MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Planning and management of construction/engineering projects and organizations, project management techniques, skills, and applications.

CIVL 4490 DESIGN-BUILD PROJECT (3) LEC. 3. Pr. CIVL 4420. Develop a design-build proposal for a civil engineering improvement including engineering study, consideration of alternative designs, and formal written and oral presentation.

CIVL 4500 TRAFFIC ENGINEERING FUNDAMENTALS (3) LEC. 3. Pr. CIVL 3510. The fundamental elements of traffic engineering including traffic operations and traffic control devices.

CIVL 4520 AIRPORT DESIGN (3) LEC. 3. Pr. CIVL 3510. Departmental approval. An analysis of the elements affecting the design of airports including forecasting, runway configuration, capacity analyses, geometric design of runways and taxiways, pavement design and airfield drainage.

CIVL 4530 GEOMETRIC DESIGN (3) LEC. 3. Pr. CIVL 3510. An analysis of the elements affecting the location and design of rural highways, urban highways and arterial streets including design controls and criteria.

CIVL 4590 TRANSPORTATION DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4530. Individual senior design project requiring the development of plans for a roadway over a large land segment: horizontal and vertical curves in accord with State and AASHTO standards; topographic terrain features; historical preservation area; minimum elevation; intersection design; earthwork balance.

CIVL 4600 REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 3610. Concrete and reinforcing steel properties; analysis and design of reinforced concrete beams, one-way slabs, columns and footings; anchorage of reinforcement.

CIVL 4650 STRUCTURAL STEEL DESIGN (3) LEC. 3. Pr. CIVL 3610. Steel properties. Design and analysis of structural steel members in tension, compression, shear, flexure and combined compression and flexure. Bolted and welded connections.

CIVL 4690 STRUCTURAL DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4600. Execution of a comprehensive design of a major structure. Emphasis on the design process, creative thinking, analysis, synthesis, teamwork and communications.

CIVL 4960 SPECIAL PROBLEMS (1-3) LEC. Departmental approval. Individual student endeavor under staff supervision involving advanced special problems in civil engineering. Course may be repeated for a maximum of 6 credit hours.

CIVL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

CIVL 5110 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/ CIVL 6116.

CIVL 5120 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3010. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications. Departmental approval. May count either CIVL 5120 or CIVL 6120.

CIVL 5130 HYDRAULIC DESIGN OF PRESSURIZED SYSTEMS (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 5150 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport. Credit will not be given for both CIVL 5150 and CIVL 6150/CIVL 6156.

CIVL 5160 STORMWATER MANAGEMENT AND MODELING (3) LEC. 3. Pr. CIVL 3110. Introduction of current stormwater management practices (e.g., lower impact development and green infrastructures) and polices, rainfall analysis with different inter-event dry period, flood analysis, stormwater runoff hydrograph modeling (rainfall loss, overland flow hydrograph, unit hydrograph theory, and hydrograph routing), stormwater quality modeling (pollutant buildup, washoff, and transport), peak discharge control using detention ponds, and various best management practices for stormwater volume and quality control. May count either CIVL 5160, CIVL 6160, or CIVL 6166.

CIVL 5170 NUMERICAL SOLUTIONS FOR HYDRO-ENVIRONMENTAL APPLICATIONS (3) LEC. 3. Pr. CIVL 3110 and CIVL 3230. Theoretical and numerical solutions of various problems in water resources and environmental engineering using computational tools. Development of simple codes and spreadsheet-based tools for the description and prediction of flows, contaminant spreading, and other relevant processes in natural and built systems. May count either CIVL 5170 or CIVL 6170/6176.

CIVL 5210 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 5230 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 5240 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling, theory and design of control devices; legal/ administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 5250 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 5260 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment.

CIVL 5330 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 5340 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 5350 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining structures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 5410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.

CIVL 5420 CONSTRUCTION PROJECT SCHEDULING AND CONTROL (3) LEC. 3. Pr. CIVL 3410 and CIVL 4420. Principles related to planning, scheduling and control of civil engineering projects. Deterministic and probabilistic methods of scheduling, resource usage optimization. May count either CIVL 5420 or CIVL 6420.

CIVL 5430 CONSTRUCTION SAFETY AND HEALTH MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies for preventing worksite injuries and illness are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 5440 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 5450 EROSION AND SEDIMENT CONTROL TECHNOLOGIES IN CONSTRUCTION (3) LEC. 3. Pr. CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 5460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 5480 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 5500 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 5510 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants; hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 5560 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations.

CIVL 5580 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Departmental approval. Introduction to intelligent transportation systems, covering applications of information and communication technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Credit will not be given for both CIVL 5580 and CIVL 6580/CIVL 6586.

CIVL 5600 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 5620 PRESTRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable lay-out, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 5630 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials; chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 5640 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 5650 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 5660 BRIDGE ENGINEERING (3) LEC. 3. Pr. CIVL 4600 and CIVL 4650. The modern approach to design, evaluation, and rehabilitation of bridges, including design of abutments, piers, concrete deck slabs, non-composite and composite steel girders, and prestressed concrete girders.

CIVL 5670 ADVANCED STRUCTURAL ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Analysis of continuous beams and frames by slope-deflection method. Analysis of beams, trusses, grids, and frames by direct stiffness method. Buckling of planar frames. Use of structural analysis software. May count either CIVL 5670 or CIVL 6670/CIVL 6676.

CIVL 5690 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 5700 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 5710 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/ CIVL 6716.

CIVL 5720 RELIABILITY OF STRUCTURES (3) LEC. 3. Pr. CIVL 4600 or CIVL 4650. Reliability-based methods of structural analysis including review of probability and statistics, reliability analysis methods, development of design codes, load and resistance models, system reliability, and practical applications. May count either CIVL 5720 or CIVL 6720/6726.

CIVL 5810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction, quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 5820 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820 or CIVL 6820.

CIVL 5970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.

CIVL 6110 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/CIVL 6116.

CIVL 6120 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3110. Departmental approval. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications.

CIVL 6130 HYDRAULIC DESIGN OF PRESSURIZED SYSTEMS (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 6150 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport. May count either CIVL 5150 or CIVL 6150/CIVL 6156.

CIVL 6160 STORMWATER MANAGEMENT AND MODELING (3) LEC. 3. Introduction of current stormwater management practices (e.g., lower impact development and green infrastructures) and polices, rainfall analysis with different inter-event dry period, flood analysis, stormwater runoff hydrograph modeling (rainfall loss, overland flow hydrograph, unit hydrograph theory, and hydrograph routing), stormwater quality modeling (pollutant buildup, washoff, and transport), peak discharge control using detention ponds, and various best management practices for stormwater volume and quality control. Approval by the instructor (e.g., undergraduate hydraulics).

CIVL 6170 NUMERICAL SOLUTIONS FOR HYDRO-ENVIRONMENTAL APPLICATIONS (3) LEC. 3. Pr. CIVL 3110 and CIVL 3230. Theoretical and numerical solutions of various problems in water resources and environmental engineering using computational tools. Development of simple codes and spreadsheet-based tools for the description and prediction of flows, contaminant spreading, and other relevant processes in natural and built systems. May count either CIVL 5170 or CIVL 6170/6176.

CIVL 6210 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/ base equibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 6230 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 6240 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling theory and design of control devices; legal/administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 6250 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 6260 SURFACE WATER QUALITY MODELING (3) LEC. 3. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment

CIVL 6330 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 6340 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 6350 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining strictures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 6410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.

CIVL 6420 CONSTRUCTION PROJECT SCHEDULING AND CONTROL (3) LEC. 3. Pr. CIVL 3410 and CIVL 4420. Principles related to planning, scheduling and control of civil engineering projects. Deterministic and probabilistic methods of scheduling, resource usage optimization. May count either CIVL 5420 or CIVL 6420.

CIVL 6430 CONSTRUCTION SAFETY (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies preventing worksite injuries and illnesses are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 6440 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 6450 EROSION AND SEDIMENT CONTROL TECHNOLOGIES IN CONSTRUCTION (3) LEC. 3. Pr. CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 6460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 6480 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 6500 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 6510 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants: hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 6560 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations. Departmental approval. May count either CIVL 5560.

CIVL 6580 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Introduction to intelligent transportation systems, covering applications of information and communications technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Departmental approval. May count either CIVL 5580 or CIVL 6580/CIVL 6586.

CIVL 6600 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 6620 PRESTRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable layout, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 6630 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials, chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 6640 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 6650 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 6660 BRIDGE ENGINEERING (3) LEC. 3. Pr. CIVL 4600 and CIVL 4650. The modern approach to design, evaluation, and rehabilitation of bridges, including design of abutments, piers, concrete deck slabs, non-composite and composite steel girders, and prestressed concrete girders. May count either CIVL 5660 or CIVL 6660/6666

CIVL 6670 ADVANCED STRUCTURAL ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Analysis of continuous beams and frames by slope-deflection method. Analysis of beams, trusses, grids, and frames by direct stiffness method. Buckling of planar frames. Use of structural analysis software. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 6690 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 6700 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 6710 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/ CIVL 6716.

CIVL 6720 RELIABILITY OF STRUCTURES (3) LEC. 3. Pr. CIVL 4600 or CIVL 4650. Reliability-based methods of structural analysis including review of probability and statistics, reliability analysis methods, development of design codes, load and resistance models, system reliability, and practical applications. May count either CIVL 5720 or CIVL 6720/6726.

CIVL 6810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 6820 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820, CIVL 6820 or CIVL 6826.

CIVL 6970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Departmental approval. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.

CIVL 7120 HYDROLOGIC MODELING (3) LEC. 3. Pr. (CIVL 6110 or CIVL 6116). Principles and practice of hydrologic modeling, introduction to hydrologic information systems, computer modeling of storm run-off, floodplain hydraulics and bridge hydraulics. Computer applications.

CIVL 7130 SOCIAL-ECOLOGICAL-ENGINEERED SYSTEMS (3) LEC. 3. This course explores foundational scholarship on the Social-Ecological Systems (SES) approach to understanding complex environmental problems with emphasis on the role of engineering in human interactions with natural systems. Students are expected to apply SES concepts and theories to analyses in their own areas of research. Note: This class is intended to be cross-listed with ESSI 7300.

CIVL 7140 ECOHYDROLOGY (3) LEC. 3. Pr. P/C CIVL 6120 or P/C CIVL 6126 or P/C GEOL 6100 or P/C FORY 7550. This course covers current theory, methods, and issues in ecohydrology. Topics include the soil-plant-atmosphere continuum; stochastic modeling of soil moisture; vadose zone hydrology; theory, measurement, and modeling of evapotranspiration; ecological competition in water-limited systems; and current issues and research topics.

CIVL 7170 NUMERICAL METHODS IN HYDRAULICS AND HYDROLOGY (3) LEC. 3. Pr. CIVL 3230. Numerical approximations of ordinary and partial differential equations representing problems common to civil engineering including groundwater flow, soil consolidation, and mass transport. The formulation and computational solution of diffusion and equilibrium problems are emphasized. Computer programming is required.

CIVL 7220 WATER AND WASTEWATER OPERATIONS AND PROCESSES I (3) LEC. 3. Pr. CIVL 3230. Departmental approval. Coreq. CIVL 6210. Physical and chemical principles applied to water and wastewater treatment. Advanced mathematical and modeling concepts.

CIVL 7230 WATER AND WASTEWATER OPERATIONS AND PROCESSES II (3) LEC. 3. Pr. CIVL 7220 or CIVL 7226. Departmental approval. Rigorous analysis of unit operations and processes used in modern water and wastewater treatment systems. Mixing, coagulation, sedimentation, filtration, and chemical precipitation.

CIVL 7250 BIOLOGICAL WASTEWATER TREATMENT (3) LEC. 3. Pr. CIVL 6250 or CIVL 6256. Departmental approval. Development and application of the theories of biological waste treatment.

CIVL 7270 ADVANCED NUMERICAL METHODS FOR SOLVING ENVIRONMENTAL ENGINEERING PROBLEMS (3) LEC. 3. Pr. CIVL 3010. Departmental approval. Basic concepts of finite element (FE) analysis. Development of FE computer codes for solving environmental engineering problems. FE grid generation and visualization methods.

CIVL 7280 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Departmental approval. Physical, chemical, biological and hydrological considerations relating to the degradation and self-purification of streams, lakes, and estuaries. Water uses and water quality goals, objectives and criteria. Principles of water quality modeling and waste load allocation.

CIVL 7310 FOUNDATION ENGINEERING (3) LEC. 3. Pr. CIVL 3310 and CIVL 4600. Analysis, design and construction of shallow and deep foundation systems.

CIVL 7330 SOIL PROPERTIES (3) LEC. 3. Pr. CIVL 3310. Soil behavior, shear strength, compressibility, hydraulic conductivity, and measurement of soil properties.

CIVL 7340 SOIL DYNAMICS (3) LEC. 3. Pr. CIVL 3310. Soil behavior during dynamic loads, wave propagation, dynamically loaded foundations, geotechnical earthquake engineering.

CIVL 7360 EARTH SLOPES AND DAMS (3) LEC. 3. Pr. CIVL 3310. Departmental approval. Engineering design of earth slopes, slope stability, cut slopes, embankments, settlement. Dam siting, stability, flownets, seepage analysis.

CIVL 7390 IN SITU TESTING OF SOILS (3) LEC. 3. Pr. CIVL 4310. In situ tests used in geotechnical engineering: test procedures, interpretation of results, and designing from in situ geotechnical data.

CIVL 7420 CONSTRUCTION ENGINEERING PROJECT PLANNING AND CONTROL (3) LEC. 3. Pr. CIVL 4420. Departmental approval. This course covers the processes needed to develop and use project plans and budgets for construction projects. These tools will be used to create different schedules needed for construction planning and monitoring and be able to adjust a project's projection to maximize performance throughout the project lifecycle. This will include the scheduling methods to predict desired outcomes and performance measures to actively gauge project performance.

CIVL 7440 CONSTRUCTION EQUIPMENT PRODUCTIVITY AND ENGINEERING ECONOMICS (3) LEC. 3. Pr. CIVL 4420. Departmental approval. This course will encompass the methods needed to select, use, and manage the proper construction equipment to accomplish different project tasks. This will include using engineering fundamentals to understand the production and efficiency capabilities of equipment and the economic and scheduling impact this will have on the construction project.

CIVL 7460 PRECONSTRUCTION ENGINEERING PROJECT PLANNING (3) LEC. 3. Pr. CIVL 4420. Departmental approval. Construction success starts with the planning process known commonly as Preconstruction. During this phase potential construction projects are considered, studied, planned, designed, scheduled, and budgeted. Project owners often rely on consultants such as construction managers to help evaluated a project idea, the factors associated with the idea becoming a reality, and overseeing the steps from project idea to project construction. The proposed course provides students with the tools needed to be able to oversee project planning and owner assistance to usher the project to completion.

CIVL 7470 ADVANCED ENGINEERING PROJECT MANAGEMENT (3) LEC. 3. Pr. CIVL 4420. Departmental approval. Construction management requires cutting edge methods to coordinate project activities from project inception through project closeout to meet project needs and maintain competitive balance. Project oversight from pre-construction planning, scheduling, and estimating management require constant management and control while sound decision methods are used for best management methods. The proposed course provides students with the tools needed to be able to meet project requirements and result in successful project completion.

CIVL 7540 TRANSPORTATION SAFETY (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Transportation safety problems and the engineer's role in developing and administering safety programs. Topics include hazardous location identification; analysis of accident data; development and evaluation of accident countermeasures and safety programs.

CIVL 7610 STRUCTURAL DYNAMICS I (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Single-degree-of-freedom systems, numerical solution techniques, response spectrum, multi-degree-of-freedom systems, eigenproblem solution, mode superposition analysis.

CIVL 7630 ADVANCED STRESS ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Hooke's 1-D, 2-D, 3-D stress-strain relations and applications, stress and strain transformations and Mohr's circle, material properties and failure theories, biaxial bending, unsymmetrical bending, composite material members, shear center, torsional stress, stress concentrations, beams on elastic foundations.

CIVL 7640 STABILITY OF STRUCTURES (3) LEC. 3. Coreq. CIVL 6670. Introduction to stability and failure of compression members, rigid bar buckling, elastic and inelastic buckling of columns, approximate methods of buckling analysis, beam-columns, buckling of frames, torsional buckling, lateral torsional buckling of beams.

CIVL 7660 FINITE ELEMENT METHODS IN STRUCTURAL MECHANICS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Introduction to finite element analysis; variational principles. 1D, 2D and 3D element formulation; nonlinear (geometric and constitutive) formulations and solutions; eigenvalue problems.

CIVL 7670 NUMERICAL TECHNIQUES IN STRUCTURAL ANALYSIS (3) LEC. 3. Basic concepts of non-linear analyses, formulation of the continuum mechanics incremental equations, total and updated Lagrangian formulations, finite elements for non-linear analyses, non-linear solution strategies.

CIVL 7680 FATIGUE AND FRACTURE MECHANICS (3) LEC. 3. Pr. CIVL 4650. Departmental approval. Linear-elastic and elastic-plastic fracture mechanics, fatigue, yield criteria, applications to highway structures.

CIVL 7720 EARTHQUAKE ENGINEERING (3) LEC. 3. Pr. (CIVL 7610 or CIVL 7616) and (CIVL 5670 or CIVL 6670 or CIVL 6676). Principles of earthquakes and earthquake engineering; Analysis and design of steel and reinforced concrete buildings for earthquakes. May count either CIVL 7720 or CIVL 7726.

CIVL 7820 ADVANCED PAVEMENT DESIGN AND REHABILITATION (3) LEC. 3. Pr. CIVL 7810 or CIVL 7816. Pavement management concepts, life cycle costs analysis, design and rehabilitation alternatives, serviceability concepts, empirical thickness selection models, reliability.

CIVL 7840 PAVEMENT MANAGEMENT AND REHABILITATION (3) LEC. 3. Pr. CIVL 3820. Departmental approval. Topics include: network and project level management, pavement distress surveys, non-destructive testing for condition measurements, flexible and rigid pavement maintenance and rehabilitation practices.

CIVL 7860 PAVEMENT CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820. Operation, quality control and specifications of component construction processes for asphalt and concrete paving; and overview of major rehabilitation strategies.

CIVL 7870 ADVANCED CHARACTERIZATION OF PAVEMENT MATERIALS (3) LEC. 2. LAB. 3. Pr. CIVL 3820. This course introduces theories and procedures for determining fundamental properties of asphalt materials for advanced material evaluation and pavement design.

CIVL 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CIVL 7970 SPECIAL TOPICS IN CIVIL ENGINEERING (1-3) DSL. Individual student or group endeavor under direct faculty supervision involving special topics of an advanced nature in civil engineering. Course may be repeated for a maximum of 9 credit hours.

CIVL 7980 ENGINEERING PROJECT (1-10) LEC. 1-10. Directed study on an engineering project or research supervised by an individual graduate faculty member. Course may be repeated for a maximum of 10 credit hours.

CIVL 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Credit to be arranged. Course may be repeated for a maximum of 10 credit hours.

CIVL 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Departmental approval. Credit to be arranged. Course may be repeated with change in topics.

Communication - COMM

Courses

COMM 1000 PUBLIC SPEAKING (3) LEC. 3. Oral communication theory and practice in a public speaking setting, with emphasis on content, organization, delivery, and adaptation to the audience.

COMM 1007 HONORS PUBLIC SPEAKING (3) LEC. 3. Pr. Honors College. This course will focus on numerous elements of oral communication - public speaking, group communication and interpersonal communication. This is different from a typical speech class that focuses solely on public speaking. An emphasis will also be placed on debate (forensics).

COMM 2010 COMMUNICATION IN SOCIETY (3) LEC. 3. Learn the foundations of critical thinking and audience analysis for message construction and consumption. Provides groundwork for intermediate and advanced courses. May count either COMM 2010 or COMM 2013.

COMM 2400 INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Learn the introductory principles of workplace communication, such as cultural awareness, collaboration, and professional interaction. May count either COMM 2400 or COMM 2403.

COMM 2407 HONORS INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Learn the introductory principles of workplace communication, such as cultural awareness, collaboration, and professional interaction. May count either COMM 2400 or COMM 2403.

COMM 2410 SMALL GROUP COMMUNICATION (3) LEC. 3. Learn the key principles of small group communication, including leadership, active listening, and conflict management. May count either COMM 2410 or COMM 2413.

COMM 3100 PROFESSIONAL PRESENTATIONS (3) LEC. 3. Pr. COMM 1000 or COMM 1003. Learn advanced public speaking skills for effective presentations, such as analyzing audiences, stylistic adaptation, and delivery techniques.

COMM 3110 PERSUASION (3) LEC. 3. Learn to make messages more persuasive in a variety of communication contexts. Considers theories and practical applications of persuasive messages as students learn and practice effective communication. May count either COMM 3110 or COMM 3113.

COMM 3300 COMMUNICATION AND CONFLICT (3) LEC. 3. Learn and increase mindfulness of important components of conflict in interpersonal relationships. Develop skills in managing conflict in personal and professional relationships. May count either COMM 3300 or COMM 3303.

COMM 3400 ORGANIZATIONAL COMMUNICATION (3) LEC. 3. Learn how communication practices shape organizations by studying topics related to leadership, conflict management, in a variety of contexts including work, non-profits, and religious organizations. May count either COMM 3400 or COMM 3403.

COMM 3450 INTERCULTURAL COMMUNICATION (3) LEC. 3. Learn skills that will prepare you to communicate across a variety of intercultural settings, both personal and professional. Develop an awareness of potential challenges and opportunities when communicating interculturally. May count either COMM 3450 or COMM 3453.

COMM 3500 FOUNDATIONS OF HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn foundational communication theories and how they are applied in various contexts including friendships, romantic relationships, workplaces, and more. May count either COMM 3500 or COMM 3503.

COMM 3510 RESEARCH IN HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn the ins and outs of research to better understand communication processes. Develop an understanding of qualitative methods such as in-depth interviews and quantitative methods such as surveys. May count either COMM 3510 or COMM 3513.

COMM 3600 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Learn rhetorical theory and analysis to understand the creation and consumption of persuasive discourse in our society. Theories covered equip students to be more conscientious of public messages. May count either COMM 3600 or COMM 3603.

COMM 3610 RESEARCH IN RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103). Learn how to apply rhetorical theories of persuasion to better understand how to create and analyze messages in public forums. May count either COMM 3610 or COMM 3613.

COMM 3700 ARGUMENTATION (3) LEC. 3. Learn the foundations of how argument works with a focus on how to create and evaluate persuasive arguments in a variety of contexts and for varied audiences. May count either COMM 3700 or COMM 3703.

COMM 3800 FAMILY COMMUNICATION (3) LEC. 3. Learn the role communication plays in family relationships, including how to evaluate and manage healthy interactions among members. May count either COMM 3800 or COMM 3803.

COMM 3970 SPECIAL TOPICS IN COMMUNICATION (3-6) LEC. Topics that range beyond what is covered in other courses within the COMM curriculum. Specific subject matter is left up to the individual instructor. Course may be repeated for a maximum of 6 credit hours.

COMM 4100 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the persuasive strategies used in a variety of social movements to attract members, solidify support, and advocate for social change.

COMM 4410 THEORIES OF LEADERSHIP (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Learn and apply communication theories and research to improve leadership skills and processes in organizations.

COMM 4420 COMMUNICATION AND CREATIVITY (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn to apply creativity research and communication principles to collaborative environments to generate unique solutions to problems facing organizations. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count either COMM 4420 or COMM 4423.

COMM 4430 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Learn to apply advanced communication theories to identify and address problems in a variety of organizations to improve workplace environments.

COMM 4480 HEALTH COMMUNICATION CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, PAOH, or Departmental approval. Learn the theories and skills needed to create compelling health communication campaigns.

COMM 4490 HEALTH MEDIA & COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Must have a declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Learn the communication principles common to health media, including how media influence how we think, talk, and behave in relation to our health.

COMM 4500 COMMUNICATION AND COGNITION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Explores theory and research related to cognitive and affective influences on communication in interpersonal and social interactions. May count either COMM 4500 or COMM 4503.

COMM 4700 LEGAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn how to identify and apply critical principles of communication to the legal system. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count either COMM 4700 or COMM 4703.

COMM 4800 INTERPERSONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn to apply communication practices, goals, and perceptions in the creation and development of friendships, romantic partnerships, and work relationships. Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. May count as either COMM 4800 or COMM 4803.

COMM 4810 NONVERBAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3613) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the forms and functions of non-linguistic communication practices in personal and professional contexts.

COMM 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in COMM. Requires admission to internship program.

COMM 4930 DIRECTED STUDIES IN COMMUNICATION (3) IND. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Independent study on a specific topic of interest not already addressed in any regular COMM course.

COMM 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Honors level independent study on a specific topic of interest not already addressed in any regular COMM course. Course may be repeated for a maximum of 3 credit hours.

COMM 4997 HONORS THESIS (1-3) IND. Pr. Honors College. COMM 3500 or COMM 3503 and COMM 3600 or COMM 3603. and CMJN 2100 or CMJN 2103. and COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. 2.3 GPA. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

COMM 5430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the history, theory, and concepts central to the study of gender, work, and communication. Builds on organizational communication theories.

COMM 5440 CURRENT PROBLEMS IN ORGANIZATIONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3610 or COMM 3613 or COMM 3510 or COMM 3513). Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. This course examines current issues in organizations through the lens of cutting edge organizational communication theories.

COMM 5450 COMMUNICATION & IMMIGRATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study of immigration from a communication perspective. May count either COMM 5450 or COMM 5453.

COMM 5470 HEALTH COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the basics of the health communication field. Students learn and discuss how communication affects health in diverse settings.

COMM 5600 POLITICAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Learn the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 5700 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Pr. (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Learn the forms and functions of language in social interaction as they reflect and influence our identity.

COMM 5970 SPECIAL TOPICS IN COMMUNICATION (3) LEC. 3. Pr. COMM 3500 and COMM 3600 and (COMM 3510 or COMM 3610). Topics in Communication. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 6300 SEX, GENDER, AND SPORT (3) LEC. 3. Focuses on sport, as a gendered institution. The course examines intersections of gender with age, sexual orientation, social class, gender identity, race and ethnicity and politics.

COMM 6430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study of gender, work, and communication.

COMM 6470 HEALTH COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study and practice of health communication.

COMM 6500 GLOBAL MEDIA (3) LEC. 3. Global media is focused on the complex global dimensions of media production, distribution and reception.

COMM 6600 POLITICAL COMMUNICATION (3) LEC. 3. This course will examine the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 6700 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Advanced approaches to examining the challenges, problems, and ideal situations of social interaction in interpersonal, group, and institutional contexts. Graduate students only.

COMM 6800 EVERYDAY TALK AND IDENTITY (3) LEC. 3. Examines the building blocks of interpersonal and small group conversation as they combine to reflect and shape identities of self and others.

COMM 6970 SPECIAL TOPICS IN COMMUNICATION (3) AAB/LEC. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities not currently offered in the program. Course may be repeated for credit with change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 7000 COMMUNICATION THEORY (3) LEC. 3. Critical examination of contemporary theories in communication.

COMM 7010 QUALITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Qualitative research in communication; emphasis on understanding and engaging in a variety of qualitative methods.

COMM 7020 QUANTITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Quantitative research in communication; emphasis on understanding and doing empirical research.

COMM 7100 INSTRUCTIONAL COMMUNICATION THEORY & PRACTICE (3) SEM. 3. History, theory, and concepts central to the study and practice of instructional communication.

COMM 7230 RHETORICAL CRITICISM (3) LEC. 3. Advanced methods in rhetorical criticism, including tools for the analysis of persuasive messages.

COMM 7300 APPROACHES TO STUDYING LANGUAGE AND SOCIAL INTERACTION (3) LEC. 3. Major approaches to studying language and social interaction that collectively make up discourse analysis.

COMM 7410 DEVELOPMENT OF RHETORICAL THEORY (3) LEC. 3. Historical survey of rhetorical theory from ancient to contemporary era; special attention to the role of rhetoric in shaping attitudes towards persuasion.

COMM 7420 SEMINAR IN PERSUASION AND ATTITUDE CHANGE (3) LEC. 3. Critical examination of current theory and research in the persuasive act and its effects.

COMM 7430 SEMINAR IN AMERICAN PUBLIC ADDRESS (3) LEC. 3. Investigation of key issues and debates that have emerged in post-World War II America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3) SEM. 3. Analysis of the fundamental theories of argumentation.

COMM 7450 SEMINAR IN INTRAPERSONAL PROCESSES IN COMMUNICATION (3) SEM. 3. Theories of cognitive and affective processing of information during speaking and listening.

COMM 7460 SEMINAR IN INTERPERSONAL COMMUNICATION (3) SEM. 3. Theories of the structure and function of interpersonal (dyadic) communication focusing on conversational behavior, traits, relationships, and persuasion.

COMM 7470 SEMINAR IN SMALL GROUP COMMUNICATION (3) SEM. 3. Advanced study of the principles of communication as they apply to the small group setting.

COMM 7480 SEMINAR IN ORGANIZATIONAL COMMUNICATION (3) SEM. 3. In-depth approach to the study of communication processes within the setting of modern organizations.

COMM 7490 HEALTH COMMUNICATION (3) LEC. 3. Examination and application of social science research approaches to the study of health communication.

COMM 7500 GENDER COMMUNICATION (3) LEC. 3. Exploration of current theories and research on the relationship between communication and gender.

COMM 7600 MASS COMMUNICATION THEORY (3) LEC. 3. Exploration of major areas of concern to the theoretical study of mass communication and the social impact of mediated messages.

COMM 7610 STUDIES IN POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3. Critical approaches to identifying, interpreting and experiencing popular culture texts within historical, cultural and communication contexts.

COMM 7620 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Exploration of critical, theoretical, and organizational issues relevant to programming and the production of culture within mass media environments.

COMM 7630 MEDIA MANAGEMENT (3) LEC. 3. In-depth analysis of current management issues specific to media managers in a multi-cultural world.

COMM 7640 SEMINAR IN FILM THEORY AND CRITICISM (3) SEM. 3. Exploration of classical and contemporary film theories and criticism.

COMM 7660 CULTURAL STUDIES IN MASS MEDIA (3) LEC. 3. Examination of communication research approaches to the study of culture and media.

COMM 7670 CONTEMPORARY ISSUES IN FIRST AMENDMENT LAW (3) LEC. 3. Exploration of controversial issues and cases in First Amendment Law that have been recently decided, are currently before courts, and have shaped the constitutional landscape in the United States.

COMM 7680 SPORTS, MEDIA, AND CULTURE (3) LEC. 3. Cultural implications of the relationship between sports and media.

COMM 7810 PUBLIC RELATIONS THEORY (3) LEC. 3. Current areas of concern in the theoretical study of public relations.

COMM 7820 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Application of public relations and communication concepts to campaign challenges.

COMM 7830 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Examination of research on public relations case studies to provide a theoretical basis for analyzing similar situations in on the job.

COMM 7840 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Theory, concepts, and skills needed to be an effective communication trainer or consultant.

COMM 7850 PUBLIC RELATIONS ETHICS (3) LEC. 3. This course provides a framework for understanding ethics in public relations. We will discuss ethical behavior and thinking within the context of practicing public relations. Topics discussed will include relationships, accountability, responsibility, advocacy, truth, and transparency.

COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research, and reports in general communication, mass communication, or public relations. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS IN COMMUNICATION (3) SEM. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities. Course may be repeated for credit with change in topic.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATION (3-6) LEC. SU. Pr. COMM 7000 and COMM 7010 and COMM 7020. and Minimum 27 graduate hours. Professional experience in communication area of interest. Must include managerial experience. Only 3 hours will apply to the degree. Course may be repeated for a maximum of 6 credit hours.

COMM 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

Communication and Journalism - CMJN

Courses

CMJN 2100 CONCEPTS IN COMMUNICATIONS AND JOURNALISM (3) LEC. 2. LAB. 1. Introduction to the basic principles of various communication forms, the dominant communication theories, and communication industries. May count either CMJN 2100 or CMJN 2103.

CMJN 2910 COMMUNICATION AND JOURNALISM PRACTICUM (1-3) PRA. SU. Departmental Approval. Practical experiences in potential career fields gained while working in professional settings. One to three hours variable credit. Course may be repeated for a maximum of 3 credit hours.

CMJN 3350 VISUAL COMMUNICATION (3) LEC. 3. Visual literacy, cognition, aesthetics, critical evaluation, and technology in human communication, with emphasis on impact of visual media in informative, interpretive, and persuasive message.

CMJN 3550 SPORTS INTERVIEWING (3) LEC. 3. Pr. CMJN 2100. This course examines interviewing techniques in various sport media and technological contexts.

CMJN 3650 RHETORIC OF SPORTS (3) LEC. 3. Learn the role that persuasive messages and social expectations play in sports environments through communication and critical thinking research. May count either CMJN 3650 or COMM 3650.

CMJN 4000 MASS MEDIA LAW AND REGULATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. and junior or senior standing. Laws and regulations that govern journalists, media content and industries.

CMJN 4340 MASS COMMUNICATION AND FAMILY (3) LEC. 3. Examination of the relationship between the American family and the mass communication industry.

CMJN 4370 MASS COMMUNICATION AND RELIGION (3) LEC. 3. Examines the relationship between mass communication and religion. Portrayals and influences will be analyzed.

CMJN 4400 GENDER COMMUNICATION (3) LEC. 3. Learn the critical role gender plays in communication processes as well as skills for navigating difficult issues in organizations and other settings.

CMJN 4430 SPORTS, MEDIA AND SOCIETY (3) LEC. 3. Cultural and professional implications of the relationship between sports and media. May count either CMJN 4430 or JRNL 4430.

CMJN 4970 SPECIAL TOPICS IN COMMUNICATION AND JOURNALISM (3) LEC. 3. Specialized topics related to the study and practice of Communication, Journalism, Media Studies and/or Public Relations. Course may be repeated for a maximum of 6 credit hours.

CMJN 5100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

CMJN 6100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

Community and Civic Engagement - CCEN

Courses

CCEN 3000 CAPSTONE IN COMMUNITY AND CIVIC ENGAGEMENT (1) PRA. 1. SU. Completion of 15 credits toward Minor in Community and Civic Engagement. This course is required for minors in CEE. The capstone requires students to draw upon the knowledge obtained throughout their coursework and to perform relevant service projects.

CCEN 7900 COMMUNITY LEADERSHIP PRACTICUM (3) LEC. 3. This course provides graduates in CCL an opportunity to integrate course content, personal commitments, and real world experience. Completion of 9 credits toward Graduate Certificate in Collaborative Community Leadership.

Community Planning - CPLN

Courses

CPLN 5000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 5010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 5020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course teaches about connections that climate has with urban processes; how cities are affected by climate change, impact of local land use and transportation decisions, and Climate Action Planning at local level including GHG inventory, adaptation and mitigation strategies.

CPLN 5040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 5050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 5060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. This topical seminar addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester.

CPLN 5070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 5080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. This topical seminar addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080/6080.

CPLN 5090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 5100 URBAN DESIGN METHODS (3) LEC. 3. Departmental approval. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 5110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 5400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation, adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 5460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 5970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 6010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 6020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course focuses on connections that climate has with urban processes, climate action planning at local level, compiling greenhouse gas inventory, climate adaptation and mitigation strategies, and building sustainable and resilient cities.

CPLN 6040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 6050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 6060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. Addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester. May count either CPLN 5060 or CPLN 6060.

CPLN 6070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 6080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. Addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080 or CPLN 6080.

CPLN 6090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development. Content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 6100 URBAN DESIGN METHODS (3) LEC. 3. Techniques and methodologies in urban design problem- solving and strategies for implementation.

CPLN 6110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 6400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation and adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 6460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 6930 DIRECTED STUDIES IN COMMUNITY PLANNING (3) IND. Departmental approval. Through this directed studies course, students explore a community planning related topic or issue of interest in greater detail through independent work. Students work with an MCP faculty member, who will supervise their studies. Course topics and assignments will vary, but the course will result in enhancing the student’s knowledge and skills within the community planning discipline. Course may be repeated for a maximum of 6 credit hours.

CPLN 6970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6AA0 MCP COMPREHENSIVE EXAMINATION (0) PR1. SU. A comprehensive examination is required of all students who have successfully completed 24 credit hours of the MCP program and/or before registration for the Synthesis Studio courses. Students are notified of their eligibility for the comprehensive exam by the MCP program director. Course may be repeated for a maximum of 10 credit hours.

CPLN 7200 URBAN DESIGN STUDIO (3) STU. 3. Basic principles of urban design are explored, with an emphasis on the planner's role in shaping the built environment. Exercises and projects provide hands-on experience in making good urban places.

CPLN 7240 QUANTITATIVE METHODS FOR PLANNING (3) LEC. 3. Development of working knowledge of planning techniques such as data collection, basic statistics, demographic analysis, economic analysis, social research, transportation, and evaluation.

CPLN 7300 COMMUNITY-BASED QUALITATIVE METHODS (3) LEC. 3. Introduces graduate students to the foundational principles of qualitative inquiry and community-based/community-engaged research.

CPLN 7350 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to be effective in the planning field.

CPLN 7430 LAND USE LAW (3) LEC. 3. This course covers three key elements of the planning profession: ethics, law and plan implementation.

CPLN 7600 SYNTHESIS STUDIO I (3) STU. 3. Pr. CPLN 7400. Serves as the primary opportunity for the student to demonstrate their competency in community design and planning by translating knowledge into action through the development of a practical plan.

CPLN 7610 SYNTHESIS STUDIO 2 (3) STU. 3. This class is the second required plan-making studio in the Master of Community Planning Program. Synthesis Studio 2 is the second in a two-semester series of classes that will critically consider a real-world planning project involving a city. Course may be repeated for a maximum of 6 credit hours.

CPLN 7920 PLANNING INTERNSHIP (1-6) AAB/INT. Departmental approval. Professional experience in public, private or non-profit planning or planning-related agency. Course may be repeated for a maximum of 6 credit hours.

Computer Science & Software Engineering - COMP

Courses

COMP 1000 PERSONAL COMPUTER APPLICATIONS (2) LEC. 2. Introduction to personal computers and software applications, including word processing, spreadsheets, databases, and presentation graphics; generation and retrieval of information with the Internet; integration of data among applications.

COMP 1100 THE POWER OF AI: FUNDAMENTALS TO APPLICATIONS (3) LEC. 3. A comprehensive introduction to artificial intelligence accessible to students across all disciplines. Addresses fundamental principles of AI, key concepts like knowledge representation, reasoning, machine learning, natural language processing, and neural networks. Topics such as AI's impact across various fields, critical analyses of the benefits and limitations of the state of the art, ethical considerations, and hands-on experience in leveraging AI technologies will be covered.

COMP 1200 INTRODUCTION TO COMPUTING FOR ENGINEERS AND SCIENTISTS (2) LEC. 2. Computer programming in a high-level language, with emphasis on use of the computer as a tool for engineering or science.

COMP 1201 INTRODUCTION TO COMPUTING LABORATORY (1) LAB. 1. SU. Coreq. COMP 1200. Laboratory activities focused on computer programming in a high-level language.

COMP 1210 FUNDAMENTALS OF COMPUTING I (3) LEC. 2. LAB. 3. Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

COMP 1220 INTRODUCTION TO COMPUTING WITH PYTHON (2) LEC. 1. LAB. 3. Computational problem-solving using Python, with emphasis on developing programs from specifications, verification and testing, and engineering applications.

COMP 1230 INTRODUCTION TO COMPUTING WITH MATLAB (2) LEC. 1. LAB. 3. Computational problem-solving using MATLAB, with emphasis on developing programs from specifications, verification and testing, and engineering applications.

COMP 1AA0 COMPUTER COMPETENCY TEST (0) TST. SU. A comprehensive test of all material covered in COMP 1000 and COMP 1003. Course may be repeated with change in topics.

COMP 2000 NETWORK PROGRAMMING WITH HTML AND JAVA (3) LEC. 3. Pr. COMP 1000 or COMP 1003 or ENGR 1110 or ENGR 1113. Introduction to network programming using HTML and Java to build web pages and web-based applications; presentation graphics; retrieval of information from the Internet; integration of data among applications. Pr., COMP 1000 or higher, or ENGR 1110.

COMP 2210 FUNDAMENTALS OF COMPUTING II (4) LEC. 3. LAB. 3. Pr. COMP 1210 or COMP 1213. Software development in the context of collections (e.g., lists, trees, graphs, hashtables). Communication, teamwork, and a design experience are integral course experience. Pr. COMP 1210 with a grade of C or higher.

COMP 2240 DISCRETE STRUCTURES (3) LEC. 3. Pr. (COMP 1210 or COMP 1213 or COMP 1217) and (MATH 1610 or MATH 1617). Characterization of computer science data structures and algorithms in terms of sets and relations, functions, recurrence relations. Use of propositional and predicate calculus to describe algorithms. Proving correctness and running time bounds for algorithms by induction and structural induction. Pr. COMP 1210 & MATH 1610, both with a grade of C or higher.

COMP 2710 SOFTWARE CONSTRUCTION (3) LEC. 3. Pr. COMP 2210 or COMP 2213. Intensive experience in software construction, to include topics such as testing, debugging, and associated tools; configuration management; low-level file and device I/O; systems and event-driven programming. Pr. COMP 2210 with a grade of C or higher.

COMP 2800 PROFESSIONAL DEVELOPMENT I (1) LEC. Introduction to career opportunities and student development options for majors in computer science and software engineering. Students will explore course, research, and extracurricular options within the department; create resumes and digital professional profiles; investigate post-graduation opportunities; and explore other professional development opportunities.

COMP 3000 OBJECT-ORIENTED PROGRAMMING FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr., Departmental approval. Fundamentals of object-oriented design and programming principles; data abstraction, identifying objects, problem decomposition, design and implementation of classes. Credit for the major will not be given to CSCI and SWEN, and WIRS majors.

COMP 3220 PRINCIPLES OF PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 2210 or COMP 2213. Study of programming language principles supporting procedural abstraction, data abstraction, storage allocation, and parallel execution; language types and examples; language translations. Pr. COMP 2210 with a grade of C or higher.

COMP 3270 INTRODUCTION TO ALGORITHMS (3) LEC. 3. Pr. COMP 2240 and (COMP 2210 or COMP 2213). Algorithms for standard computational problems and techniques for analyzing their efficiency; designing efficient algorithms and experimentally evaluating their performance. Pr. COMP 2210 & 2240, both with a grade of C or higher.

COMP 3350 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 3. Pr. ELEC 2200 or ELEC 2210. Stored Program Computers, hardware and software components; data representation, instruction sets, addressing modes; assembly language programming; linkers, loader, and operating systems.

COMP 3500 INTRODUCTION TO OPERATING SYSTEMS (3) LEC. 3. Pr. (COMP 2710 or COMP 2713) and (COMP 3350 or COMP 3353 or ELEC 2220). Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

COMP 3510 EMBEDDED SYSTEMS DEVELOPMENT (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220). Operating system design and analysis for embedded systems: Real-time issues, resource management, scheduling, exception handling, device driver development, kernel development, synchronization, network support.

COMP 3700 SOFTWARE MODELING AND DESIGN (3) LEC. 3. Pr. COMP 2710. Current processes, methods, and tools related to modeling and designing software systems. Communication, teamwork, and a design experience are integral course experiences.

COMP 3710 WIRELESS SOFTWARE ENGINEERING (3) LEC. 3. Pr. COMP 2710. Software engineering for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

COMP 4200 FORMAL LANGUAGES (3) LEC. 3. Pr. COMP 3240 or COMP 2240. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models. Pr. COMP 2240 with a grade of C or higher.

COMP 4300 COMPUTER ARCHITECTURE (3) LEC. 3. Pr. COMP 3350 or COMP 3353. Comparison of computer architectures, emphasizing the relationships between system software and hardware. Includes processor control and datapath organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

COMP 4320 INTRODUCTION TO COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220) or Departmental approval. Fundamentals of computer networks, OSI model, LAN, WAN, packet transmission, interworking, Internet Protocol, WWW and Java technology.

COMP 4710 SENIOR DESIGN PROJECT (3) LEC. 3. Pr. COMP 3700 or COMP 3710 or COMP 3703. Development of requirement definitions, architectural design specification, detailed design specification, testing plan and documentation for the software and/or hardware components of a comprehensive project.

COMP 4730 COMPUTER ETHICS (2) LEC. 2. Pr. PHIL 1020 or PHIL 1023 or PHIL 1027 or PHIL 1110 or PHIL 1113. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity. Communication and teamwork are integral course experiences.

COMP 4800 PROFESSIONAL DEVELOPMENT II (1) LEC. 1. Pr. COMP 2800. Discussion and activities in effective communication, ethical solutions, and career development in preparation for students to transition into professional practice and lifelong learning in Computer Science and Software Engineering.

COMP 4810 PROGRAM ASSESSMENT (0) LEC. SU. Pr. COMP 4800. Coreq. UNIV 4AA0. Academic program assessment to include curriculum, course offerings and content, student services, and career exploration and first destination outcomes. Course may be repeated for a maximum of 10 credit hours.

COMP 4960 SPECIAL PROBLEMS (1-4) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 4970 SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 12 credit hours.

COMP 5000 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 5020 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3. Pr. COMP 5000. Departmental approval. Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures.

COMP 5120 DATABASE SYSTEMS I (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 5130 DATA MINING (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 5210 COMPILER CONSTRUCTION (3) LEC. 3. Pr. COMP 4200 and COMP 3220. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 5320 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 4320 or COMP 4323. Departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

COMP 5350 DIGITAL FORENSICS (3) LEC. 3. Pr. COMP 2710 or ISMN 3080 or MNGT 3080 or MNGT 3087 or COMP 2713. Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 5360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Pr. COMP 4320. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM. A

COMP 5370 COMPUTER AND NETWORK SECURITY (3) LEC. 3. Pr. COMP 4320. Fundamentals of computer security. Access Control. Authentication. Digital signatures and watermarks. Modeling and performance assessment. Viruses and worms. Identification of avenues for compromising systems.

COMP 5520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Pr. COMP 4320. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 5530 SECURE CLOUD COMPUTING: PRINCIPLES, PRACTICE, AND APPLICATIONS (3) LEC. 3. Pr. COMP 3220 and COMP 3500. Cloud concepts and issues including architecture, service models, security, and implementation. Hands-on experience in both using, managing, and deploying clouds.

COMP 5600 ARTIFICIAL INTELLIGENCE (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 5610 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 5600. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic, and constraint programming, knowledge representation and heuristic search methods.

COMP 5620 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3. Pr. COMP 3270 or COMP 3273. Departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 5630 MACHINE LEARNING (3) LEC. 3. Pr. COMP 5600. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning. Pr. COMP 5600.

COMP 5650 DEEP LEARNING (3) LEC. 3. Pr. COMP 5630. Convolutional neural networks (CNNs); visualizing CNNs; detection CNNs; segmentation CNNs; recurrent neural networks; machine translation; unsupervised learning; and generative adversarial networks.

COMP 5660 EVOLUTIONARY COMPUTING (3) LEC. 3. Pr. COMP 3270 and (STAT 3010 or STAT 3600). This course covers in depth the fundamentals of evolutionary computing and surveys the most popular types of evolutionary algorithms (e.g., genetic programming), a class of stochastic, population-based algorithms inspired by natural evolution theory, genetics, and population dynamics, capable of solving complex optimization and modeling problems. It applies them to solve a series of challenging assignments involving intensive programming, experimentation, statistical analysis, and technical writing.

COMP 5700 SECURE SOFTWARE PROCESS (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Process models of the software life cycle as well as methods and tools for software development with a special emphasis on secure software engineering.

COMP 5710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 5720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Pr. COMP 3500 or COMP 3510. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 5830 CYBERSECURITY THREATS AND COUNTERMEASURES (3) LEC. 3. LAB. 0, DSL/LEC. 0. Pr. COMP 4320. Analysis of methods used by ethical hackers to identify security threats against networks, systems, and personnel. Examination of tactics, techniques, and procedures employed by threat actors and defensive countermeasures.

COMP 5870 SECURITY INTEGRATION AND APPLICATION (1) LEC/LST. Coreq. COMP 4710. Departmental approval. Exploration of the integration and application of state-of-the-practice cybersecurity topics.

COMP 5970 SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 6000 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 6120 DATABASE SYSTEMS I (3) LEC. 3. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 6130 DATA MINING (3) LEC. 3. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 6210 COMPILER CONSTRUCTION (3) LEC. 3. Departmental approval. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 6320 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3. Departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

COMP 6350 DIGITAL FORENSICS (3) LEC. 3. Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 6360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM.

COMP 6370 COMPUTER AND NETWORK SECURITY (3) LEC. 3. Departmental approval. Fundamentals of computer security. Access Control. Authentication. Digital signatures and watermarks. Modeling and performance assessment. Viruses and worms. Identification of avenues for compromising systems.

COMP 6520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Departmental approval. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 6530 SECURE CLOUD COMPUTING: PRINCIPLES, PRACTICE, AND APPLICATIONS (3) LEC. 3. Cloud concepts and issues including architecture, service models, security, and implementation. Hands-on experience in both using, managing, and deploying clouds.

COMP 6600 ARTIFICIAL INTELLIGENCE (3) LEC. 3. Departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 6610 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic and constraint programming, knowledge representation and heuristic search methods.

COMP 6620 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3. Departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 6630 MACHINE LEARNING (3) LEC. 3. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning.

COMP 6650 DEEP LEARNING (3) LEC. 3. Pr. COMP 6630. Convolutional neural networks (CNNs); visualizing CNNs; detection CNNs; segmentation CNNs; recurrent neural networks; machine translation; unsupervised learning; and generative adversarial networks.

COMP 6660 EVOLUTIONARY COMPUTING (3) LEC. 3. Departmental approval. This course covers in depth the fundamentals of evolutionary computing and surveys the most popular types of evolutionary algorithms (e.g., genetic programming), a class of stochastic, population-based algorithms inspired by natural evolution theory, genetics, and population dynamics, capable of solving complex optimization and modeling problems. It applies them to solve a series of challenging assignments involving intensive programming, experimentation, statistical analysis, and technical writing.

COMP 6700 SECURE SOFTWARE PROCESS (3) LEC. 3. Pr. COMP 3700. Process models of the software life cycle as well as methods and tools for software development with a special emphasis on secure software engineering.

COMP 6710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 6720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Departmental approval. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 6830 CYBERSECURITY THREATS AND COUNTERMEASURES (3) LEC. 3. Pr. COMP 4320. Analysis of methods used by ethical hackers to identify security threats against networks, systems, and personnel. Examination of tactics, techniques, and procedures employed by threat actors and defensive countermeasures.

COMP 6970 SPECIAL TOPICS (1-3) LEC. 1-3. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 7120 DATABASE SYSTEMS II (3) LEC. 3. Pr. COMP 6120 or COMP 6126. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of object-oriented database systems.

COMP 7270 ADVANCED TOPICS IN ALGORITHMS (3) LEC. 3. Departmental approval. In-depth study of advanced topics in algorithms.

COMP 7300 ADVANCED COMPUTER ARCHITECTURE (3) LEC. 3. Departmental approval. Modern instruction level parallel computer design, including superscalar and very-long instruction word processor design.

COMP 7370 ADVANCED COMPUTER AND NETWORK SECURITY (3) LEC. 3. Pr. COMP 6370 or COMP 6376. Departmental approval. Advanced, research-based examination of computer network attack and defense techniques, viruses and other malware; operating system vulnerabilities and safeguards.

COMP 7500 ADVANCED TOPICS IN OPERATING SYSTEMS (3) LEC. 3. Departmental approval. Advanced topics in operating system concepts, design and implementation.

COMP 7620 HUMAN-COMPUTER INTERACTION (3) LEC. 3. Pr. COMP 6620. Theoretical principles and practical aspects of interaction between humans and computers, design and evaluation of interactive systems.

COMP 7660 RESEARCH METHODS IN EVOLUTIONARY COMPUTING (3) LEC. 3. Pr. COMP 6660 or COMP 5660. This course prepares students to perform independent research in general, and in the field of evolutionary computing (EC) in specific. This course covers in the context of EC: ideation, literature review, proposal writing and evaluation, research software design and implementation, experiment design and analysis, scientific writing and evaluation, and scientific oral presentation.

COMP 7700 SOFTWARE ARCHITECTURE (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Methods and tools related to the analysis, specification and design of software architecture.

COMP 7720 SOFTWARE REVERSE ENGINEERING (3) LEC. 3. Pr. P/C COMP 6370 or COMP 6376. Process, methods and tools associated with software reverse engineering. Course covers static and dynamic analysis techniques applied to analyze malware (i.e., malicious software).

COMP 7800 ARTIFICIAL INTELLIGENCE FOR SECURITY (3) LEC. 3. Exposes students in mixed-discipline teams to applying concepts and techniques in the AI domain to real-world problems of the security domain. In addition to practical experience with both domains, it will also provide students the opportunity to apply a multidisciplinary perspective conveying the “conventional wisdom” and mindsets of both AI and security through project-based learning. This course mimics R&D environments where teams extract requirements from customers, identify the state-of-the-art, design and propose solutions, implement and evaluate those solutions, and culminates in both customer and technical communication of project artifacts.

COMP 7810 PROGRAM ASSESSMENT (0) LEC. SU. Coreq. UNIV 4AA0. Academic program assessment to include curriculum, course offerings and content, student services, and career exploration and first destination outcomes. Course may be repeated for a maximum of 10 credit hours.

COMP 7930 DIRECTED STUDY (1-3) IND/RES. Course may be repeated with change in topics.

COMP 7970 SPECIAL TOPICS (1-3) DSL. Course may be repeated with change in topics.

COMP 7980 CAPSTONE ENGINEERING PROJECT (3) LEC. 3. Planning, implementation, and completion of a design project. Project culminates in both a written report and an oral presentation.

COMP 7990 RESEARCH AND THESIS (1-15) DSL. May count either COMP 7990 or COMP 7996. Course may be repeated with change in topics.

COMP 8930 DIRECTED STUDY (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 8970 SPECIAL TOPICS (1-3) IND. Course may be repeated with change in topics.

COMP 8990 RESEARCH AND DISSERTATION (1-20) DSL/DSR. Course may be repeated with change in topics.

Computer Science - CPSC

Courses

CPSC 1210 INTRODUCTION TO COMPUTER SCIENCE I (3) LEC. 45. Admission into Bachelor of Computer Science Program. Introduces the fundamental concepts of object-oriented programming.

CPSC 1220 INTRODUCTION TO COMPUTER SCIENCE II (3) LEC. 45. Pr. CPSC 1213 or CPSC 1210. Admission into Bachelor of Computer Science Program. Continues the development of programming from an object-oriented perspective. Emphasizes sound software engineering principles and best practices.

CPSC 1230 DATA STRUCTURES (3) LEC. 45. Pr. CPSC 1223 or CPSC 1220. Admission into Bachelor of Computer Science Program. Developing programs that use data structures and collections to efficiently store data. Emphasis will be placed on the interplay between effective data structures and efficient algorithms.

CPSC 2010 INTRODUCTION TO COMPUTER SCIENCE I (3) DSL. 45. Admission into Bachelor of Computer Science Program. Introduces the fundamental concepts of object-oriented programming.

CPSC 2710 SOFTWARE CONSTRUCTION FUNDAMENTALS (3) LEC. 45. Pr. CPSC 1233 or CPSC 1230. Admission into Bachelor of Computer Science Program. Development of graphical user interface-based, event-driven desktop/laptop computer application using a modern object-oriented language. Systematic testing, debugging, documentation, and maintenance programming.

CPSC 3220 PROGRAMMING LANGUAGES AND TRANSLATION (3) DSL. Pr. (CPSC 1230 or CPSC 1233) and (CPSC 3300 or CPSC 3303). Admission into Bachelor of Computer Science Program. Fundamental concepts of programming language design, interpretation, and compilation.

CPSC 3240 DISCRETE STRUCTURES (3) LEC. 45. Admission into Bachelor of Computer Science Program. Basics of set theory, propositional and predicate logic as used to describe algorithms, recurrence relations. Proving correctness and estimating running time for algorithms. Mathematical and structural induction.

CPSC 3270 ALGORITHMS I (3) LEC. 45. Pr. CPSC 1233 or CPSC 1230. Admission into Bachelor of Computer Science Program. Introduction to algorithms as tools for computational l problem solving, language of algorithms, understanding algorithms, approximately analyzing correctness and efficiency of algorithms, algorithms that solve fundamental computational problems, basic algorithm design techniques, steps of computational problem solving.

CPSC 3280 ALGORITHMS II (3) LEC. 45. Pr. CPSC 3270 or CPSC 3273. Admission into Bachelor of Computer Science Program. Advanced complexity analysis techniques, notions of computational complexity, polynomial time hierarchy, computability, algorithms that solve advanced computational problems, advanced algorithm design techniques, computational problem solving.

CPSC 3300 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 45. Pr. (CPSC 3243 or CPSC 3240) and (CPSC 1213 or CPSC 1210). Admission into Bachelor of Computer Science Program. Stored program computers, hardware and software components, data representations, instruction sets, addressing modes, assembly language programming, loaders, linkers and operating systems.

CPSC 3320 COMPUTER ARCHITECTURE (3) LEC. 45. Pr. CPSC 3333 or CPSC 3330. Admission into Bachelor of Computer Science Program. Design of Computer Systems, emphasizing the relationship between computer hardware and software. Includes processor control and data path organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

CPSC 3330 OPERATING SYSTEMS (3) LEC. 45. Pr. (CPSC 1230 or CPSC 1233) and (CPSC 3300 or CPSC 3303). Admission into Bachelor of Computer Science Program. Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

CPSC 3340 PARALLEL SYSTEMS (3) LEC. 45. Pr. CPSC 3333 or CPSC 3330. Admission into Bachelor of Computer Science Program. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, and parallel applications.

CPSC 3350 COMPUTER NETWORKS I (3) LEC. 45. Pr. CPSC 3330 or CPSC 3333. Admission into Bachelor of Computer Science Program. Fundamentals of computer networks, TCP/IP layered model: application layer, transport layer, network layer, link layer, with examples of each layer, and explanation of design issues. IPv6.

CPSC 3360 COMPUTER NETWORKS II (3) LEC. 45. Pr. CPSC 3353 or CPSC 3350. Admission into Bachelor of Computer Science Program. Computer network design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

CPSC 3370 WIRELESS AND MOBILE NETWORKS (3) DSL. Pr. CPSC 3353 or CPSC 3350. Admission into Bachelor of Computer Science Program. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless, wireless TCP personal communication systems, and current mobile phone OTA protocols.

CPSC 3700 SOFTWARE ENGINEERING I (3) LEC. 45. Pr. CPSC 2713 or CPSC 2710. Admission into Bachelor of Computer Science Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 3710 SOFTWARE ENGINEERING II (3) DSL. Pr. CPSC 3703 or CPSC 3700. Admission into Computer Science Online Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 4000 SYSTEM ADMINISTRATION (3) LEC. 45. Pr. CPSC 3330 or CPSC 3333. Admission into Bachelor of Computer Science. Basics of system administration for Windows and Unix machines, including configuration of Performance measurement and enhancement.

CPSC 4200 FORMAL LANGUAGES (3) DSL/LEC. 45. Pr. (CPSC 3273 or CPSC 3270) and (CPSC 3243 or CPSC 3240). Admission into Bachelor of Computer Science Program. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models. Basics of interpretation and compilation.

CPSC 4730 COMPUTER ETHICS (3) LEC. 45. Admission into Bachelor of Computer Science Program. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity.

CPSC 4800 PROFESSIONAL DEVELOPMENT I (1) DSL. Discussion and activities in effective communication, ethical solutions, and career development in preparation for students to transition into professional practice and lifelong learning in Computer Science.

CPSC 4810 PROFESSIONAL DEVELOPMENT II (1) DSL. Pr. CPSC 4800. Discussion and activities in effective communication, ethical solutions, and career development in preparation for students to transition into professional practice and lifelong learning in Computer Science.

CPSC 4820 PROGRAM ASSESSMENT (0) DSL. SU. Coreq. UNIV 4AA0. Academic program assessment to include curriculum, course offerings and content, student services, and career exploration and first destination outcomes. Course may be repeated for a maximum of 10 credit hours.

CPSC 4970 SPECIAL TOPICS (3) LEC. 3. Investigation of current topics in computer science. Course may be repeated for a maximum of fifteen credit hours.

CPSC 5120 DATABASE I (3) LEC. 45. Pr. CPSC 1230 or CPSC 1233. Admission into Bachelor of Computer Science Program. The design and implementation of database applications, with a focus on relational database management systems.

CPSC 5130 DATABASE II (3) LEC. 45. Pr. CPSC 5123 or CPSC 5120. Admission into Bachelor of Computer Science Program. Theory, design, and implementation of database systems.

CPSC 5200 DEVELOPING WEB APPLICATIONS WITH XML (3) LEC. 45. Pr. CPSC 1230 or CPSC 1233. Admission into Bachelor of Computer Science Program. Comprehensive introduction to XML, working with XML and Databases, event-driven programming with XML, implementing Communication and Web Services with XML, working with XML, JQuery, XHTML and HML5.

CPSC 5210 WEB APPLICATION DEVELOPMENT WITH JSP (3) LEC. 40. Pr. CPSC 5203 or CPSC 5200. Admission into Bachelor of Computer Science Program. Advanced course in web development using JSP, includes JCP fundamentals, JAP and web server software development, and applying JSP in the real world.

CPSC 5330 MOBILE APPLICATIONS I (3) LEC. 45. Pr. CPSC 2710 or CPSC 2713. Admission into Computer Science Online Program. Software development for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

CPSC 5340 MOBILE APPLICATION DEVELOPMENT II (3) LEC. 3. Pr. CPSC 5330 or CPSC 5333. Admission into Bachelor of Computer Science Program. Builds mastery of mobile application development and the skills necessary to stay current in this fast-moving field throughout one’s career by introducing a new programming language and application programmer interface and interface and requiring the student to master them.

Consumer and Design Sciences - CADS

Courses

CADS 1000 INTRODUCTION TO INTERIOR DESIGN (3) LEC. 3. Introduces theories of human behavior, physiology, and psychology; elements and principles of design; architectural form, space, and order; codes and regulations; profession of interior design.

CADS 1100 INTERIOR DESIGN STUDIO: DESIGN PRINCIPLES (3) LST/STU. 3. Pr. P/C CADS 1000. INDS (interior design) or INDX (pre-interior design) majors only. Fundamental principles of allied art and design disciplines. Two-dimensional and three-dimensional design projects, critical and creative thinking, application of color theory, composition, perspective, and craftsmanship.

CADS 1600 TEXTILE INDUSTRIAL COMPLEX (3) LEC. 3. Introduction to the composition, characteristics, and products of the network of fiber producers, textile manufacturers, dyers, finishers, apparel manufacturers, and retailers.

CADS 1700 GIVING AND SHARING (3) LEC. 3. Exploration of traditions of American philanthropy including a service-learning component. Students reflect on their giving experiences and apply philanthropic traditions to their own lives, service experiences, educational and professional goals, and visions for a better world.

CADS 1740 AESTHETICS FOR FASHION (3) LEC. 3. Elements and principles of design and their application in industries such as textiles, apparel, and retail.

CADS 2000 GLOBAL CONSUMER CULTURE (3) LEC. 3. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000 or CADS 2007.

CADS 2007 HONORS GLOBAL CONSUMER CULTURE (3) LEC. 3. Pr. Honors College. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000 or CADS 2007.

CADS 2040 CONSUMER FINANCIAL PLANNING (3) LEC. 2.5. Use of budgeting, credit, savings, investments, and retirement and estate planning to secure individual and family financial success using. Promote understanding and application of fundamentals of insurance, taxation, and personal finance tools.

CADS 2100 INTERIOR DESIGN STUDIO: SPACE PLANNING AND PROCESS (4) LEC/STU. 6. Pr. (CADS 1100). Coreq. CADS 2150. INDS (interior design) majors only, or with departmental approval. Introduction to the formal design process from concept through design development.

CADS 2150 PROJECT MANAGEMENT FOR INTERIOR DESIGNERS (1) LEC. 1. Coreq. CADS 2100. INDS (interior design) majors only, or with departmental approval. Principles of project management, disciplinary collaboration, and professional conduct within the context of the interior design studio workplace.

CADS 2200 INTERIOR DESIGN STUDIO: COMPUTER-AIDED DESIGN (3) LST. 6. Pr. (CADS 2100). Coreq. CADS 3200. INDS (interior design) majors only, or with departmental approval. Application of computer-aided design software, with a focus on developing construction drawings and documentation for interior spaces.

CADS 2300 HISTORY OF INTERIOR DESIGN I (3) LEC. 3. INDS (interior design) or INDX (pre-interior design) majors only, or with departmental approval. Historical survey of interior design and the decorative arts from antiquity through the mid-1800s.

CADS 2350 HISTORY OF INTERIOR DESIGN II (3) LEC. 3. Pr. CADS 2300. INDS (interior design) majors only, or with departmental approval. Historical survey of interior design and the decorative arts from the Industrial Revolution through present day.

CADS 2400 INTERIOR MATERIALS AND COMPONENTS (3) LEC. 3. Pr. CADS 1000 and CADS 1100. INDS (interior design) majors only, or with departmental approval. Introduction to interior surface finishes, textiles, materials, and components.

CADS 2500 INTERIOR DESIGN STUDIO: DESIGN COMMUNICATION (3) STU. 6. INDS (interior design) majors only, or with departmental approval. Development of design communication media and techniques.

CADS 2550 LIGHTING, MECHANICAL, AND ENVIRONMENTAL SYSTEMS (3) LST. Departmental approval. Introduction to the fundamentals of lighting, mechanical, electrical, and plumbing systems within the interior environment. INDS (interior design) majors only, or with

CADS 2600 TEXTILES (3) LEC. 3. Pr. CADS 1600. Natural and man-made fibers, yarns, fabrics, dyes and finishes for textiles for apparel and related products. AMDP major.

CADS 2700 INTRODUCTION TO NONPROFIT ORGANIZATIONS (3) LEC. 3. Introduction to mission, structure, and impact of nonprofit organizations at the local, state, national and international levels.

CADS 2740 ILLUSTRATION TECHNIQUES FOR APPAREL (3) LEC. 1. LAB. 4. Pr. CADS 1740 and CADS 1600. Creative approach to illustrating apparel through the use of varied media and development of illustrative style appropriate for portfolio presentations. APDP Major.

CADS 2750 PRODUCT DEVELOPMENT: TECHNICAL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2740 and CADS 2800. Apparel pattern development through drafting, flat pattern manipulation and draping; custom apparel production. APDP Major.

CADS 2760 VISUAL MERCHANDISING (4) LST. 6. Pr. CADS 1600 or CAHS 1600. History, equipment, application, and theory of display techniques in store and non-store settings.

CADS 2770 COMPUTER-AIDED DESIGN FOR APPAREL (4) LEC. 2, LST. 4. Pr. CADS 1600 and CADS 2740. Principles of aesthetics applied to apparel product development including computer aided design and other presentation techniques.

CADS 2800 APPAREL PRODUCTION MANAGEMENT (4) LEC. 3. LAB. 3. Pr. CADS 1600. Introduction to apparel industry terminology, technology, production methods, and engineering quality into apparel products.

CADS 2900 INNOVATION IN RETAIL AND CONSUMER EXPERIENCES (1) SEM. 1. A seminar on technology and innovations in the retail industry and their impact on consumer experiences and retail business processes.

CADS 3100 LIGHTING DESIGN/ENVIRONMENTAL SYSTEMS (4) LEC. 4. Pr. CADS 2200 and CADS 2400 and CADS 2500. Application of principles and processes of lighting, mechanical, and environmental systems to interior design.

CADS 3150 PROFESSIONAL DEVELOPMENT FOR APPAREL MERCHANDISING CAREER (1) LEC. 1. Pr. CADS 1600 and CADS 2800. Investigation of apparel merchandising careers and professional skill development.

CADS 3200 INTERIOR DESIGN STUDIO: RESIDENTIAL (4) LEC. 1, LST. 6. Pr. CADS 2100. Coreq. CADS 2200. Departmental approval. Development of residential interior design solutions with emphasis on programming and space planning. INDS (interior design) majors only.

CADS 3500 INTERIOR DESIGN PROFESSIONAL PRACTICE (3) LEC. 3. Pr. CADS 3100 and CADS 3200. Exploration of the interior design profession and standard practices.

CADS 3700 GENDER, WEALTH & PHILANTHROPY (3) LEC. 3. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700 or CADS 3707.

CADS 3707 HONORS GENDER, WEALTH AND PHILANTHROPY (3) LEC. 3. Pr. Honors College. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700 or CADS 3707.

CADS 3750 PRODUCT DEVELOPMENT: APPAREL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2750 and CADS 2800 and CADS 2770. Advanced design techniques, including couture production; portfolio and internship planning. ADMP major.

CADS 3800 CONSUMER DECISION MAKING FOR APPAREL AND FASHION PRODUCTS (3) LEC. 3. Pr. CADS 2000 or CADS 2003 or CADS 2007. Analysis of consumer decision making for apparel and fashion products and the factors that impact consumer decisions. AMDP major.

CADS 3810 SOCIAL MEDIA MANAGEMENT FOR APPAREL (3) LEC. 3. Topics in social media management and application of merchandising strategies for apparel businesses. Juniors & Seniors Only; APME and APDP only, ENFB Minor by departmental approval

CADS 3850 MERCHANDISE PLANNING AND CONTROL (3) LEC. 2. LAB. 2. Pr. (COMP 1000 or COMP 1003) and CADS 1600 and (ACCT 2810 or ACCT 2813) or Departmental approval. Application of principles of merchandise management and retail buying to the retailing of consumer goods and services.

CADS 3900 DIRECTED STUDIES (1-3) AAB/IND. SU. Departmental approval. Directed readings and/or individualized research project. Course may be repeated for a maximum of 6 credit hours.

CADS 3920 INDUSTRY EXPERIENCE (3) INT. 3. Pr. CADS 1600. Departmental approval. Supervised industry experience requiring students to spend time working in the industry under supervision. Course may be repeated for a maximum of 6 credit hours.

CADS 3940 STUDY TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) AAB/FLD. Departmental approval. Concentrated study in the U.S. or abroad. Course may be repeated for a maximum of 6 credit hours.

CADS 3970 SPECIAL TOPICS (1-4) LEC. Courses may be repeated for 9 hours. Departmental approval. Standing grade. Course may be repeated for a maximum of 9 credit hours.

CADS 4040 ESTATE PLANNING & PHILANTHROPY (3) LEC. 3. Pr. CADS 2040. CADS 4040 Estate Planning & Philanthropy (3). LEC. 3. Introduction to estate planning concepts and philanthropy strategies for preservation and transfer of family wealth and reflecting family financial and philanthropic goals. Includes legal, tax, financial, and non-financial factors and components.

CADS 4050 CONSUMER TAX PLANNING (3) LEC. 3. Pr. CADS 2040. Study of the impacts of taxation, including the federal income tax, on decisions made by individuals and families throughout the life cycle. Apply economic, legal, and management principles to the family tax planning process.

CADS 4060 RETIREMENT & BENEFITS PLANNING (3) LEC. 3. Pr. CADS 2040. CADS 4060 Retirement & Benefits Planning (3) LEC. 3. Introduction to retirement planning concepts, processes and issues, with attention to designing retirement strategies to meet diverse client needs.

CADS 4100 PHILANTHROPY & NONPROFIT STUDIES LECTURE SERIES (1) LEC. 1. Pr. CADS 2700 and (CADS 3700 or CADS 3707). Lecture series showcasing philanthropic and nonprofit leaders. Course may be repeated for a maximum of 2 credit hours.

CADS 4200 INTERIOR DESIGN SENIOR SEMINAR (1) LEC. 1. Pr. CADS 3200. INDS (interior design) majors only, or with departmental approval. Preparation for professional NCDIQ exam, with emphasis on IDFX fundamentals knowledge. Overview of content, test structure, and progress toward licensure. Review of requirements for practice across a variety of jurisdictions. Examination of the current job market and strategic planning for the first two years of professional practice.

CADS 4700 PORTFOLIO DEVELOPMENT FOR PHILANTHROPY AND NONPROFIT STUDIES (3) LEC. 3. Pr. CADS 2700 and CADS 2040 and CADS 3780. Portfolio development in print, digital, and web formats for students in Philanthropy and Nonprofit Studies.

CADS 4740 CONSUMER FINANCIAL MANAGEMENT APPLICATIONS (3) LEC. 3. Pr. CADS 4040 and CADS 4050 and CADS 4060 and FINC 3200 and FINC 3640. CADS 4740 Consumer Financial Management Applications (3) LEC. 3. Capstone consumer financial planning applying comprehensive planning concepts, processes and issues to development of a complete family financial plan.

CADS 4750 PRODUCT DEVELOPMENT: SPECIALIZED DESIGN (3) STU. 6. Pr. CADS 3750. Specialized design development concepts, techniques, and applications for target markets including children's wear, performance wear, and bridal markets.

CADS 4800 APPAREL ENGINEERING (4) LEC. 3. LAB. 3. Pr. CADS 2800. Coreq. CADS 3750. Planning and problem solving throughout the apparel production process, including methods engineering, time study, costing, CAD. AMDP major.

CADS 4850 ADVANCED EXCEL FOR MERCHANDISING DATA ANALYTICS (3) LEC. 3. LAB. 0. Pr. P/C CADS 3850 or P/C CADS 3853. Advanced techniques of Microsoft Excel for data analytics in merchandising and retail decision making.

CADS 4900 UNDERGRADUATE TEACHING ASSISTANT EXPERIENCE (1-3) LEC/LST. Student must have previously earned an "A" in the course s/he is assisting with. Departmental approval. Student participation as an undergraduate teaching assistant (UTA) for the Consumer and Design Sciences course under the supervision of a faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4910 PRACTICUM IN PHILANTHROPY AND NONPROFIT ORGANIZATIONS (3) PRA. 3. Pr. (CADS 2700 or CADS 2703) and (CADS 3700 or CADS 3703 or CADS 3707). Departmental approval. Supervised practicum experience with a philanthropic or nonprofit organization.

CADS 4920 PHILANTHROPY AND NONPROFIT STUDIES INTERNSHIP (9) INT. Pr. CADS 3780 or CADS 4040. Departmental approval. Supervised 10 week professional internship. 2.0 GPA. Junior standing.

CADS 4930 APPAREL MERCHANDISING, DESIGN AND PRODUCTION MANAGEMENT INTERNSHIP (9) INT. Pr. CADS 3850 or CADS 3750 or CADS 3853. Departmental approval. Supervised 10 week professional internship. 2.0 GPA. Junior standing.

CADS 4950 INTERIOR DESIGN INTERNSHIP (9) INT. Pr. CADS 5100. Departmental approval. Supervised 10 week professional internship. 2.0 GPA. Junior standing.

CADS 4960 SPECIAL PROBLEMS IN DESIGN (1-4) LEC. Departmental approval. A) Apparel, B) Interior Design, C) Visual Merchandising, D) Textile Design. Creative solution of design problems. Course may be repeated for a maximum of 9 credit hours.

CADS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Pr. Honors College. Departmental approval. Readings in specialized topics. Course may be repeated for a maximum of 6 credit hours.

CADS 4980 UNDERGRADUATE RESEARCH IN CONSUMER AND DESIGN SCIENCES (1-3) IND/LEC. SU. Pr. 3.50 GPA. Departmental approval. Participation as an undergraduate research assistant (URA) for a Consumer and Design Sciences research project under the supervision of a CADS faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4997 HONORS THESIS (3) IND. 3. SU. Pr. Honors College. CADS 4967. Departmental approval. Research in specialized topics.

CADS 5100 INTERIOR DESIGN STUDIO: COMMERCIAL (4) LEC/STU. 6. Pr. CADS 3200 and CADS 2550 and CADS 2400. INDS (interior design) majors only, or with departmental approval. Development of commercial interior design solutions with emphasis on contemporary issues in workplace design.

CADS 5150 GLOBAL ISSUES IN INTERIOR DESIGN (3) LEC. 6. Coreq. CADS 5350. INDS (interior design) majors only or with Departmental approval. Explores the impact of designed products, places, and processes within the interior environment on global health and quality of life.

CADS 5200 INTERIOR DESIGN PORTFOLIO (3) LEC. 3. Pr. CADS 2100 and CADS 2200. INDS (interior design) majors only, Development of a professional interior design portfolio and collateral documentation.

CADS 5300 INTERIOR DESIGN STUDIO: HOSPITALITY (4) LEC/STU. 6. Pr. CADS 5100. INDS (interior design) majors only, or with departmental approval. Development of hospitality design solutions with emphasis on industry trends and practice-based approaches. May count either CADS 5300 or CADS 6300.

CADS 5310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 5350 INTERIOR DESIGN STUDIO: ADVANCED DESIGN PROJECT (4) LEC. 1, LST/STU. 6. Pr. CADS 5400. INDS (interior design) majors only, or with departmental approval. Response to a complex interior design challenge through application of design process, resulting in an advanced solution informed by pre-design research. May count for either CADS 5350 or 6350.

CADS 5400 INTERIOR DESIGN STUDIO: DESIGN FOR HEALTH AND WELLNESS (4) LEC/STU. 6. Pr. CADS 5100 and P/C CADS 5150. INDS (interior design) majors only or with departmental approval. Development of interior design solutions for health, wellness, and quality of life. May count either CADS 5400 or 6400.

CADS 5450 HISTORY OF COSTUME (3) LEC. 3. Pr., Core History or departmental approval. AMDP major. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 5450 and CADS 6450.

CADS 5460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. P/C; Core History, Core Literature or departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460.

CADS 5500 APPAREL MERCHANDISING PORTFOLIO (2) LEC. 2. Pr. (CADS 3850 or CADS 3853) and P/C CADS 3150. Portfolio Development in print and digital formats for merchandising students. Departmental approval may be needed.

CADS 5510 DIGITAL RETAILING FOR APPAREL (3) LEC. 3. Pr. CADS 3850 or CADS 3853. Application of various digital retailing and merchandising concepts and strategies for apparel businesses. CADS 3850 or 3853; Juniors & Seniors Only; APME and APDP Only; ENFB Minor by departmental approval

CADS 5600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (AFRI 2000 or ANTH 1000 or ANTH 1003 or ANTH 1007 or COUN 2000 or ECON 2030 or ECON 2033 or ECON 2037 or GEOG 1010 or GEOG 1013 or GEOG 1017 or GSHS 2000 or NATR 2050 or POLI 1050 or POLI 1057 or POLI 1090 or POLI 1093 or POLI 1097 or PSYC 2010 or PSYC 2013 or PSYC 2017 or SOCY 1000 or SOCY 1003 or SOCY 1007 or SOCY 1100 or SUST 2000 or UNIV 2720 or UNIV 2727) or Departmental approval. The role of fiber, textile, and apparel industries in the international economy. AMDP major.

CADS 5610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Pr. (CADS 2000 or CADS 2003 or CADS 2007) and (CADS 3850 or CADS 3853). Strategies for successful global business expansion for textile and apparel retailers. Credit granted for only one of: CADS 5610, CADS 6610, MKTG 4330.

CADS 5700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 5730 HISTORY OF TEXTILES (3) LEC. 3. Pr., Core History or departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 5750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. CADS 3750 and CADS 4800. Team driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750.

CADS 5760 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Pr. CADS 1600 and (CADS 1740 or CADS 2760). Theories explaining fashion dynamics and techniques for forecasting change, with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 5760 and CADS 6760. AMDP major.

CADS 5770 PORTFOLIO DEVELOPMENT FOR APPAREL DESIGN (4) LST. 4. Pr. P/C CADS 3750 and P/C CADS 4800. Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, digital, and web formats for apparel design students.

CADS 5780 INTERNATIONAL PHILANTHROPY (3) LEC. 3. Introduction to the role of international philanthropy in addressing global poverty and how philanthropic practices and behaviors are embedded in cultural contexts. Explores best practices in cross-border philanthropy and volunteering, supporting the development of cross-cultural competencies.

CADS 5790 GRANTMAKING FOR PHILANTHROPISTS (3) LEC. 3. Introduction to philanthropic grantmaking institutions including mission development, needs assessment, proposal analysis, and site visits. Incorporates student philanthropy via development of grant-making strategies and best practices in individual giving.

CADS 5850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Pr. CADS 3850 or CADS 3853. Problem-solving and decision making strategies for retailing apparel, textiles, and other consumer products. Credit will not be given for both CADS 5850 and CADS 6850. AMDP major.

CADS 5860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Pr. CADS 5850. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 6100 INTERIOR DESIGN STUDIO: COMMERCIAL (4) LEC/STU. 6. INDS (interior design) majors only, or with departmental approval. Development of commercial interior design solutions with an emphasis on contemporary issues in workplace design. May count for either CADS 5100 or 6100.

CADS 6150 GLOBAL ISSUES IN INTERIOR DESIGN (3) LEC. 3. CADS graduate students only, or with departmental approval. Explores the impact of designed products, places, and processes within the interior environment on global health and quality of life.

CADS 6200 INTERIOR DESIGN PORTFOLIO (3) LEC. 3. CADS graduate students only, or with departmental approval. Development of a professional interior design portfolio and collateral documentation.

CADS 6300 INTERIOR DESIGN STUDIO: HOSPITALITY (4) LEC/STU. 6. CADS graduate students only, or with departmental approval. Development of hospitality design solution with emphasis on industry trends and practice-based approaches.

CADS 6310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 6350 INTERIOR DESIGN STUDIO: ADVANCED DESIGN PROJECT (4) LEC/STU. 6. CADS graduate students only, or with departmental approval. Response to a complex interior design challenge through application of design process, resulting in an advanced solution informed by pre-design research. May count for either CADS 5350 or 6350.

CADS 6400 INTERIOR DESIGN STUDIO: DESIGN FOR HEALTH AND WELLNESS (4) LEC/STU. 6. Departmental approval. Development of interior design solutions for health, wellness, and quality of life. Graduate standing.

CADS 6450 HISTORY OF COSTUME (3) LEC. 3. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 6450 and CADS 5450. Departmental approval. Graduate standing.

CADS 6460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. Departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460. Graduate standing.

CADS 6500 APPAREL MERCHANDISING PORTFOLIO (2) LEC. 2. Pr. CADS 5850 or CADS 5860. Portfolio development in print and digital formats for merchandising students.

CADS 6510 DIGITAL RETAILING FOR APPAREL (3) LEC. 3. Application of various digital retailing and merchandising concepts and strategies for apparel businesses. Graduate standing or departmental approval needed.

CADS 6600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Departmental approval. The role of fiber, textile, and apparel industries in the international economy. Credit will not be given for both CADS 5600 and CADS 6600. Graduate standing.

CADS 6610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Strategies for successful global business expansion for textile and apparel retailers. Credit given for only one of: CADS 5610, CADS 6610, MKTG 4330. Departmental approval.

CADS 6700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 6730 HISTORY OF TEXTILES (3) LEC. 3. Departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 6750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Team-driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750. Departmental approval. Graduate standing.

CADS 6760 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Departmental approval. Theories explaining fashion dynamics and techniques for forecasting change with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 6760 and CADS 5760.

CADS 6770 PORTFOLIO DEVELOPMENT FOR APPAREL DESIGN (4) LST. 4. Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, digital and web formats for an apparel design focus. Departmental approval needed. May count either CADS 5770 or CADS 6770.

CADS 6780 INTERNATIONAL PHILANTHROPY (3) LEC. 2.5. Introduction to the role of international philanthropy in addressing global poverty and how philanthropic practices and behaviors are embedded in cultural contexts. Explores best practices in cross-border philanthropy and volunteering, supporting the development of cross-cultural competencies.

CADS 6790 GRANTMAKING FOR PHILANTHROPISTS (3) LEC. 3. Introduction to philanthropic grantmaking institutions including mission development, needs assessment, proposal analysis, and site visits. Incorporates student philanthropy via development of grant-making strategies and best practices in individual giving.

CADS 6850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Departmental approval. Problem-solving and decision making strategies for retailing, apparel, textiles, and other consumer products. Credit will not be given for both CADS 6850 and CADS 5850.

CADS 6860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 7040 PROTOCOL FOR GRADUATE STUDY (1) LEC. 1. SU. Departmental approval. Introduction to policies, practices, and expectations for successful completion of the graduate degree.

CADS 7050 RESEARCH METHODS IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. CADS 7060. Research and investigation methods appropriate to the study of consumer and design sciences.

CADS 7060 SURVEY OF CONSUMER AND DESIGN SCIENCES RESEARCH (3) LEC. 3. Presentation and discussion of a broad array of research topics to support literature review development.

CADS 7100 ENVIRONMENTAL DESIGN THEORIES AND APPLICATIONS (3) LEC. 3. Theories, methodologies, and current issues relevant to interior design; sociological, psychological, ecological, and post-modern perspectives. Departmental approval for Pre-requisites.

CADS 7200 AESTHETICS THEORY IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. P/C CADS 7050. Review of theories of aesthetics focusing on aesthetic experience and response as a function of object, perceiver, and situational properties. Graduate standing.

CADS 7530 SUSTAINABILITY THEORY AND APPLICATIONS (3) LEC. 3. Pr. P/C CADS 7050. Departmental approval. Overview of current sustainability theories, research, and methodologies from the perspectives of different fields of study. Evaluation of literature and practices in the apparel and textile industrial complex, interior design practice, and related products and services through people, processes, and the environment. Development and presentation of original scholarly or creative design work within sustainability frameworks.

CADS 7670 SOCIAL PSYCHOLOGICAL THEORIES IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. P/C CADS 7050. Examination of theories that explain the social-psychological aspects of consumer behavior related to apparel and design sciences.

CADS 7690 CONSUMER THEORY IN APPAREL AND INTERIORS (3) LEC. 3. Pr. CADS 7050. Departmental approval. Overview of various theories used in consumer research with an emphasis on their application in apparel, merchandising, design, and interiors.

CADS 7900 DIRECTED STUDIES (1-3) IND. SU. Course may be repeated for a maximum of 6 credit hours.

CADS 7910 SUPERVISED TEACHING IN CONSUMER AND DESIGN SCIENCES (1) AAB/IND. 1. SU. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

CADS 7920 GRADUATE INTERNSHIP (3) INT. 3. Departmental approval. Supervised professional experience in the United States or internationally.

CADS 7930 ADVANCED DESIGN PROJECTS (1-6) IND. SU. Departmental approval. Independent execution of advanced design work. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Course may be repeated for a maximum of 6 credit hours.

CADS 7940 STUDY/TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) FLD. SU. Departmental approval. Concentrated study/travel in the U.S. or internationally. Course may be repeated for a maximum of 6 credit hours.

CADS 7950 SEMINAR (1) SEM. 1. SU. Departmental approval. Research presentations and discussion. Course may be repeated for a maximum of 3 credit hours.

CADS 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Directed readings in textiles, apparel, interiors and retailing. Course may be repeated for a maximum of 6 credit hours.

CADS 7970 SPECIAL TOPICS IN DESIGN (1-6) RES. Departmental approval. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Independent execution of advanced design work. Course may be repeated for a maximum of 6 credit hours.

CADS 7980 GRADUATE PROJECT (1-3) RES. Departmental approval. In-depth, integrative research in a particular project related to apparel, textiles, interiors or consumer behavior. Course may be repeated for a maximum of 6 credit hours.

CADS 7990 RESEARCH AND THESIS (1-10) AAB/MST. Course may be repeated with change in topics.

CADS 8100 BRANDING RESEARCH AND THEORIES IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. CADS 7050. Critical examination of theories and methodological issues in branding research and application in the fields of consumer and design sciences.

CADS 8950 INDUSTRY ISSUES SEMINAR (1) LEC. 1. SU. Research presentations and discussions on issues facing consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8960 CURRENT ISSUES IN CONSUMER AND DESIGN SCIENCES (1-3) LEC. 1-3. Departmental approval. Examination of current issues in consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Topics related to various aspects of consumer and design sciences. Course may be repeated for a maximum of 9 credit hours.

CADS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Cooperative Education - COOP

Courses

COOP 4910 COOPERATIVE WORK EXPERIENCE I (0) PRA. SU. Departmental approval. A practical, professional, full-time, curriculum-related work experience in industry, business, or government. Under joint supervision of employer and university. Students participating in Cooperative Education are expected to work in a fulltime, 40 hour/week, job related to their major field of study. Co-op provides up to one year of work experience before graduation when students work a fall, spring and summer term, alternating with academic courses. For students starting a co-op job for the first time.

COOP 4920 COOPERATIVE WORK EXPERIENCE II (0) PRA. SU. Pr. COOP 4910 or COOP 4910 or COOP 4910 or COOP 4910. Departmental approval. A practical, professional, full-time, curriculum-related work experience in industry, business, or government. Under joint supervision of employer and university. Students participating in Cooperative Education are expected to work in a fulltime, 40 hour/week, job related to their major field of study. Co-op provides up to one year of work experience prior to graduation when students work a fall, spring and summer term, alternating with academic courses. COOP 4920 is for students working with their employer for a second work term, following COOP 4910. Course may be repeated for a maximum of 1 credit hours.

COOP 4930 COOPERATIVE WORK EXPERIENCE III (0) PRA. SU. Pr. COOP 4920 or COOP 4920 or COOP 4920 or COOP 4920. Departmental approval. A practical, professional, full-time, curriculum-related work experience in industry, business, or government. Under joint supervision of employer and university. Students participating in Cooperative Education are expected to work in a fulltime, 40 hour/week, job related to their major field of study. Co-op provides up to one year of work experience prior to graduation when students work a fall, spring and summer term, alternating with academic courses. Course may be repeated for a maximum of 1 credit hours.

Counselor Education, Counseling Psychology - COUN

Courses

COUN 1000 CAREER ORIENTATION EXPLORATION (2) LEC. 1. LAB. 2. The process of career decision-making through hands- on activities, in-class exercises, and job shadowing.

COUN 2000 LIVING AND COMMUNICATING IN A DIVERSE SOCIETY (3) LEC. 3. The class developing cultural competence in context of relationships, issues, and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, and mental and physical abilities/disabilities.

COUN 2007 HONORS LIVING AND COMMUNICATING IN A DIVERSE SOCIETY (3) LEC. Pr. Honors College. The class developing cultural competence in context of relationships, issues, and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, and mental and physical abilities/disabilities.

COUN 2020 INTRODUCTION TO LGBTQ STUDIES (3) LEC. 3. The class focuses on content addressing and introduces lesbian, gay, bisexual, and transgender studies. The course will examine the historical, scientific, psychological, and cultural contexts of relationships, issues and trends in a diverse society related to sexual orientation.

COUN 2300 MENTAL HEALTH DISPARITIES (3) LEC. 3. This course will introduce students to mental health disparities and strategies for addressing the social factors of mental health.

COUN 2900 DIRECTED STUDIES (1-3) IND. SU. Reading, research, or other work undertaken by a student focused on an area of special interest. Directed by faculty member. Course may be repeated for a maximum of 9 credit hours.

COUN 2940 DIRECTED FIELD EXPERIENCE (1-3) DSL/FLD. Course may be repeated for a maximum of 9 credit hours.

COUN 2950 THRIVING THROUGH TRANSITIONS (1) SEM. 1. This course requires participation in activities that support healthy living and assignments that facilitate understanding of mechanisms that promote well-being. Course content reviews the process of recovery from addiction and mechanisms used to support long-term recovery. Course may be repeated for a maximum of 12 credit hours.

COUN 2970 SPECIAL TOPICS IN COLLEGE STUDENT DEVELOPMENT (1-3) DSL. Selected topics in college student development. Fall, Spring. Course may be repeated for a maximum of 12 credit hours.

COUN 3000 CAREER SUCCESS (2) LEC. 2. Developing a career plan via instruction on researching careers, writing resumes, developing portfolios, interviewing, net working and other career development practices. May count either COUN 3000 or COUN 3003.

COUN 3100 COUNSELING AND HUMAN SERVICES (3) LEC. 3. Counseling concepts and skills appropriate in the helping professions. Not open to graduate students in counseling education.

COUN 3980 SUPERVISED RESEARCH EXPERIENCE IN COUNSELING (3) LAB. 3. SU. This course provides students with the opportunity to gain supervised research experience in counselor education, counseling psychology, and special education programs. Students will work with the faculty instructor to gain experience in a range of research activities. Course may be repeated for a maximum of 12 credit hours.

COUN 4000 INTRODUCTION TO COUNSELING AND PSYCHOTHERAPY (3) LEC. 3. Pr. COUN 2000 or COUN 2007. Current theory, research, and practice regarding counseling and psychotherapy. We will cover several current issues related relevant to counseling and psychotherapy, including the process of change, theoretical perspectives, ethical issues.

COUN 4010 INTRODUCTION TO PREVENTION AND MENTAL HEALTH PROMOTION (3) LEC. 3. Pr. COUN 2000 or COUN 2007. Addressing the ideas of prevention and health promotion in counseling psychology. We will address such concepts as positive psychology, mindfulness, stress, health promotion, body image, social justice theory, social advocacy, and prevention theory.

COUN 4910 PRACTICUM (1-3) PRA. SU. This course provides students with the opportunity to be actively involved in social justice efforts that affect the region and nation through gaining hands-on experience in a social justice agency. Course may be repeated for a maximum of 6 credit hours.

COUN 4970 SPECIAL TOPICS IN COUNSELING (3) DSL/ST1. Introduction to selected topic in counseling. Course will provide a semester-long introduction and introduction into research in the topic of interest using a seminar style of instruction. Course may be repeated for a maximum of 9 credit hours.

COUN 7010 MEDICAL VOC & PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. An introduction to medical terminology, body systems, common physical and cognitive conditions therapeutic/restorative services, and psychosocial & vocational considerations of various disabilities. May count COUN 7010 or RSED 6010.

COUN 7110 OCCUPATIONAL, CAREER AND PLACEMENT SERVICES (3) DSL/LEC. The course is designed to familiarize students with career theory and methods used by rehabilitation practitioners to analyze and apply vocational techniques to place individuals with disabilities. May count COUN 7110 or RSED 6220.

COUN 7130 VOCATIONAL EVALUATION (3) LEC. 3. Principles, process and techniques used to diagnose vocationally-related assets and liabilities of the individual with disabilities. May count either RSED 7130, COUN 7130.

COUN 7200 INTRODUCTION TO MEASUREMENT AND ASSESSMENT (3) LEC. 3. Pr. COUN 7100 or COUN 7400. Introduction to the history and theory of measurement and assessment as it applies to counselors and psychologists.

COUN 7220 INTELLECTUAL ASSESSMENT OF CHILDREN AND ADOLESCENTS (3) LEC. 3. Pr. COUN 7200. Theory and measurement of children's intelligence. Administration and interpretation of selected tests.

COUN 7230 CAREER DEVELOPMENT AND VOCATIONAL APPRAISAL (3) LEC. 3. Career development theories appraising vocationally related interests, aptitudes, and personal characteristics. Laboratory practice in test procedures.

COUN 7240 COUNSELING CHILDREN AND ADOLESCENTS (3) LEC. 3. Course provides awareness, knowledge, and skills for counseling children and adolescents using effective theoretical approaches, counseling modalities, and specific techniques.

COUN 7250 ADVANCED ASSESSMENT AND DIAGNOSIS IN COUNSELING (3) LEC. 3. Assessment/diagnostic skills related to counseling: intake, assessment, diagnostic criteria, treatment planning, counseling interventions.

COUN 7310 COUNSELING APPLICATIONS OF LIFESPAN DEVELOPMENT (3) LEC. 3. Theories and current research in development across the lifespan with emphasis on applications to counseling.

COUN 7320 COUNSELING THEORIES (3) LEC. 3. Study of major counseling theories.

COUN 7330 COUNSELING DIVERSE POPULATIONS (3) LEC. 3. Departmental approval. Special counseling and advocacy issues. Needs of diverse populations are considered.

COUN 7340 GROUP COUNSELING (3) LEC. 3. Leading, developing, evaluating a counseling group; including group proposal, session development, group dynamics, group leadership and evaluation, treatment planning; group intervention, counseling skills.

COUN 7350 INTRODUCTION TO COUNSELING PRACTICE (3) LEC. 3. Pr. COUN 7320 or COUN 7400 or COUN 8530. Methods, interventions, and skills essential to counseling.

COUN 7360 ADVANCED COUNSELING PRACTICE: FAMILY SYSTEMS (3) LEC. 3. This course will introduce students to Marriage/ Couple and Family Counseling theories. Using a learning-centered educational approach, students will be introduced to systemic, cognitive-behavioral, and postmodern family therapy theories using clinical case documentation. Diversity, evidence-based therapies, and the research foundations will also be covered.

COUN 7370 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count as COUN 7370 or RSED 6340.

COUN 7400 ORIENTATION TO PROFESSIONAL COUNSELING (3) LEC. 3. Orientation to the counseling field with emphasis on philosophical, historical, psychological, and organizational foundations of professional practice.

COUN 7410 ORIENTATION TO CLINICAL MENTAL HEALTH COUNSELING (3) LEC. 3. Orientation to clinical mental health counseling to include roles, responsibilities, systems, theories, professional issues, and history.

COUN 7420 ORIENTATION TO SCHOOL COUNSEL (3) LEC. 3. Orientation to the role and activities of the K-12 school counselor. Emphasis on the components of a developmentally-oriented school counseling program.

COUN 7450 FOUNDATIONS OF SCHOOL COUNSELING (3) LEC. 3. This course is designed to extend beyond the orientation to counseling course and expand the practical knowledge of school counselors-in-training to prepare students to work as effective school counselors based on current research and practical experiences. Restricted to students in Master's Program in School Counseling.

COUN 7460 LEADERSHIP AND ADVOCACY FOR SCHOOL COUNSELORS (3) LEC. 3. This course is designed to provide an overview of school counseling leadership and advocacy. School counselors in training will develop a deeper knowledge of their role of educational leaders while serving as school counselors. Restricted to students in Counselor Education.

COUN 7500 CRISIS INTERVENTION IN COUNSELING (3) LEC. 3. Development of skills and knowledge for crisis intervention and management in counseling, including prevention planning, intervention strategies and evaluation.

COUN 7510 ADVANCED CLINICAL MENTAL HEALTH COUNSELING INTERVENTIONS (3) LEC. 3. Pr. COUN 7320. Advanced counseling interventions, practices, techniques and methods for mental health counselors, including treatment planning, counseling processes, and evaluation.

COUN 7520 INTRODUCTION TO REHABILITATION AND CASE MANAGEMENT IN REHABILITATION COUNSELING (3) LEC. 3. Program organization and development of materials for curriculum improvement and teaching practices in a disability specialization area. COUN 7520 may be repeated for a maximum combined total of 9 credits with a change in disability specialization.

COUN 7900 DIRECTED STUDIES (1-3) IND. SU. Independent learning effort directed at desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

COUN 7910 PRACTICUM (3) LEC. 3. SU. Supervised experiences appropriate to student's program emphasis area. Course may be repeated for a maximum of 9 credit hours.

COUN 7920 INTERNSHIP (1-9) INT. SU. Pr. COUN 7910 or COUN 7916. Supervised on-the-job experiences. Course may be repeated for a maximum of 9 credit hours.

COUN 7930 ADVANCED THEORIES IN COUNSELING PRACTICE (3) LEC. 3. Intensive study of advanced theories within rehabilitation counseling, as well as an examination of outcome research relating to the use and application of these theories and techniques. May count COUN 7930 or RSED 7940.

COUN 7950 EMERGING ADULTHOOD AND TRANSITION IN REHABILITATION (3) LEC. Introduction to the transition process of youth with disabilities from school to adulthood and employment with emphasis on the developmental stage emerging adulthood. May count COUN 7950 or RSED 7950.

COUN 7960 SPECIAL PROBLEMS (1-10) IND. SU. May be repeated. Course may be repeated for a maximum of 10 credit hours.

COUN 7970 SPECIAL TOPICS (1-3) AAB. An in-depth study of a current topic(s) impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8110 COUNSELING ASSESSMENT ACROSS THE LIFESPAN (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, and attitude tests across the lifespan.

COUN 8120 APPRAISAL IN COUNSELING AND PSYCHOLOGY (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, attitude tests. Includes assessment interview, behavioral observation.

COUN 8200 INTELLECTUAL ASSESSMENT OF ADULTS (3) LEC. 2. LAB. 3. Pr. COUN 8120. Theory and measurement of adult intelligence. Administration and interpretation of selected tests.

COUN 8210 TEST ADMINISTRATION AND PROFESSIONAL PRACTICE (3) LEC. 3. Pr. COUN 8530. Administration and scoring of selected tests, primarily WAIS-IV, to familiarize students with measurements for assessment of adult intelligence.

COUN 8220 PSYCHOLOGICAL SCIENCE AND HEALTH (3) LEC. 3. Pr. PSYC 7150 and PSYC 7180 and COUN 7330 and COUN 7310. In this course, fundamental science relating to health and psychology will be reviewed, focusing on major theoretical foundations, research findings, and empirically supported interventions. Students will be expected to integrate foundational knowledge in psychological science with particular emphasis on biological.

COUN 8230 COLLOQUIUM IN COUNSELING PSYCHOLOGY I (1) SEM. 1. SU. This course provides pre-practicum students with training in the conduct of counseling psychology research to provide foundational skills in research design and implementation.

COUN 8240 COLLOQUIUM IN COUNSELING PSYCHOLOGY II (2) LAB. 1, LAB/SEM. 1. SU. This course provides continued education and training in counseling psychology research and provides opportunities to demonstrate an ability to evaluate psychotherapy research in order to achieve readiness for practicum in research skills.

COUN 8250 COLLOQUIUM IN COUNSELING PSYCHOLOGY III (3) LAB. 1, LAB/SEM. 2. Pr. COUN 8240. This course provides advanced education and training in the development, conduct, and dissemination of counseling psychology research and provides opportunities to demonstrate an ability to contribute to meaningful scholarship in Counseling Psychology.

COUN 8260 COLLOQUIUM IN COUNSELING PSYCHOLOGY IV (3) LAB. 1, SEM. 2. Pr. COUN 8250. This course provides advanced education and training in the development, conduct, and dissemination of counseling psychology research and provides opportunities to demonstrate an ability to integrate concepts of equity and justice in the contribution to meaningful scholarship in Counseling Psychology.

COUN 8300 RESEARCH DESIGN IN COUNSELING AND EVALUATION (3) LEC. 3. Departmental approval. Methods for counseling research design . Studies, experimental, quasi-experimental, non-experimental, survey, between subjects and within subjects.

COUN 8310 COGNITION AND EMOTION (3) LEC. 3. Theory and empirical evidence on the cognitive and affective bases of human behavior. Integration of scientific knowledge regarding cognition and emotion.

COUN 8320 GREAT IDEAS IN PSYCHOLOGY (3) LEC. 3. Orientation to the individuals and ideas that shaped psychology using a history and systems perspective.

COUN 8400 PROFESSIONAL SEMINAR COUNSELING PSYCHOLOGY (1-3) LEC. Scientific foundations of the counseling psychology profession and application of that foundational knowledge in counseling interventions. Course may be repeated for a maximum of 9 credit hours.

COUN 8510 CONTEMPORARY ISSUES IN COUNSELOR EDUCATION (3) LEC. 3. Departmental approval. History, development, current issues. Philosophical assumptions, legal and ethical considerations, new research service initiatives.

COUN 8530 CONTEMPORARY ISSUES IN COUNSELING PSYCHOLOGY (3) LEC. 3. History, development, and current professional issues. Philosophical and cultural assumptions, legal and ethical considerations, and current research topics.

COUN 8540 COUN SUPERVISION-THEORY & PRAC (3) LEC. 3. Advanced theories, skills, models and methods used in counseling supervision including counselor development, supervisory processes and evaluation.

COUN 8550 COUNSELOR EDUCATION PEDAGOGY (3) LEC. 3. Counselor Education pedagogical skills and knowledge including; theories, course and curriculum development methods, and professional responsibilities.

COUN 8610 ADVANCED THEORIES: EXISTENTIAL/HUMANISTIC (3) LEC. 3. Theory and practice of humanistic/existential approaches to individual and group therapy.

COUN 8620 ADVANCED COUNSELING THEORIES AND PRACTICE (3) LEC. 3. Advanced study of counseling theories. Includes research relating to application of theories and techniques. Course will emphasize integration, evidence-based approaches, case conceptualization and models for evaluation.

COUN 8630 ADVANCED THEORIES: PSYCHODYNAMIC THEORIES (3) LEC. 3. Departmental approval. The origins, current status, and emerging applications of psychodynamic approaches to counseling.

COUN 8700 DIVERSITY AND SOCIAL JUSTICE IN COUNSELOR EDUCATION (3) LEC. 3. Must be admitted to the Counselor Education Doctoral Program. This advanced course provides students with information about issues of diversity and social justice. Students apply this information to their roles in the counseling profession, specifically as future counselor educators, leaders of the profession, and advocates.

COUN 8800 PROFESSIONAL DEVELOPMENT INTERNSHIP SKILLS (3) LEC. 3. This three-hour required course is designed to help students solidify their professional identity and effectively apply for their one-year Counseling Psychology internship.

COUN 8910 PRACTICUM (1-3) LEC. 1-3. SU. Advanced supervised experiences appropriate to student's program emphasis. Course may be repeated for a maximum of 15 credit hours.

COUN 8920 INTERNSHIP (1-9) INT. SU. Advanced supervised on-the-job experiences appropriate to doctoral-level study. Course may be repeated for a maximum of 9 credit hours.

COUN 8930 INTERNSHIP IN COUNSELING PSYCHOLOGY (0) INT. SU. Departmental approval. Supervised, full-time experience in Counseling Psychology at the doctoral level. May be repeated to satisfy 2000 clock hour accreditation requirement.

COUN 8970 SPECIAL TOPICS (1-3) SEM. An in-depth study of the current educational, sociological, psychological, economic, health, legal, technological, and professional issues impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated. Course may be repeated with change in topics.

Crop, Soil, and Environmental Sciences - CSES

Courses

CSES 1010 SOILS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Practical applications of important soil properties and their function in everyday life. Connections between soils and human life will be made. topics include food security, sustainable agricultural production, soil and water quality, and waste disposal.

CSES 1020 CROPS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Essential role of crop plants to human life. Topics will include historical development of crop science, impact of crop science on human development, and major issues and problems facing modern crop science and technology.

CSES 2000 BASIC CROP SCIENCE (4) LEC. 3. LAB. 2. Agronomic principles of classification, growth, structure, and soil-plant relationship of field crops, with emphasis on influence of man and environment, and importance of crop production.

CSES 2040 BASIC SOIL SCIENCE (4) LEC. 3. LAB. 2. Pr. (CHEM 1010 and CHEM 1011) or (CHEM 1030 and CHEM 1031) or (CHEM 1110 and CHEM 1111) or (CHEM 1117 and CHEM 1118) or (CHEM 1033 and CHEM 1031). Formation, classification, properties, management, fertility and conservation of soils in relation to the growth of plants. Fall, Spring.

CSES 2910 TURFGRASSES: USES AND CARE FOR SPORTS AND LEISURE (2) LEC. 2. Introduction to the commonly used turfgrasses of the southeastern United States including of these turfgrasses for gold courses, athletic fields and home lawns will be included. This course may not be substituted for CSES 3150.

CSES 3120 PRINCIPLES OF WEED SCIENCE (4) LEC. 3. Pr. CSES 2040 or AGRN 2040 and (BIOL 1020 or BIOL 1027). Weed identification and biology, methods of weed management and classification of herbicides and how they are used in weed control. Laboratory subjects are weed identification and sprayer calibration. Fall.

CSES 3150 TURFGRASS MANAGEMENT (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or AGRN 2040) and (BIOL 1020 or BIOL 1027). The management of recreational and home area turfgrass will be studied including establishment and maintenance of turf and the effect of light, traffic, soil fertility and water on its growth. Fall, Spring.

CSES 3200 APPLIED TURF MANAGEMENT (3) LEC. 1. LAB. 4. Pr. P/C CSES 3150 or AGRN 3150. Familiarize students with the operation and maintenance of the equipment used for turfgrass maintenance. Effects on turfgrass performance will also be covered.

CSES 3300 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. (P/C CSES 2000) or (BIOL 1020). Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 3400 SUSTAINABLE MANAGEMENT OF TROPICAL SOILS (3) LEC. 3. LAB. 0, AAB/LEC. 0. This course explores the unique characteristics of tropical soils, focusing on their genesis, and physical, chemical, and biological properties. Students will learn to apply sustainable management practices that enhance soil health and productivity in tropical environments. The course integrates scientific principles with practical approaches to address challenges in soil conservation and agricultural sustainability in tropical regions.

CSES 3920 INTERNSHIP (3) INT. 3. Practical experience under the the supervision of an approved employer and the department. Internship may be in the areas of production, business, turf or science. Course may be repeated for a maximum of 6 credit hours.

CSES 3960 SPECIAL PROBLEMS (2) LAB. 2. Departmental approval. Individual and group problems investigations in crop, soil or weed science. Course may be repeated for a maximum of 4 credit hours.

CSES 3970 SPECIAL TOPICS (3) AAB/ST1. 3. New topics in agronomy and soils. Course may be repeated for a maximum of 6 credit hours.

CSES 4100 CROPS JUDGING (2) LEC. 1. LAB. 2. Departmental approval. Crops Judging is a course designed to prepare students for the national Crops Judging contest held at the Students of Agronomy, Soils and Environmental Sciences annual meeting. Students will learn practical knowledge to diagnose in-field agronomic problems such as crop nutrient deficiencies, disease damage, insect damage, weed pressure, herbicide injury, and soil management issues. Students must participate in the Crops Judging Contest at the SASES meeting in the semester the class is taken. Course may be repeated for a maximum of 6 credit hours.

CSES 4200 SOIL JUDGING (2) LEC. 1. LAB. 4. Description, evaluation and interpretation of soil-profile characteristics. Fall. Course may be repeated for a maximum of 8 credit hours.

CSES 4210 ADVANCED SOIL JUDGING (2) LEC. 1. LAB. 2. Pr. CSES 4200 or AGRN 4200. Advanced description, evaluation, and interpretations of soil-profile characteristics. Spring. Course may be repeated for a maximum of 8 credit hours.

CSES 4300 TURFGRASS COMPETITIONS (2) LEC. 1. LAB. 2. Departmental approval. The class is a comprehensive overview of practical turfgrass management in preparation for student competitions organized by the Sports Field Managers Association 9SFMA Student Challenge)and the Golf Course Superintendents Association of America (Turf Bowl). Students will compete in one or both of these contests during the semester following successful completion of the course. Course may be repeated for a maximum of 6 credit hours.

CSES 4950 SENIOR SEMINAR (2) LEC. 2. This course will cover professional presentations, both oral and written, in the area of Agronomy and Soils.

CSES 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

CSES 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

CSES 5000 ENVIRONMENTAL QUALITY (3) LEC. 3. Role of global land use in biogeochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 5010 ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. MATH 1130 or STAT 2510. Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 5020 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 5030 ADVANCED CROP SCIENCE (3) LEC. 3. Pr. (CSES 1000 or CSES 1003 or CSES 2000) or (AGRN 1000 or AGRN 1003 or AGRN 1007) or (AGRN 2040 or AGRN 2043) and (CSES 2040 or CSES 2043) and (BIOL 1030 or BIOL 1037). Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030.

CSES 5060 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Pr. BIOL 3200. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 5061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 5060 or P/C CSES 5063) or (P/C AGRN 5060 or P/C AGRN 5063). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 5080 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 5080 Summer. CSES 5083 Fall.

CSES 5100 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 5110 PLANT BREEDING I (3) LEC. 3. Pr. CSES 3300 or BIOL 3000 or BIOL 3003 or AGRI 3000. Fundamental principles and theories utilized in the science of plant breeding and cultivar development and the role breeding plays in crop improvement.

CSES 5120 PLANT BREEDING II (3) LEC. 3. Pr. CSES 5110. Review and contrast how major crop species breeding strategies are determined. Emphasis on integration of traditional methodologies with modern genetic and genomic technologies.

CSES 5150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 5160 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 5200 APPLIED WEED SCIENCE TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. CSES 3120 or AGRN 3120. Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 5230 DRONES FOR CROP PRODUCTION (3) LEC. 2. LAB. 2. Pr. (CSES 2000) and (CSES 2040). Use of drone technology for crop production including applications of pesticides and fertilizers, planting cover crops, and capturing remote imagery to monitor plant health and make crop management decisions. Department approval.

CSES 5240 CROP PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 or HORT 3000. Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed. Credit will only be given for one of the following: CSES 5240 or CSES 6240.

CSES 5250 AQUATIC SEDIMENTS (4) LEC. 3. LAB. 1. An overview of sediments in aquatic environments with a focus on the biogeochemistry, storage capacity, and use in paleoenvironmental reconstruction.

CSES 5300 SOIL CHEMISTRY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 5400 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 5500 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops. Spring. May count either CSES 5500 or CSES 5503.

CSES 5590 ENVIRONMENTAL SOIL PHYSICS AND VADOSE ZONE HYDROLOGY (4) LEC. 3. LAB. 2. Pr. CSES 2040. Explore the dynamic interplay of soil physical properties and vadose zone hydrology in this comprehensive environmental soil physics course. Delve into the intricate mechanisms governing the movement of water, chemicals, heat, and gases through soils within diverse ecosystems, including agricultural, urban, and natural landscapes. Uncover the complexities of the soil-plant-atmosphere continuum and gain hands-on experience with field instrumentation for precise measurement and assessment of soil physical properties.

CSES 5800 CLIMATE, WATER, AND LIFE (3) LEC. 3. LAB. 0. The course will introduce essential hydroclimate processes and phenomena, and their impacts on water resources, food and agriculture, and ecosystems. Major topics include climate variability and change, radiation, temperature, humidity, precipitation, land surface energy and water fluxes, their linkages with plants and humans, and climate hazards and resiliency.

CSES 5960 SPECIAL PROBLEMS (1-3) IND. Work under the direction of a staff member on special problems in crop, soil or weed science. Course may be repeated for a maximum of 6 credit hours.

CSES 6000 ENVIRONMENTAL QUALITY (3) LEC. 3. Role of global land use in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 6010 ANALY PLANT, SOIL & ANI DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 6020 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 6030 ADVANCED CROP SCIENCE (3) LEC. 3. Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030/CSES 6030 or CSES 5033/CSES 6036.

CSES 6060 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 6061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 6060 or P/C CSES 6066) or (P/C AGRN 6060 or P/C AGRN 6066). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 6080 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 6080 Summer. CSES 6086 Fall.

CSES 6110 PLANT BREEDING I (3) LEC. 3. Fundamental principles and theories utilized in the science of plant breeding and cultivar development and the role breeding plays in crop improvement.

CSES 6120 PLANT BREEDING II (3) LEC. 3. Pr. CSES 6110. Review and contrast how major crop species breeding strategies are determined. Emphasis on integration of traditional methodologies with modern genetic and genomic technologies.

CSES 6150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 6160 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (BIOL 3100 or BIOL 6130) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 6200 APPLIED WEED SCIENCE TECH (3) LEC. 2. LAB. 2. Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 6230 DRONES FOR CROP PRODUCTION (3) LEC. 2. LAB. 2. Use of drone technology for crop production including applications of pesticides and fertilizers, planting cover crops, and capturing remote imagery to monitor plant health and make crop management decisions. Department approval for undergraduate version.

CSES 6240 CROP PHYSIOLOGY (3) LEC. 3. Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed. Credit will only be given for one of the following: CSES 5240 or CSES 6240.

CSES 6250 AQUATIC SEDIMENTS (4) LEC. 3. LAB. 1. An overview of sediments in aquatic environments with a focus on the biogeochemistry, storage capacity, and use in paleoenviromental reconstruction.

CSES 6300 SOIL CHEMISTRY (4) LEC. 2. LAB. 4. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 6400 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 6500 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Pr., In major or departmental approval. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops and (d) energy crops. May count either CSES 6500 or CSES 6506.

CSES 6590 ENVIRONMENTAL SOIL PHYSICS AND VADOSE ZONE HYDROLOGY (4) LEC. 3. LAB. 2. Pr. CSES 2040. Explore the dynamic interplay of soil physical properties and vadose zone hydrology in this comprehensive environmental soil physics course. Delve into the intricate mechanisms governing the movement of water, chemicals, heat, and gases through soils within diverse ecosystems, including agricultural, urban, and natural landscapes. Uncover the complexities of the soil-plant-atmosphere continuum and gain hands-on experience with field instrumentation for precise measurement and assessment of soil physical properties.

CSES 6800 CLIMATE, WATER, AND LIFE (3) LEC. 3. The course will introduce essential hydroclimate processes and phenomena, and their impacts on water resources, food and agriculture, and ecosystems. Major topics include climate variability and change, radiation, temperature, humidity, precipitation, land surface energy and water fluxes, their linkages with plants and humans, and climate hazards and resiliency.

CSES 6900 DIRECTED STUDIES (1-3) DSL/LEC. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6930 ADVANCED DIRECTED STUDIES (1-3) DSL/LEC. SU. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6960 SPECIAL PROBLEMS (1-3) DSL/IND. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 7080 EXPERIMENTAL METHODS (3) LEC. 3. Pr. STAT 7000. Experimentation in the agricultural sciences including experimental techniques, interpretation of research data, use of library references, and preparation of publications. Problems, assigned readings and lectures. Summer.

CSES 7100 AGINFORMATICS: COMPUTATIONAL THINKING FOR AGRICULTURE (3) LEC. 2. LAB. 2. Computer programming for applied sciences. Focus on the Python programming language and utilization of the Unix command line. Python programming from basics of control structures to object-oriented programming. Course will cover script development using integrated development environments and accessing data via APIs. Course will cover the command line interface and introduction to Bash scripting.

CSES 7120 PLANT GENOMICS (3) LLB. Hands-on bioinformatics of complex plant genomes, including assembly and annotation. Writing- and bioinformatics-intensive course that culminates in a plant genome manuscript. Fall.

CSES 7140 CHEMISTRY AND USE OF HERBICIDES IN CROP PRODUCTION (4) LEC. 3. LAB. 2. Pr. CHEM 1040. Principles and use of herbicides in agronomic crops. Methods of herbicide application, including time, incorporation and formulation, the fate of herbicides in soil and the ecological impact on succeeding plant species. Fall.

CSES 7160 GENETIC DATA ANALYSIS (3) LEC. 3. Pr. (CSES 5100 or CSES 5103) or (CSES 6100 or CSES 6106) and STAT 4020 or (AGRN 5100 or AGRN 5103) or (AGRN 6100 or AGRN 6106). Introduces procedures to study the genetic characteristics of individuals and populations. Computer models will be used to simulate genomes and traits. Application of quantitative methods to experimental populations used to plan breeding programs. Fall.

CSES 7170 ADVANCED PLANT BREEDING (3) LEC. 3. Pr. CSES 7160 or (AGRN 7160 or AGRN 7166). Estimation and interpretation of genetic variance components, heritability, selection response, yield stability indices and their effect on choice of breeding method. Recurrent selection theory and breeding for resistance to plant stresses.

CSES 7180 SUSTAINABLE AGROECOLOGY (3) LEC. 3. Pr. (BIOL 6130 or CSES 7250) or (AGRN 7250 or AGRN 7256) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). The study of interactions between crops and abiotic and biotic environments. Emphasis is placed on quantitatively examining theory and principles for production, stability and sustainability of agricultural ecosystems. Graduate standing in CSES or departmental approval

CSES 7200 WEED BIOLOGY AND ECOLOGY (4) LEC. 3. LAB. 2. Students will learn a broader understanding of and appreciation for the biology and bionomics of agricultural weeds and invasive species, relevant analytical tools, and the application of ecological concepts for sustainable weed management in agricultural and natural systems.

CSES 7270 QUANTITATIVE GENETICS IN PLANT BREEDING (3) LEC. 3. Quantitative and population plant genetics and their interrelationship with plant breeding. Genetic and environmental variation and how they relate to selection procedures and choice of type of variety. Predictive plant breeding. QTL discovery, molecular breeding, and genomic selection in an applied breeding program.

CSES 7540 PRINCIPLES OF PLANT NUTRITION (3) LEC. 3. Pr. CSES 6020 or CSES 6026 or (AGRN 6020 or AGRN 6026). Processes of nutrient flux to plant roots growing in soil. Chemistry and properties of soil in relation to the nutrition and growth of plants. Summer.

CSES 7600 AGROCLIMATOLOGY (3) LEC. 3. The relationships between climatological processes and agriculture, including precipitation, evapotranspiration, meteorological hazards, irrigation and drainage, crop development, climate data acquisition and analysis, crop-weather models, and impacts of global climate change. May count either CSES 7600 pr CSES 7606.

CSES 7670 SPECIAL TOPICS (1-4) DSL/LEC. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7800 DEEP LEARNING FOR ENVIRONMENTAL SCIENCES (3) LEC. 2. LAB. 2. The course will cover concepts and applications of deep learning for environmental sciences. The goal is to understand the concepts and applications of deep learning methods in environmental sciences, formulate relevant environmental, climate, and earth system science problems, and how to use these methods for understanding and developing creative solutions to these problems.

CSES 7950 SEMINAR (1) DSL/SEM. 1. SU. Required of all graduate students in Agronomy and Soils. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

CSES 7970 SPECIAL TOPICS (1-4) LEC. 1-4, LAB. 1-4. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7990 RESEARCH AND THESIS (1-10) DSL/MST. Research and thesis on problems in the soil and crop sciences. Course may be repeated with change in topics.

CSES 8570 PHYSICAL SOIL CHEMISTRY (3) LEC. 3. Pr. (CSES 6300 or CSES 6306) and CHEM 6070 or (AGRN 6300 or AGRN 6306). Interpretation of soil properties and chemical reactions in terms of ion exchange, solubility diagrams, solutions equilibria, electrochemistry and electrokinetics of charged particles. Fall.

CSES 8580 FATE AND TRANSPORT OF CHEMICALS IN SOILS (3) LEC. 3. Pr. MATH 1720 and (PHYS 1600 or PHYS 1607) and CSES 7590. Transport phenomena in soils. Physical principles and analysis of the storage and movement of water, solutes, heat, and gases in soils. Spring.

CSES 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and dissertation on problems in the soil and crop sciences. Course may be repeated with change in topics.

Drug and Biopharmaceutical Sciences - DBPS

Courses

DBPS 1010 INTRODUCTION TO DRUG AND BIOPHARMACEUTICAL SCIENCES I (1) LEC. 1. Departmental approval. This course explores the development of the field of drug and biopharmaceutical sciences and its' relationship to disease treatment from ancient to medieval to current day. This historical prospective provides the foundation for appreciation of human creativity in the advancement of health care and the treatment of human diseases.

DBPS 1020 INTRODUCTION TO DRUG AND BIOPHARMACEUTICAL SCIENCES II (1) LEC. 1. Pr. DBPS 1010. Departmental approval. This course introduces the field of drug and biopharmaceutical sciences to first-year students and provides exposure to a variety of major sub-disciplines and associated opportunities. The course will operate as a series of seminars presented by recognized authorities on subjects such as drug toxicity, drug dosages and routes, drug metabolism, drug distribution, drugs for cancer, drugs for Alzheimer's disease, monoclonal antibody-based drugs, antibiotics, forensic chemistry, drug synthesis, etc. These seminars and lectures will allow the student to recognize the breath of the field and future career opportunities. The exact set of seminars and subject matter will vary from year-to-year.

DBPS 2010 FUNDAMENTALS OF BIOMEDICINAL CHEMISTRY I (4) LEC. 4. Pr. CHEM 1030 and CHEM 1031 and CHEM 1040 and CHEM 1041 and (BIOL 1020 or BIOL 1027) and BIOL 1021 and DBPS 1010 and DBPS 1020. Departmental approval. This course explores the relationships between the structural features of drugs and biomolecules and their physicochemical properties including solubility, ionization, intermolecular interactions and reactivity. These concepts are the foundation principles for understanding the actions of drugs at their biologic targets and how the biologic environment processes drugs.

DBPS 2020 FUNDAMENTALS OF BIOMEDICINAL CHEMISTRY II (4) LEC. 4. Pr. CHEM 1030 and CHEM 1031 and CHEM 1040 and CHEM 1041 and (BIOL 1020 or BIOL 1027) and BIOL 1021 and DBPS 1010 and DBPS 1020 and DBPS 2010 and DBPS 2030. Departmental approval. This course explores the relationships between the structural features of biomolecules and their physicochemical properties including solubility, ionization, intermolecular interactions and reactivity. These concepts are the foundation principles for understanding the properties of biologic targets and how drugs interact with targets to produce their therapeutic effects.

DBPS 2030 DRUG TARGETS I (4) LEC. 4. Pr. (BIOL 1020 or BIOL 1027) and BIOL 1021 and DBPS 1010 and DBPS 1020. Departmental approval. This is the first of a two-course survey sequence designed to explore various biological targets (cells, tissues, organs, micro-biomolecules, and macro-biomolecules) present in the central nervous system (brain and spinal cord), eye, ears, respiratory tract, and gastrointestinal tract for a drug to interact and to impose/enforce its effect in the body. This course will further explain the natural substances (ligands) that interacts with the above targets. These basic concepts are the fundamental principles for understanding the actions of drugs in the body (centrally or peripherally).

DBPS 2040 DRUG TARGETS II (4) LEC. 4. Pr. (BIOL 1020 or BIOL 1027) and BIOL 1021 and DBPS 1010 and DBPS 1020 and DBPS 2030. Departmental approval. This course explores various biological targets (cells, tissues, organs, micro-biomolecules, and macro-biomolecules) present in the cardiovascular, renal system, skin, endocrine system, sexual organs, and bones for a drug to interact and to impose/enforce its effect in the body. This course will further explain the natural substances (ligands) that interacts with the above targets. The above basic concepts are the fundamental principles for understanding the actions of drugs in the body (centrally or peripherally).

DBPS 2050 BIOPHARMACEUTICAL DATA ANALYSIS I (1) LEC. 1. Pr. DBPS 1010 and DBPS 1020. Departmental approval. This course introduces the methods and mathematical concepts of analysis and sampling, as specifically applied to drug and biopharmaceutical sciences. Topics include descriptive measures, probability and distributions, estimation, tests of hypotheses, types of error, significance, confidence levels, sample size and power.

DBPS 2060 BIOPHARMACEUTICAL DATA ANALYSIS II (1) LEC. 1. Pr. DBPS 1010 and DBPS 1020 and DBPS 2050. Departmental approval. This course is a continuation of Biopharmaceutical Calculations & Statistics I and focuses on mathematical concepts of analysis and sampling in biopharmaceutical sciences research and production. Topics include estimation, tests of hypotheses, types of error, significance, confidence levels, sample size and power.

DBPS 3010 MEDICINAL CHEMISTRY I (4) LEC. 4. Pr. DBPS 2020 and DBPS 2040 and DBPS 2060. Departmental approval. This course will combine a discussion of the nature and function of drug targets (including enzymes, receptors, ion channels, pumps, RNA and DNA) with study of molecular mechanisms by which drugs interact with these targets and the basic principles of drug design. The course will use currently relevant examples for each target class and is not intended to provide a comprehensive review of all drug classes at all targets. Course materials will include class lecture notes and assigned readings from the current literature. With this knowledge, the student will be better equipped to understand the molecular basis of drug action and the challenges of drug design in a wide variety of therapeutic situations.

DBPS 3020 MEDICINAL CHEMISTRY II (3) LEC. 3. Pr. DBPS 3010 and DBPS 3050. Departmental approval. This course will provide a comprehensive description and analysis of the relationships between drug/dosage form properties and biodisposition, including absorption, distribution, metabolism and elimination. Methods of drug design to optimize drug biodisposition and pharmacokinetics also will be summarized in overview. This course will serve as a foundational instructional unit for all students interested in pursuing advanced study in the areas of drug discovery and development.

DBPS 3030 DRUG ACTION I (4) LEC. 4. Pr. DBPS 2020 and DBPS 2040 and DBPS 2060. Departmental approval. This is the first of a two-course sequence focused on the mechanism of drug action, adverse drug reactions, and drug-interactions as a drug interacts with its' biological target sites. This course will identify the etiology, understand the disease state effects on target sites, and symptoms of major diseases related to the central nervous system (brain and spinal cord), eye, ears, respiratory tract, and gastrointestinal tract.

DBPS 3040 DRUG ACTION II (4) LEC. 4. Pr. DBPS 3030. Departmental approval. This course will identify the etiology, understand the various pathophysiology, and symptoms of major disease states related to the renal system, endocrine system, cardiovascular system, infection, tumor/cancer, bones, integumentary system, sexual organs, for a drug to exert its prophylactic and therapeutic actions. This course will further explain the mechanism of drug action, adverse drug reactions, and drug-interactions.

DBPS 3050 DRUG FORMULATIONS (3) LEC. 3. Pr. DBPS 2020 and DBPS 2060. Departmental approval. Physical-chemical principles and technologies used in the formulation, manufacture and compounding of solid and oral liquid (solution) pharmaceutical dosage forms and novel drug delivery systems.

DBPS 3060 DRUG PHARMACOKINETICS (4) LEC. 4. Pr. DBPS 3010 and DBPS 3030 and DBPS 3050. Departmental approval. The course deals with absorption, plasma protein binding, tissue distribution and elimination of drugs by liver and kidneys and how these processes determine the overall disposition of the drug in the organism. In addition, the relationships between dose and plasma concentration and of plasma concentration and effect are described, both for a given drug and its metabolites. A brief introduction to the use of pharmacokinetic methods for drug development is given. The course also deals with calculation and evaluation of mathematical parameters that describe pharmacokinetic and pharmacodynamic processes, both regarding single dose and repeated dose administration. Finally, it describes the theoretical basis for clinical drug dosing, reasons for and rational handling of inter-individual variation (genomics) in drug disposition as well as drug-drug interactions.

DBPS 3070 DRUG RESEARCH SEMINAR I (1) LEC. 1. SU. Pr. DBPS 2020 and DBPS 2040. Departmental approval. This research seminar course will feature weekly presentations by graduate students, postdoctoral fellows, faculty and visiting scholars. The presentations will introduce DBPS students to current drug discovery and development research advancements in the fields of medicinal chemistry, pharmacology and pharmaceutics.

DBPS 3080 DRUG RESEARCH SEMINAR II (1) LEC. 1. SU. Pr. DBPS 2020 and DBPS 2040. Departmental approval. This research seminar course will feature weekly presentations by graduate students, postdoctoral fellows, faculty and visiting scholars. The presentations will introduce DBPS students to current drug discovery and development research advancements in the fields of medicinal chemistry, pharmacology and pharmaceutics.

DBPS 4980 RESEARCH (5) LAB. 15. Pr. DBPS 3020 and DBPS 3040 and DBPS 3060 and DBPS 3080. Departmental approval. Course Description for each discipline of DBPS Program: Pharmacological/Biomedical Sciences research areas include molecular and cellular disease mechanisms, physiological and pathological processes of disease development, identification of new therapeutic targets, therapeutic and toxicological mechanisms of drug action, and novel approaches to therapeutics, including tissue engineering, genomics, and immunotherapy. Pharmaceutics and Drug Delivery research areas include formulation science, biomaterials, biopharmaceutics, pharmaceutical compounding, nanotechnology, and pharmacokinetics. Medicinal Chemistry and Drug Development research areas include the synthesis of new drug molecules, structure-activity relationship of drug classes, the use of modern methods of drug design and analysis and the development of assays to test drug candidates. Course may be repeated for a maximum of 10 credit hours.

Drug Discovery and Development - DRDD

Courses

DRDD 5800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING (2) LEC. 2. Departmental approval. State-of-the-art survey of molecular imaging techniques that are available and their use to monitor the progression of various human diseases.

DRDD 6800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING (2) LEC. 2. Departmental approval. State-of-the-art survey of molecular imaging techniques that are available and their use to monitor the progression of various human diseases.

DRDD 7000 INTRODUCTION TO GRANT WRITING (3) LEC. 3. Course will train students to prepare NIH RO1 grant applications. Students will prepare mock applications on topics of their choosing.

DRDD 7010 PHARMACOKINETICS (4) LEC. 4. Departmental approval. Pharmacokinetic and pharmacodynamic principles and methods used to study the absorption, distribution, metabolism and excretion of drugs.

DRDD 7020 SCIENCE AND TECHNOLOGY OF TABLETING (2) LEC. 2. Pr. (PYPS 7030 or DRDD 7030) or Departmental approval. Formulation, compression, coating and evaluation of tablets.

DRDD 7021 SCIENCE AND TECHNOLOGY OF TABLETING LAB (2) LAB. 6. Pr. (PYPS 7020 or DRDD 7020). Actual formulation, compression, coating and evaluation of tablets.

DRDD 7030 DRUG PRODUCTS AND BIOPHARM (4) LEC. 4. Departmental approval. Formulation, evaluation, and use of various pharmaceutical dosage forms including biopharmaceutical aspects.

DRDD 7040 PHYSICAL PHARMACY (4) LEC. 4. Departmental approval. Application of physical chemical principles to dosage form design and evaluation.

DRDD 7050 NOVEL DOSAGE FORMS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Theoretical basis and design of controlled release and site specific drug delivery systems.

DRDD 7060 FORMULATION AND DELIVERY OF PEPTIDE/PROTEIN DRUGS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Formulation and delivery problems unique to peptide/protein pharmaceuticals and strategies to overcome such problems.

DRDD 7070 TRANSPORT PHENOMENA IN PHARMACEUTICAL SYSTEMS (3) LEC. 3. Departmental approval. Mechanisms of drug transport in various pharmaceutical dosage forms and biological systems. Elucidation of methods to characterize drug transport phenomena. Correlation of transport phenomena with drug disposition in the body. Emphasis on peptide, protein, and oligonucleotide drugs.

DRDD 7080 ADVANCED BIOPHARMACEUTICS (3) LEC. 3. Pr. PYPS 7010 or DRDD 7010. The mathematical and pharmacokinetic relationships between physical and chemical properties of a drug and its dosage form and biological effects.

DRDD 7090 PHARMACEUTICAL SCIENCE I: TARGETS (4) LEC. 4. Departmental Approval. Study of nature and function of drug targets, advanced molecular mechanisms by which drugs interact with these targets and the basic principles of drug design.

DRDD 7100 PHARMACEUTICAL SCIENCE II: ADME (4) LEC. 4. Departmental Approval. Study of the mechanisms of drug absorption, distribution, metabolism and elimination with an advanced study of drug design strategies and methods to optimize these processes.

DRDD 7110 STABILITY KINETICS OF PHARMACUTICALS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Principles of chemical kinetics as applied to the unique stability problems of the various pharmaceutical dosage forms.

DRDD 7200 NATURAL PRODUCTS CHEMISTRY (3) LEC. 3. This course is designed as an introduction to the chemistry of natural products of plant origin with medicinal importance. Traditional and modern approaches to plant natural product drug discovery will be discussed. Major biosynthetic pathways of plant secondary metabolites will be covered and used to classify natural products into distinct groups (alkaloids, sesquiterpenoids, diterpenes, triterpenes, saponins, flavonoids, anthraquinones, coumarins, lignans, amino acids, and peptides) and to display the relationships between diverse structures encountered in nature.

DRDD 7230 ADVANCED MEDICINAL CHEMISTRY I (3) LEC. 3. Departmental approval. Explanation of the principles of Medicinal Chemistry progressing to qualitative and quantitative descriptions of the synthesis, influence of physical and chemical properties of chemical substances on biological activity and biodisposition.

DRDD 7240 ADVANCED MEDICINAL CHEMISTRY II (3) LEC. 3. Pr. PYPS 7230. Departmental approval. Advanced study of organic medicinal agents featuring organic synthesis, chemical and pharmacological properties and current literature topics.

DRDD 7250 DRUG ACTION AND DESIGN (3) LEC. 3. Pr. (PYPS 7230 or DRDD 7230) and (PYPS 7240 or DRDD 7240). Modern molecular modeling methods with emphasis on computer-aided drug design, quantitative structure activity relationships and combinatorial chemistry.

DRDD 7260 SEPARATION SCIENCE (4) LEC. 4. Departmental approval. A survey of modern separation science with emphasis on analytical scale techniques including gas chromatography, liquid chromatography and electrokinetic separations.

DRDD 7270 MASS SPECTROMETRY OF ORGANIC COMPOUNDS (4) LEC. 4. Departmental approval. A survey of modern techniques in mass spectrometry with emphasis on fragmentation chemistry and structure education.

DRDD 7280 NEUROSCIENCE METHODS (3) LEC. 3. This course is designed to provide a conceptual and practical understanding of several of the most common techniques in neuroscience. The interactive lectures will serve to illustrate the ways in which various experimental approaches have been used to advance specific areas of neuroscience, particularly in the context of neuropsychological diseases or processes.

DRDD 7290 NEUROPHARMACOLOGY OF DRUG ABUSE (2) LEC. 2. Departmental approval. An in-depth study of drugs of abuse, including mechanisms of action, pharmacokinetics, addiction, physical dependence and the effects of drug use during pregnancy. Substance abuse treatment strategies will also be discussed.

DRDD 7300 NEUROPHARMACOLOGY (3) LEC. 3. Neurochemical mechanisms related to the pharmacological actions of medicinal agents affecting the central nervous system.

DRDD 7310 PSYCHOPHARMACOLOGY I (3) LEC. 3. Discussions on anxiety, depression and related disorders.

DRDD 7320 PSYCHOPHARMACOLOGY II (3) LEC. 3. Discussions on schizophrenia, Alzheimer's disease, experimental methods and animal models of disorders.

DRDD 7330 PHARMACOLOGY RESEARCH METHODS (3) LEC. 1. LAB. 9. Experimental design, research methods and data analysis in pharmacology.

DRDD 7340 ORGAN SYSTEMS PHARMACOLOGY I (3) LEC. 3. The course will evaluate the basic principles and rationale for current and novel pharmacological therapeutics for various disease states.

DRDD 7350 ORGAN SYSTEMS PHARMACOLOGY II (3) LEC. 3. The course will evaluate the mechanism of action and rationale for current and novel pharmacological therapeutics for various disease states.

DRDD 7360 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY I (3) LEC. 3. Cellular biology course integrated with pharmaceutical sciences for the study of pharmacologically related mechanisms at the molecular and cellular levels.

DRDD 7370 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY II (3) LEC. 3. Pr. PYPS 7360 or DRDD 7360. Cellular biology course integrated with pharmaceutical sciences for the study of pharmacologically related mechanisms at the molecular and cellular levels. This is a continuation of PYPS 7360/DRDD 7360.

DRDD 7380 DRUG DISCOVERY (3) LEC. 3. This course is a survey of modern approaches to drug discovery. It is designed to familiarize students with different steps of drug discovery from target identification to the development of clinical candidates. (Clinical trials, and approval process will be covered in Drug Development class, which will be offered in spring 2020.) We will discuss the techniques used at the different stages of drug discovery process in the course are also widely used in basic biomedical research laboratories.

DRDD 7390 CANCER PHARMACOLOGY AND DRUG DISCOVERY (3) LEC. 3. Pr. VBMS 7970. This course is designed as an introduction to anti-cancer drugs and anti-cancer drug discovery. The course will build on the principles of cancer biology that are introduced in VBMS 7970 Cancer Biology. This course will begin with a survey of anticancer drugs. Classic cytotoxic agents will be discussed, followed by targeted chemotherapeutic agents. A discussion of strategies used to discover classic cytotoxic agents will be followed by strategies used to discover targeted chemotherapeutic agents. The discussion of targeted drug discovery will focus on target identification and validation, hit generation and optimization, and preclinical lead evaluation. Course meetings will feature the primary literature so as to enable students to translate lecture topics to application.

DRDD 7400 PHARMACOGENOMICS AND TRANSLATIONAL RESEARCH METHODS ORIENTATION (3) LLB. Departmental approval. This course consists of lectures and laboratory orientation sessions designed to introduce the basic concepts of pharmacogenomics and translational research in precision medicine.

DRDD 7500 METABOLISM AND DISPOSITION XENOBIOTICS (2) LEC. 2. Portals of entry, absorption, distribution and elimination of drugs and xenobiotics. Metabolic mechanisms relevant to chemical structure and principles of pharmacokinetics will be emphasized.

DRDD 7510 ENVIRONMENTAL TOXICOLOGY (3) LEC. 3. Mechanisms of action of agricultural and industrial chemicals, drugs, radiation, metals, gases, air particulates, food additives, plant and food poisons in the environment.

DRDD 7600 HETEROCYCLIC MEDICINAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7220. Departmental approval. A survey of chemical nature of heterocyclic moieties of medicinal substances with emphasis on methods of synthesis of medicinally important compounds containing a heterocyclic ring.

DRDD 7930 DIRECTED STUDIES IN PHARMACAL SCIENCES (1-3) LEC. Departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 98 credit hours.

DRDD 7950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Course may be repeated for a maximum of 6 credit hours.

DRDD 7960 SPEC PROB IN PHARM SCIE (1-3) IND. At least 6 credits each with a minimum grade of B in DRDD 7000-7999 Selected study topics in the pharmaceutical sciences. Departmental approval and 6 hours of 7000-level courses. Course may be repeated for a maximum of 6 credit hours.

DRDD 7980 NON-THESIS RESEARCH (1-3) RES. Non-thesis research project, to be determined by faculty advisor and student's graduate advisory committee. Course may be repeated for a maximum of 14 credit hours.

DRDD 7990 RESEARCH AND THESIS (1-10) MST. Research And Thesis. Course may be repeated with change in topics.

DRDD 8930 DIRECTED STUDIES IN PHARMACAL SCIENCES (1-3) LEC. Departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 6 credit hours.

DRDD 8950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Course may be repeated for a maximum of 10 credit hours.

DRDD 8960 DIRECTED READINGS IN PHARMACAL SCIENCES (1-3) IND. Pr. At least 6 credits each with a minimum grade of B in DRDD 7000-7999. Selected study topics in the pharmaceutical sciences. Course may be repeated for a maximum of 6 credit hours.

DRDD 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research for doctoral students. Course may be repeated with change in topics.

EAGLES Program - EAGL

Courses

EAGL 0100 POSITIVE CHOICES (0) SEM. 3. Departmental approval. In this course, students explore positive choices on healthy relationships, sexuality, and safe boundaries. The course is designed to increase critical thinking about relationships.

EAGL 0110 TRANSITION TO POSTSECONDARY EDUCATION (0) SEM. 3. Departmental approval. This course introduces life as a student on a college campus. It includes an overview of skills needed to manage daily life, support health, and wellness goals, and engage in social interactions on a college campus.

EAGL 0130 TRANSITION TO INDEPENDENT LIVING: ON-CAMPUS LIVING (0) SEM. 3. Departmental approval. This course prepares students for living independently in that of maintaining a clean-living space. This includes but is not limited to, educating on the proper cleaning tools for different tasks, following a chore list and or chart, and the aspect of courtesy of keeping shared spaces clean, especially when living with others.

EAGL 0140 FINANCIAL LITERACY (0) DSL/SEM. 3. Departmental approval. In this course, students build their knowledge of financial literacy as it relates to all settings (school, work, community, and home). Students demonstrate an understanding of counting money, managing their finances, budgeting, and relating their financial security to their chosen career area.

EAGL 0150 EMPLOYMENT EXPLORATION (0) SEM. 3. Departmental approval. In this course, EAGLES students explore career paths related to their personal interests and goals. Students identify occupational areas of interest using assessment results that they might prepare for and pursue while in the program and beyond.

EAGL 0200 EMPLOYMENT PREPARATION (0) SEM. 3. Departmental approval. This course focuses on strengthening skills learned and acquired as a first-year college student. This course also focuses on developing healthy habits for employment through the creation of a detailed habit plan and incorporates application-based activities, and real-world practice in the students' everyday lives. Students identify healthy habits and how they will personally incorporate them into all domains of their lives: Academics, Employment, Independent Living, Personal/Social, and Health and Wellness.

EAGL 0210 TRANSITION TO INDEPENDENT LIVING - MEAL PREP GROCERY SHOPPING (0) SEM. Departmental approval. The purpose of this course is to provide the EAGLES students with independent skills involving meal preparation and grocery shopping. These skills help the students transition to an independent lifestyle by learning how to prepare, shop, and cook meals while developing healthy eating habits.

EAGL 0220 LIVING IN THE MODERN WORLD (0) SEM. Departmental approval. This course prepares students to live independently and in the modern world by learning about challenges and pressures, self-determination, and resilience. Students will learn different strategies for self-care and develop an individualized plan for their personal self-care needs. Students will learn about community resources and community safety through outdoor exploration and guest speakers.

EAGL 0230 LIVING ARRANGEMENTS 101 (0) SEM. 3. Department approval required. Students have access to almost all their basic needs on a college campus; however, to successfully transition, students need to learn how to access these supports in their community and how to access them independently. The goal of this course is to teach second-year EAGLES students how to create a Housing Plan according to their independent living goals, financial means, and supports required to be successful at living on their own. This course is meant to introduce students to the real world of living independently through application-based lessons in the community.

EAGL 0310 EMPLOYMENT IMPLEMENTATION (0) LEC. 0. The goal of this course is to teach third year EAGLES students how to generalize skills they have learned into a community setting. Students are taught how to access all supports, like going to the post office, the eye doctor, and taking their animal to the vet, in their community independently. This course is meant to introduce students to the Auburn community so they can be engaged citizens through application-based lessons. Departmental Approval.

EAGL 0320 TRANSITION TO INDEPENDENT LIVING- OFF-CAMPUS LIVING (0) SEM. Departmental approval. The goal of this course is to teach third and fourth year EAGLES students how to generalize skills they have learned into a community setting. Students have access to almost all their basic needs on a college campus, however, to successfully transition, students need to learn how to access these supports in their community and how to access them independently.

EAGL 0330 HOT TOPICS IN TRANSITION (0) SEM. 3. Departmental approval required. In this course, students build upon their knowledge from the first financial literacy class and create a personal budget and finance portfolio to plan their future expenses across all domains for living based on their income, family support, SSI benefits, and a nest egg to support the student while living on their own. Additionally, this course reviews how to protect oneself from fraud.

EAGL 0340 MEDICAL ASPECTS (0) SEM. 3. Assist students in developing working knowledge of medical aspects of their disability and the routine medical needed to live a healthy life. This course helps students develop a medical binder to help them be autonomous when answering questions at routine medical appointments. Additionally, this course explains the process of how insurance works, medical services needed, like routine physicals, dental health, and women's health and how to address acute issues like the common cold, headaches, etc. Departmental approval required.

EAGL 0410 EAGLES CAPSTONE PREPARATION (0) SEM. Departmental approval. Students will create an online portfolio including sections reflecting the five pillars of the EAGLES Program: academic enrichment, personal and social skills, independent living skills, health and wellness, and integrated work experiences. Students will explore areas of interest and set goals when it comes to career-making decisions and obtaining meaningful employment. Students will identify and learn to navigate resources available to them both while they are in the program and once they are alumni of the program, such as Auburn Career Services, LinkedIn, Indeed, and more. Students will hear from guest speakers focused on presenting valuable information regarding each area of the EAGLES Program's five pillars and how students can sustain their focus on these areas after completion of the advanced program.

EAGL 0420 WORK READY, WORLD READY (0) SEM. Departmental approval. In this course, students identify, explore, and interact with agencies that will benefit them post-program. Students learn resources available to individuals with intellectual disabilities and how to access and utilize the agencies. Students learn the benefits of each agency related to employment, independent living, and community living upon completion of the program.

EAGL 0430 BECOMING AN EAGLES ALUMNI (0) SEM. 3. The purpose of this course is to assist students in developing S.O.A.R. Planning documents in preparation for life after the EAGLES Program. The course helps students work through the 5 domains of the EAGLES Program to identify accommodations needed, personal goals, supports to achieve goals and action steps. Additionally, this course will assist EAGLES students in developing and updating important documents needed post-program. Departmental approval required.

Early Childhood Education - CTEC

Courses

CTEC 3020 PRIMARY MATH AND SCIENCE (3) LEC. 3. Exploration of learning and pedagogy for the development of math and science concepts appropriate for children in Kindergarten through Grade 3.

CTEC 3030 INTEGRATED CURRICULUM IN PRESCHOOL: EARLY LITERACY (3) LEC. 3. Coreq. CTEC 4911. This course focuses on the foundations of literacy learning including play, developmentally appropriate practices, and integration within and across disciplines through multisensory, multimodal means, connecting to the Alabama Developmental Standards. Admission to Teacher Education.

CTEC 3200 A WORKING THEORY FOR THE CONSTRUCTIVIST EDUCATOR (3) LEC. 3. Constructivist theory for pre-service teachers preparing to teach at the early childhood level.

CTEC 4200 THE CONSTRUCTIVIST TEACHER: STRATEGIES AND TECHNIQUES (3) LEC. 3. Construction of an operational knowledge of established constructive curriculum strategies and techniques.

CTEC 4210 THE CONSTRUCTIVIST TEACHER: GROWING PROFESSIONALLY (1) AAB/DSL. 1. Pr. P/C CTEC 4920 or P/C CTEC 4923. Admission to Clinical Residency. The roles and responsibilities of being an early childhood professional. May count either CTEC 4210 or CTEC 4213.

CTEC 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research or other work undertaken independently by a student focused on a content area of special interest. Course may be repeated for a maximum of 6 credit hours.

CTEC 4910 PRACTICUM (1-6) PRA. SU. Departmental approval. Students and faculty cooperatively select and execute an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEC 4911 PRACTICUM IN THE PRESCHOOL (1-2) LEC. 1-2. SU. Laboratory experiences with children from birth to five years of age designed to help students relate theory to practice. Course may be repeated for a maximum of 2 credit hours.

CTEC 4912 PRACTICUM IN PRIMARY GRADES (3) LEC. 0. LAB. 3, AAB/PRA. 0. SU. Laboratory experiences with children 5 through 9 years of age help students relate theory to practice.

CTEC 4920 CLINICAL RESIDENCY (1-12) AAB/DSL. 1-12. SU. Pr. P/C CTEC 4210 or P/C CTEC 4213. Admission to Clinical Residency. Experience in a setting serving pre-primary or primary-school children with varying abilities. Admission to internship. May count either CTEC 4920 or CTEC 4923. Course may be repeated for a maximum of 12 credit hours.

CTEC 7200 EARLY CHILDHOOD EDUCATION PERSPECTIVE (3) LEC. 3. Historical overview of current issues, trends, and programs in early childhood education. May count either CTEC 7200 or CTEC 7206.

CTEC 7210 ORIGINS OF THOUGHT (3) LEC. 3. Piaget's theories of how thought develops in young children. Comparison of the social and biological roots of thought. May not count either CTEC 7210 or CTEC 7216.

CTEC 7260 PLAY AND EARLY CHILDHOOD EDUCATION (3) LEC. 3. Examination of children's play from a constructivist theoretical perspective and translation of theory into early childhood educational practice. May count either CTEC 7260 or CTEC 7266.

CTEC 7270 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of a problem related to the thought, writing and research that form the theoretical foundations of constructivist approaches in early childhood education. May count either CTEC 7270 or CTEC 7276. Course may be repeated for a maximum of 9 credit hours.

CTEC 7510 RESEARCH STUDIES IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. How to read, review, analyze and interpret significant research studies in early childhood education. May count either CTEC 7510 or CTEC 7516.

CTEC 7520 CURRICULUM AND TEACHING IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Reappraisal of experiences and content for children by focusing on the nature of the learner and the nature of the knowledge to be learned. May count either CTEC 7520 or CTEC 7526.

CTEC 7530 ORGANIZATION OF PROGRAM IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Organization, administration, and supervision of early childhood programs. May count either CTEC 7530 or CTEC 7536.

CTEC 7540 EVALUATION OF PROGRAMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Assessment and evaluation of all program components from a constructivist perspective. May count either CTEC 7540 or CTEC 7546.

CTEC 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent learning objectives related to the student's area of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEC 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Experience relating theory and practice, usually in a school setting. Departmental approval. May count either CTEC 7910 or CTEC 7916. Course may be repeated for a maximum of 6 credit hours.

CTEC 7970 SPECIAL TOPICS (3-9) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 7990 RESEARCH AND THESIS (1-10) DSL/MST. Course may be repeated with change in topics.

CTEC 8240 RESEARCH IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the needs of young children. May count either CTEC 8240 or CTEC 8246.

CTEC 8270 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of problems related to the thought, writings, and research that form the theoretical foundations of constructivist approaches to early childhood education. Master's Degree. May count either CTEC 8270 or CTEC 8276. Course may be repeated for a maximum of 6 credit hours.

CTEC 8720 DESIGNING EARLY CHILDHOOD CURRICULUM (3) LEC. 3. Application of early childhood history, philosophy, program analysis and constructivist theory to the design of early childhood curriculum. Master's Degree. May count either CTEC 8720 or CTEC 8726.

CTEC 8850 CONSTRUCTIVIST INVESTIGATIONS IN EARLY CHILDHOOD SETTINGS (3) LEC. 3. Analysis and interpretation of the design of constructivist investigation. Master's Degree.

CTEC 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEC 8970 SPECIAL TOPICS (3-9) DSL. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 8980 FIELD PROJECT (1-3) DSL/FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May not count either CTEC 8980 or CTEC 8986. Course may be repeated for a maximum of 3 credit hours.

CTEC 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with a change in topic. Course may be repeated with change in topics.

Earth System Science - ESSI

Courses

ESSI 7150 SCIENCE COMMUNICATION (3) LEC. 3. This course will provide opportunities for STEM graduate students to practice communicating science to multiple audiences. Students will gain skills by communicating with both stakeholders and the public and presenting information, exploring public opinion on socio-political topics such as climate change, resilience, and adaptation planning, and learning about appropriate framing and messaging techniques for target audiences. Guest speakers, reading discussions, practical tips, communication rubrics, and presentations to refine communication skills will be emphasized.

ESSI 7200 STEM STUDIO (2) LEC. 2. This course will provide opportunities for interdisciplinary STEM graduate students to learn about structured decision-making and the coproduction of science, which aims to undertake science that is actionable and useful to targeted stakeholder groups. Students will gain skills by communicating with stakeholders and develop a proposal to conduct research with a stakeholder group of their choice. Ideally, students would then implement their research in the follow-on Internship course (ESSI 7920) offered by the ESSI Program/NRT project. Guest speakers, reading discussions, written communication, workshops, and meetings with stakeholders will be included in the course. This course aims to: (i) expose students working on climate adaptation (from natural, social, or humanities sciences) to ideas of interdisciplinary climate knowledge, co-production, and structured decision-making; (ii) help students reflect on and relate these ideas to their own research - how their own climate research could connect with other disciplines and meet the decision needs of stakeholders; (iii) support participants in designing a climate adaptation research project for review by their peers and future implementation with their chosen stakeholder group.

ESSI 7300 SOCIAL-ECOLOGICAL-ENGINEERED SYSTEMS (3) LEC. 3. This course explores foundational scholarship on the Social-Ecological Systems (SES) approach to understanding complex environmental problems with emphasis on the role of engineering in human interactions with natural systems. Students are expected to apply SES concepts and theories to analyses in their own areas of research.

ESSI 7420 NATURAL HAZARDS RISK AND DISASTER RESILIENCE (3) LEC. 3. The purpose of this course is to present students with an approach to understanding adverse natural hazard impacts and disasters grounded in the analysis of disaster risk, vulnerability, and resilience. The course will use a multidisciplinary perspective to examine factors and conditions that put people differentially at risk before, during, and following a disaster event. The course will also introduce students to the metrics, methodologies, and tools necessary for both quantitative and qualitative resilience assessments and benchmarking methods. Specific topics that are an integral part of the resilience concept will include: climate-related hazard risk assessment; disaster resilience assessment covering ecological, social, economic, infrastructural, and institutional components; community capital; hazard mitigation and planning for fostering resilient communities; social vulnerability, and recovery. The course materials, lectures, and assignments will reflect the emerging emphasis on resilience to climate-induced natural hazards and disasters.

ESSI 7920 CLIMATE INTERNSHIP (1) INT. 1. This course will provide graduate Trainees with an opportunity to gain knowledge and skills from a planned work experience in the area of resilience to climate-related natural hazards and disasters. In addition to meeting core learning objectives, jointly developed learning outcomes that are specific to each Trainee will be selected and evaluated by a faculty internship advisor, a stakeholder sponsor, and the Trainee. It is expected that the internship will afford Trainees the opportunity to: 1) explore career paths related to climate resilience outside of academia, 2) conduct research to solve real-world problems, and 3) to understand the research needs of stakeholders. The experience will also give students the opportunity to build professional networks.

ESSI 8000 EARTH SYSTEM SCIENCE AND GLOBAL CHANGE (3) LEC. 3. The course explores the Earth system as a whole, with an emphasis on the interrelationships between geological, biological, climatological, and human systems on regional and global scales.

ESSI 8040 URBAN CLIMATOLOGY (3) SEM. 3. This seminar will explore past, current, and emerging textbooks and literature to introduce (1) the fundamental concepts of the urban-climate system, (2) observational and modeling strategies for studying the urban-climate system, and (3) the context for how the urban-climate system feedbacks fit into the climate change discussion. Students will be graded based on class participation, examinations, a small group project, and an individual project.

ESSI 8100 EARTH SYSTEM OBSERVATIONS AND ANALYSIS (3) LEC. 2. LAB. 2. Pr. GSEI 1200 and GSEI 2070. Course reviews recent advances in earth system observations and provides students opportunity to develop holistic understanding of key parameters and processes of the earth system including biosphere, atmosphere, and oceans processes using observations.

ESSI 8200 EARTH SYSTEM SCIENCE SEMINAR (1) SEM. 1. SU. Students deliver oral presentations based upon their research and provide constructive criticism of their peers' presentations. Topics of presentations may include student’s dissertation research areas or critical examination of current research problems in Earth system science.

ESSI 8990 RESEARCH AND DISSERTATION (1-6) DSR. Theoretical and practical aspects of designing dissertation research in the interdisciplinary Earth System Science program. The course is designed to assist students through the proposal and dissertation writing and presentation processes and to prepare for the dissertation defense. Course may be repeated for a maximum of 15 credit hours.

Economics - ECON

Courses

ECON 2020 PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2027 HONORS PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2030 PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy. May count either ECON 2030 or ECON 2033.

ECON 2037 HONORS PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy.

ECON 3020 INTERMEDIATE MICROECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theory of pricing under varying market conditions and distribution of income among the factors of production.

ECON 3030 INTERMEDIATE MACROECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. A study of national economic aggregates and the market determination of output, employment, and inflation. Introduction to economic monetary and fiscal policy on the economy.

ECON 3040 CONSUMER ECONOMICS (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) or (ECON 2030 or ECON 2033 or ECON 2037). A broad study of consumer economics at both the household level and the national consumption aggregates.

ECON 3100 LAW AND ECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Description of the many substantive areas in which law has an economics foundation and an analysis of how law affects economic relations.

ECON 3200 MONEY AND BANKING (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Theoretical and institutional analyses of monetary systems, foreign exchange, and commercial banking.

ECON 3300 ECONOMICS OF SPORTS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Economic analysis of professional and collegiate sports, including the structure of competition and performance in individual and team sports.

ECON 3400 AMERICAN ECONOMIC HISTORY I (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ECON 2030 or ECON 2033 or ECON 2037). Examines development of the American economy from colonial history to present. Topics include changes in institutions, the standard of living, income distributions, social mobility, labor markets, demographic structure, technological development, and the financial system.

ECON 3420 AMERICAN ECONOMIC HISTORY II (3) LEC. 3. Pr. ECON 2020. This class will study the history of American business cycle fluctuations with extended discussions of the Great Depression and the Great Recession. A point of emphasis in this class will be on the importance of data construction in interpreting historical economic events.

ECON 3500 COMPARATIVE ECONOMIC SYSTEMS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Analysis of alternative government approaches to solving basic economic problems.

ECON 3600 MATHEMATICAL METHODS FOR ECONOMISTS (3) LEC. 3. Pr. ECON 3020 and (MATH 1690 or MATH 2630 or MATH 2637). Fundamental mathematical and quantitative methods employed by economists. Application of calculus, probability, statistics, and linear algebra to economics.

ECON 3700 HISTORY OF ECONOMIC THOUGHT (3) LEC. 3. Pr. ECON 2030 or ECON 2037. Development of economic ideas, principles and systems of analysis from early times to the present.

ECON 3800 PUBLIC CHOICE (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic analysis of public sector decision making. Emphasis on actions taken by voters, bureaucrats, and lobbyists elected to influence public sector outcomes.

ECON 4000 ECONOMICS OF WORK AND PAY (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theoretical and institutional examination of the labor market, including wage theories, unionism, occupational choice, and public policy.

ECON 4100 INDUSTRIAL ORGANIZATION (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Relationship of market structure to the pricing behavior and economic performance of firms. Topics include regulation, research and development, and technical change.

ECON 4200 GOVERNMENT, BUSINESS AND SOCIETY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or ECON 2020 or ECON 2023 or ECON 2027. Economic role of government in a free enterprise economy. Application of microeconomic theory to policy issues, particularly antitrust and regulation.

ECON 4300 INTERNATIONAL ECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic consequences of free trade, including identification and measurement of gains and losses. Analysis of trade restrictions, such as quotes, tariffs, VERs. Examination of labor and capital movements between nations.

ECON 4600 ECONOMETRICS I (4) LEC. 3. LAB. 1. Pr. ECON 3600 and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3600 or PSYC 2130 or PSYC 2133 or BUAL 2600 or BUAL 2603). Basic statistical toolbox to analyze economic data and evaluate economic models. Topics include simple and multivariate linear regressions, maximum likelihood estimation, serial correlation and heteroscedasticity, simultaneous equations, qualitative response models, and basic time series.

ECON 4920 INTERNSHIP (1-3) AAB/INT. SU. Pr. (ECON 2030 or ECON 2033 or ECON 2037) or departmental approval. Course may be repeated for a maximum of 3 credit hours.

ECON 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

ECON 4970 SPECIAL TOPICS (1-3) AAB/IND. SU. Pr., Departmental approval. Investigation and research into economic problems of special interest to the student and instructor. Course may be repeated for a maximum of 6 credit hours.

ECON 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

ECON 5020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617) or Departmental approval. Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty, and strategic behavior.

ECON 5030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 5100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Cause and effects of economic growth and development, for example, ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 5400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 5600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.

ECON 5700 HEALTH ECONOMICS (3) LEC. 3. Pr., Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 5800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr., Departmental approval. The economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 6020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617). Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty and strategic behavior.

ECON 6030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 6100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Causes and effects of economic growth and development, for example ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 6400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. or Departmental approval.Survey of the economic advancement of the United States from European origins to the present.

ECON 6600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level

ECON 6700 HEALTH ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 6800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 7110 MICROECONOMICS I (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Consumer behavior and market models of competition and monopoly. Traditional and contemporary theories of consumer and household behavior under constraint; models of competitive behavior.

ECON 7120 MICROECONOMICS II (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of producer behavior, including production theory, cost theory, profit maximization, theories of various market structures, and derived demand for inputs.

ECON 7130 MATHEMATICAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 and ECON 6030 or Departmental approval. Fundamental mathematical methods in economics and econometrics, including linear and matrix algebra, calculus, comparative statistics, optimization, concavity, constrained optimization dynamics difference equations, and differential equations.

ECON 7210 MACROECONOMICS I (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Evaluation of fundamental theoretical and policy-oriented issues in macroeconomics, emphasizing post-Keynesian developments.

ECON 7220 MACROECONOMICS II (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Foundations of macroeconomics, neoclassical production and growth theory, overlapping generations models, optimal saving, open economy macroeconomics, applied time series macrodynamics.

ECON 7310 ECONOMETRICS I (3) LEC. 3. Pr., Departmental approval. Advanced treatment of the standard linear model of least square theory, including assumptions and properties of the SLM and the statistical testing of behavioral hypotheses.

ECON 7320 ECONOMETRICS II (3) LEC. 3. Pr. ECON 7310. Econometric techniques employed in advanced empirical research. Topics include estimation and inference in simultaneous equation systems, limited dependent variables, non-nested testing, time-series analysis.

ECON 7330 MICROECONOMETRICS (3) LEC. 3. Pr. ECON 7310. Econometric techniques for applied microeconomics. Limited dependent variable models, survival and count data analysis, and selection bias.

ECON 7340 MACROECONOMETRICS (3) LEC. 3. Pr. ECON 7310. Analysis of economic time series and identification and estimation of parameters in multi-equation models.

ECON 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

ECON 8110 ADVANCED MICROECONOMICS I (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Advanced analysis, integrating the economics of time and uncertainty into mainline price theory.

ECON 8120 ADVANCED MICROECONOMICS II (3) LEC. 3. Pr. ECON 7120. or Departmental approval. Advanced analysis, integrating imperfect information and strategic behavior into economic models of trade and investment.

ECON 8210 TOPICS IN MACROECONOMICS (3) LEC. 3. Pr. ECON 7220 or Departmental approval. Goals, procedures and achievements in attaining monetary objectives domestically and abroad. Emphasis on macro-money models and effects of monetary policy on economic activity.

ECON 8540 SEMINAR IN ENVIRONMENTAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Advanced analysis of pricing and allocation of renewable and non-renewable resources.

ECON 8610 INDUSTRIAL ORGANIZATION I (3) LEC. 3. Pr. ECON 7120. or Departmental approval.. Determinants of market structure, effects of market structure on industry performance, theory of the firm, research and development, advertising, and vertical integration.

ECON 8620 INDUSTRIAL ORGANIZATION II (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Case studies in the history and current practice of regulation in the United States at all levels.

ECON 8710 INTERNATIONAL TRADE (3) LEC. 3. Pr., Departmental approval. Trade theory, including classical, neoclassical, factor proportions, and industrial organization. Applied trade theory and empirical applications.

ECON 8720 INTERNATIONAL MACROECONOMICS (3) LEC. 3. Pr., Departmental approval.Theoretical and applied time series analysis at open economy macroeconomic models, international monetary and financial theory, balance of payments theory, and exchange rates.

ECON 8810 LABOR MARKET ANALYSIS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of labor markets, and determination of wages and other terms of employment. Emphasis on academic studies of labor market issues.

ECON 8820 TOPICS IN LABOR ECONOMICS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Selected topics, including education and on-the-job training. Labor mobility and immigration, employment discrimination, and the impact of labor unions.

ECON 8970 SPECIAL TOPICS (1-3) IND. Pr., Departmental approval. Advanced topics related to economics. Course may be repeated for a maximum of 12 credit hours.

ECON 8980 ECONOMICS WORKSHOP (1) LEC. 1. Pr., Departmental approval. Individual research projects, presentations, and discussions of the economics profession.

ECON 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Educational Research Methods & Analysis - ERMA

Courses

ERMA 2400 APPLIED QUANTITATIVE DATA ANALYSIS IN EDUCATION AND HEALTH PROFESSIONS (3) LEC. 3. This course provides undergraduate students who are interested in education, counseling, school psychology, or health professions with data management, data analysis reasoning, and data-based decision-making skills.

ERMA 4330 INTRODUCTION TO SPORTS ANALYTICS (3) LEC. 3. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683. This course provides an introduction to the field of sports analytics, which is the use of scientific techniques to model sports performance. This course will introduce students to individual and team performance measures, their interpretation and basic analyses using those measures.

ERMA 7100 ADVANCED STUDY OF EDUCATIONAL MEASUREMENT AND EVALUATION (3) LEC. 3. Educational measurement and evaluation with special emphasis on uses of measurement data such as standardized testing and emerging evaluation models such as alternative and authentic assessment.

ERMA 7110 EDUCATIONAL PSYCHOLOGY AND ASSESSMENT (3) LEC. 3. Study of educational psychology as it applies to understanding the teaching-learning process. Measurement and evaluation skills will also be covered.

ERMA 7200 BASIC METHODS IN EDUCATION RESEARCH (3) LEC. 3. Major modes of inquiry in contemporary educational research including experimental, casual comparative, descriptive, qualitative inquiry, and action research models.

ERMA 7210 THEORY AND METHODOLOGY OF QUALITATIVE RESEARCH (3) LEC. 3. Major modes of qualitative research, their underlying philosophical assumptions about knowledge, and the major strategies for collecting and analyzing relevant data.

ERMA 7220 APPLIED QUALITATIVE RESEARCH (3) LEC. 3. Pr. ERMA 7210 or ERMA 7216 or FOUN 7210. Study of detailed strategies of data collection, principles of observation, interviewing, focus groups, recording and coding data, triangulation, strategies for analyzing coded data, and writing up of one's findings.

ERMA 7230 WRITING AS INQUIRY IN QUALITATIVE RESEARCH (3) LEC. 3. Pr. ERMA 7210 or ERMA 7216. This course is based on the assumption that qualitative researchers learn their trade through both scholarship (i.e., deskwork) and firsthand experience (i.e., fieldwork). We take away lessons from doing our own research and from the research experiences of others. For this reason, the course has three aims: to hone your skills reading methodological and empirical literature; to experiment with analysis via writing, including crafting reports of findings and other pieces of writing; and to reflect meaningfully on these processes, including their theoretical, methodological, and ethical dimensions.

ERMA 7240 THINKING WITH THEORY IN QUALITATIVE RESEARCH (3) LEC. 3. Pr. ERMA 7210 or ERMA 7216. This course is designed to give an overview and introduction to a variety of theorists and theoretical approaches that are often used in qualitative inquiry. We will compare and contrast the assumptions, design, and methods of different philosophies and theories in qualitative research.

ERMA 7300 DESIGN AND ANALYSIS IN EDUCATION I (3) LEC. 3. Departmental approval. Basic methods of inferential analysis including t-tests, between and within subjects ANOVA, mixed ANOVAs and hierarchical designs as they are utilized in educational research.

ERMA 7310 DESIGN AND ANALYSIS IN EDUCATION II (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300) or (FOUN 7306 or ERMA 7306). Bivariate and multiple correlation and regression analysis, trend analysis, analysis of covariance, and logistic regression, as they are utilized in educational research. Departmental approval. May count either ERMA 7310 or ERMA 7316.

ERMA 7320 APPLIED QUANTITATIVE RESEARCH (3) LEC. 3. Pr. (ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206) and (ERMA 7300 or ERMA 7306 or FOUN 7300 or FOUN 7306). The study and application of detailed strategies of research study designs, data collection, analysis, and reporting of quantitative data. Course may be repeated for a maximum of 6 credit hours.

ERMA 7400 MIXED METHODS RESEARCH (3) LEC. 3. Pr. ERMA 7200 or ERMA 7206 or ERMA 7210 or ERMA 7216 or ERMA 7300 or ERMA 7306. Overview and introduction to the use of mixed methods research in the social and behavioral sciences.

ERMA 7410 RESEARCH METHODS FOR SOCIAL JUSTICE AND EQUITY (3) LEC. 3. Pr. ERMA 7300 or ERMA 7306 or ERMA 7210 or ERMA 7216 or ERMA 7400. This course focuses on critical educational research in the scholar-activist model. Through engaging with critical theoretical frameworks, critical empirical research, and research methods, this course prepares students to produce research and scholarship for social justice and equity in education.

ERMA 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

ERMA 7910 PRACTICUM IN EDUCATIONAL RESEARCH, MEASUREMENT, AND EVALUATION (1-3) LEC. 1-3. SU. Pr. (ERMA 7210 or ERMA 7216) and (ERMA 7300 or ERMA 7306). Supervised experience related to area of specialization within educational research, measurement, and evaluation. Course may be repeated for a maximum of 6 credit hours.

ERMA 7970 SPECIAL TOPICS IN EDUCATION RESEARCH METHODS & ASSESSMENT (1-6) DSL/LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be with a change in topic. Course may be repeated with change in topics.

ERMA 8100 PROGRAM EVALUATION (3) LEC. 3. Study of various theories and models of curriculum evaluation, methodological issues regarding planning and conducting evaluation studies, reporting and using information from evaluation.

ERMA 8120 TEACHER EVALUATION (3) LEC. 3. Analysis of research on teaching, classroom observation methods, teaching portfolios, supervision of teachers, license and certification assessment, ethical and legal consideration, and using information to improve teaching.

ERMA 8200 SURVEY RESEARCH METHODS (3) LEC. 3. Overview of survey research, sampling issues, selection and construction of survey instruments, response effects, issues influencing response rate, reliability and validity of survey data, and analysis of survey data.

ERMA 8210 PREP RESEARCH FOR PUBLICATION (3) LEC. 3. SU. Pr. (ERMA 7300 or ERMA 7306) and (ERMA 7310 or ERMA 7316) and (ERMA 7210 or FOUN 7210 or FOUN 7300 or FOUN 7306 or FOUN 7310 or FOUN 7316). Preparation of graduate student research for publication or presentation at professional conference through practice, group discussions, peer review and feedback from experienced editorial board members. May count either ERMA 8210 or ERMA 8216.

ERMA 8320 DESIGN AND ANALYSIS IN EDUCATION III (3) LEC. 3. Pr. (FOUN 7310 or ERMA 7310) or (ERMA 7316 or FOUN 7316). Departmental approval. Discriminate analysis, MANOVA, canonical correlation, path analysis, exploratory and confirmatory factor analysis, and hierarchical linear modeling as they are utilized in educational research.

ERMA 8330 NON-PARAMETRIC DATA ANALYSIS IN EDUCATION RESEARCH (3) LEC. 3. Pr. FOUN 7300 or FOUN 7306 or ERMA 7300 or ERMA 7306. Departmental approval. Common non-parametric statistical tests appropriate for use with nominal and ordinal data in educational applications. These include rank-order correlation, sign tests, median tests, analysis of variance of ranks and log-linear analysis.

ERMA 8340 A PRACTICAL INTRODUCTION TO STRUCTURAL EQUATION MODELING (3) LEC. 3. Pr. (FOUN 8320 or ERMA 8320 or ERMA 8326). Departmental approval. Theory and practice of structural equation modeling techniques as they are utilized in educational research will be developed by expanding concepts of multiple linear regression and exploratory factor analysis to allow for correlation and causally related latent constructs.

ERMA 8350 ADVANCED MEASUREMENT THEORY (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300 or ERMA 7306 or FOUN 7306) and (FOUN 7310 or ERMA 7310 or FOUN 7316 or ERMA 7316). Introduction to classical and modern (IRT) test theory, measurement properties, differential item functioning, standard and adaptive testing.

ERMA 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with change in topics.

Educational Psychology - EPSY

Courses

EPSY 4100 LEARNING & WELLNESS IN LATER LIFE (3) LEC. 3. Relevant settings, processes, and purposes of learning for older adults. Learner characteristics will also be examined including motivations and needs. Examples of curricula and programs will be explored in-depth such as learning for family harmony, life transitions and adjustment, community involvement, recreation, reciprocity, wellness, and health.

EPSY 7100 LEARNING & WELLNESS IN LATER LIFE (3) LEC. 3. Relevant settings, processes, and purposes of learning for older adults. Learner characteristics will also be examined including motivations and needs. Examples of curricula and programs will be explored in-depth such as learning for family harmony, life transitions and adjustment, community involvement, recreation, reciprocity, wellness, and health.

EPSY 7400 ED PSYCH & EDUCATIONAL IMPLICA (3) LEC. 3. Educational psychology theory and research addressing critical problems, challenges, and opportunities in education or other growth-oriented settings. Content ranges from the study of learning to educational evaluation and authentic assessment.

EPSY 7410 THE INDIVIDUAL IN THE TEACHING-LEARNING PROCESS (3) LEC. 3. The study of human growth, development, and motivation theory and research, including culture, socio-economic status, language, gender and race as a base for understanding individual differences and their sources.

EPSY 7420 LEARNING THEORY AND EDUCATIONAL PRACTICE (3) LEC. 3. Advanced study of learning theory and research with an emphasis on application to effective design, implementation, and evaluation of instruction.

EPSY 7430 MOTIVATION AND ACHIEVEMENT (3) LEC. 3. Social, cultural, and psychological antecedents of achievement motivation are examined. This process requires reviewing theories and research, and emphasis is placed on discerning implications for practice and policy.

EPSY 7440 CLASSROOM MANAGEMENT: SKILLS AND REFLECTION (3) LEC. 3. Advanced study and analysis of existing classroom management discipline models including observation research activity.

EPSY 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

EPSY 7970 SPECIAL TOPICS IN FOUNDATION OF EDUCATION (3-6) LEC. 3-6. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

EPSY 8410 LEARNING IN THE SOCIAL CONTEXT (3) LEC. 3. Examination of the complex nature of learning as a socially-shared and individualized process. Topics may include the social construction of knowledge, scaffolded instruction, cognitive apprenticeships, and problem based learning.

EPSY 8430 TOPICAL SEMINAR IN LEARNING, COGNITION, AND INSTRUCTION (3) LEC. 3. An intensive and advanced study of research and theory on selected topics. Examples include folk theories of mind and alternative methods of studying thinking.

EPSY 8440 ED PSYCH APPRENT SEMINAR (3) LEC. 3. Focuses on the historical foundations of educational psychology as well as possibilities for future disciplinary development.

EPSY 8540 EDUCATIONAL PSYCHOLOGY RESEARCH APPRENTICESHIP SEMINAR (3) LEC. 3. A structured context for students to begin applying what they have learned from their research methods and statistic courses. Students will design and conduct research that contributes to the educational psychological knowledge base.

EPSY 8640 EDUCATIONAL PSYCHOLOGY LEARNING AND INSTRUCTION APPRENTICESHIP SEMINAR (3) LEC. 3. A structured opportunity for students to begin applying educational psychological concepts and theories in the classroom. Students will study theories of learning and instruction and begin to translate and implement these theories into practice.

EPSY 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with changes in topic.

Educational Leadership - EDLD

Courses

EDLD 7200 SUPERVISION AND PERSONNEL MANAGEMENT (3) LEC. 3. Supervision theory and practice with responsibility for leadership in the recruitment, evaluation and staff development of employees. May count either EDLD 7200 or EDLD 7206.

EDLD 7210 MULTIPROFESSIONAL LEADERSHIP FOR EQUITY (3) LEC. 3. National, state, and local evidence will inform students' understanding of diversity issues in schools. Theories, concepts and principles of leadership from a multidisciplinary, multiprofessional perspective, will be applied to addressing issues of equity in schools. May count either EDLD 7210 or EDLD 7216.

EDLD 7220 ORGANIZATIONAL AND SCHOOL MANAGEMENT (3) LEC. 3. This course will prepare students in understanding legal and ethical responsibilities of school leaders, fiscal revenues and expenditures of Alabama public schools, using action research and components of a comprehensive, ongoing, planning and budgeting program. May count either EDLD 7220 or EDLD 7226.

EDLD 7330 INTRODUCTION TO CURRICULUM AND INSTRUCTIONAL LEADERSHIP (3) LEC. 3. Principles of curriculum development and the leadership skills required to enact it with emphasis on school settings.

EDLD 7340 OVERVIEW OF CURRICULUM PROCESSES (3) LEC. 3. Curriculum as a field of study; the first course required for the ASC concentration in curriculum; an overview of curriculum history, processes, models, and designs.

EDLD 7500 PRINCIPAL LEADERSHIP (3) LEC. 3. Designed to serve instructional leaders in K-12 settings concerning leadership dispositions and leadership theory important to promoting student success and achievement. May count either EDLD 7500 or EDLD 7506.

EDLD 7510 ACTION RESEARCH AND DATA ANALYSIS (3) LEC. 3. Research methodologies to improve instructional and school-based decision-making action, qualitative, and case study techniques applied to school, classroom, or school-community observation. May count either EDLD 7510 or EDLD 7516.

EDLD 7520 LEADERSHIP AND THE LEARNING ORGANIZATION (3) LEC. 3. Management of schools as learning organizations; issues related to student learning and achievement through attention to organizational components. May count either EDLD 7520 or EDLD 7526.

EDLD 7530 PLANNING AND CONTINUOUS IMPROVEMENT (3) LEC. 3. Development of frameworks for collection, analysis, and use of school data for the improvement of instruction, the learning environment, and student achievement. May count either EDLD 7530 or EDLD 7536.

EDLD 7540 INSTRUCTIONAL AND CURRICULAR LEADERSHIP (3) LEC. 3. Curriculum design and development; areas of study include student needs, organizational mission and goals, data driven improvement, change process, diverse faculty, curriculum alignment tools. May count either EDLD 7540 or EDLD 7546.

EDLD 7550 EDUCATIONAL FINANCE AND RESOURCE MANAGEMENT (3) LEC. 3. Preparation of pro-active leaders in school business affairs; use of action research and components of a comprehensive, ongoing, planning and budgeting program; facilities management. May count either EDLD 7550 or EDLD 7556.

EDLD 7560 EDUCATIONAL SYSTEMS AND COMMUNITIES (3) LEC. 3. Change theory, forecasting, trend analysis and application of these concepts to student achievement and school improvement efforts.

EDLD 7570 LEGAL AND ETHICAL ISSUES (3) LEC. 3. Ethical and legal provisions for education communities: emphasis on the support of and belief in the cultural value of a diverse and educated democratic society. May count either EDLD 7570 or EDLD 7576.

EDLD 7580 SUPERVISION AND PERSONNEL ISSUES IN EDUCATION (3) LEC. 3. Policies and practices related to teacher recruitment, selection, evaluation, and professional development; faculty/staff developmental processes that impact student achievement and school improvement efforts. May count either EDLD 7580 or EDLD 7586.

EDLD 7900 DIRECTED STUDIES (1-9) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

EDLD 7910 PRACTICUM (1-6) PRA. Experience closely relating theory and practice, usually conducted in realistic settings. May count either EDLD 7910 or EDLD 7916. Course may be repeated for a maximum of 6 credit hours.

EDLD 7920 ADMINISTRATIVE INTERNSHIP (1-6) AAB/INT. Departmental approval. Opportunities for interns to internalize and employ administrative skills learned during graduate coursework. Course may be repeated for a maximum of 6 credit hours.

EDLD 7930 ADMINISTRATIVE INTERNSHIP/RESIDENCY (1-3) INT. Ongoing field-based experiences in educational administration; observation, participation, and leading with practicing administrators in school systems. Course may be repeated for a maximum of 3 credit hours.

EDLD 7970 SPECIAL TOPICS (1-9) LEC. Variable content for advanced studies in the area of educational leadership. Course may be repeated for a maximum of 9 credit hours.

EDLD 8200 ASSESSMENT AND EVALUATION IN LEARNING ORGANIZATIONS (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making purposes. May count either EDLD 8200 or EDLD 8206.

EDLD 8210 EDUCATIONAL LEADERSHIP: THEORY AND PRACTICE (3) LEC. 3. Educational leadership theory and applications for K-12 settings. May count either EDLD 8210 or EDLD 8216.

EDLD 8220 PERSONAL AND PROFESSIONAL DEVELOPMENT (3) LEC. 3. Includes theoretical frameworks and applications for successful and systematic mentoring of professionals in organizations. May count either EDLD 8220 or EDLD 8226.

EDLD 8230 SYSTEMIC PLANNING AND BUDGETING (3) LEC. 3. Covers the components and implementation of a comprehensive ongoing planning and budgeting program for learning organizations.

EDLD 8240 TRENDS AND ISSUES IN EDUCATIONAL ADMINISTRATION (3) LEC. 3. Trends and issues affecting educational institutions with particular attention to development of administrative procedures to cope with educational changes. May count either EDLD 8240 or EDLD 8246.

EDLD 8250 ORGANIZATIONAL POWER, POLITICS AND POLICY FORMATION (3) LEC. 3. Analysis of social forces, antecedent movements, and political actions affecting organizations. The study of policy development and practice. May count either EDLD 8250 or EDLD 8256.

EDLD 8260 THEORY AND DEVELOPMENT OF ORGANIZATIONS (3) LEC. 3. Theoretical frameworks of educational organizations. May count either EDLD 8260 or EDLD 8266.

EDLD 8270 LEADERSHIP IN FINANCE AND MANAGEMENT (3) LEC. 3. Theory and practice of instructional leadership related to personnel and fiscal management of a school or school district. May count either EDLD 8270 or EDLD 8276.

EDLD 8280 THE SUPERINTENDENCY IN EDUCATION (3) LEC. 3. Theoretical frameworks of educational organizations.

EDLD 8300 CURRICULUM THEORY AND PRACTICE (3) LEC. 3. Advanced course dealing with application of curriculum theories with an emphasis on the impact of philosophical and theoretical beliefs on practice.

EDLD 8310 LEADERSHIP IN THE DEVELOPMENT AND APPLICATION OF CURRICULUM AND THEORY DESIGN (3) LEC. 3. Application of transformative leadership in the design, delivery, and evaluation of curriculum in a wide variety of organizational settings. May count either EDLD 8310 or EDLD 8316.

EDLD 8320 CURRICULUM LEADERSHIP FOR ORGANIZATIONS (3) LEC. 3. Pr. EDLD 7340 and EDLD 8300 and EDLD 8310 or EDLD 8316. Departmental approval. For those considering a career in upper level management. Focuses on context, societal, and political influences related to curriculum processes and organizational change. May count either EDLD 8320 or EDLD 8326.

EDLD 8340 TRANSFORMATIONAL PROCESSES AND ORGANIZATIONAL CHANGE (3) LEC. 3. Organizational and transformational change at personal, interpersonal, and institutional levels. May count either EDLD 8340 or EDLD 8346.

EDLD 8400 ETHICS FOR LEADERS (3) LEC. 3. Theory and practice of ethics and the role of ethical and personal integrity for leaders in the context of educational organizations and the communities they serve. May count either EDLD 8400 or EDLD 8406.

EDLD 8480 INSTITUTIONAL RESEARCH AND DECISION SUPPORT (3) LEC. 3. Components of institutional research and assessment programs that can support the comprehensive planning, decision support, and management needs of the institution.

EDLD 8600 MENTORING FOR CAREER DEVELOPMENT (3) LEC. 3. Assist graduate students in discovering how mentioning can enhance their career/professional development and benefit their organizations. May count either EDLD 8600 or EDLD 8606.

EDLD 8940 DIRECTED FIELD EXPERIENCE IN EDUCATIONAL LEADERSHIP (1-6) FLD. Field-based experience in diverse settings to develop knowledge, skills, and abilities in an area of special interest. Course may be repeated for a maximum of 6 credit hours.

EDLD 8950 SEMINAR (3) DSL/SEM. 3. Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking. May count either EDLD 8950 or EDLD 8956. Course may be repeated for a maximum of 6 credit hours.

EDLD 8980 PROJECT ANALYSIS (3) LEC. 3. Problem solving, reflective practice and action research and used for continuous school improvement. Provides opportunities to engage in diverse field based research projects. May count either EDLD 8980 or EDLD 8986.

EDLD 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours. Course may be repeated with change in topics.

Educational Media - EDMD

Courses

EDMD 2000 DIGITAL LITERACY AND COMPUTER SCIENCE IN EDUCATION (4) LEC. 3. LAB. 1. Introduction of foundational computer science concepts and practices relevant to K-6 teachers. Emphasis on the application of computational thinking skills to the development of a block-based programing as well as digital literacy skill development. Limited to majors requiring teaching certification.

EDMD 2100 CONTEMPORARY LITERATURE FOR CHILDREN, YOUTH, & ADOLESCENTS (3) LEC. 3. Reading, discussion, analysis, and reflection on contemporary literature in print and other formats for an audience of ages birth-18 yrs. Applying critical skills in the evaluation and selection of titles from a range of genres & formats, including picture books, chapter books, graphic novels, e-books, audio-books, audio-visual formats, fiction, and non-fiction in its various forms. Particular emphasis on American Library Association award-winning titles.

EDMD 3300 UTILIZATION OF INSTRUCTIONAL TECHNOLOGY FOR EDUCATORS (2) LEC. 1. LAB. 2. Basics of current and emerging instructional & communication technologies with primary emphasis on curricular integration. Location, selection, and application of technology resources (WWW, commercially authored software, etc.) for curricular needs with emphasis on developmental stages, learning styles and learning technologies. Limited to majors requiring teaching certification.

EDMD 5000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments.

EDMD 6000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments. May count either EDMD 6000 or EDMD 6006.

EDMD 6100 MEDIA FOR CHILDREN (3) LEC. 3. Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 7000 INSTRUCTIONAL DESIGN AND DEVELOPMENT (3) LEC. 3. Theory, problems, procedures, and standards in the utilization of technology in instructional design and development. May count either EDMD 7000 or EDMD 7006.

EDMD 7010 INSTRUCTIONAL AND INFORMATION TECHNOLOGIES (3) LEC. 3. Evaluation, selection, and use of traditional and current technologies for instruction, information, and administration in learning environments. May count either EDMD 7010 and EDMD 7016.

EDMD 7020 PRINCIPLES OF GRAPHIC DESIGN FOR INSTRUCTION (3) LEC. 3. Principles of graphic design and visual literacy to facilitate the presentation of information. Criteria for graphics utilization examined. May count either EDMD 7020 or EDMD 7026.

EDMD 7030 DIVERSE CHILDREN'S AND YOUNG ADULT LITERATURE: ISSUES, TRENDS, & CONTROVERSIES (3) LEC. 3. Examination of current issues, trends, and controversies in diverse children's and young adult literature. Particular focus is given to literature by and about people from population groups traditionally defined by race, class, ethnicity, religion, ability, gender and sexuality. Course participants will investigate theoretical perspectives, scholarly discussions, and methodological implications for these texts.

EDMD 7100 SELECTION AND USE OF MEDIA FOR YOUTH (3) LEC. 3. Pr. EDMD 7030 or EDMD 7036. Evaluation, selection, and use of print and non-print media for youth, including materials for multi-cultural, special and gifted education. May count either EDMD 7100 or EDMD 7106.

EDMD 7110 BIBLIOGRAPHIC DESCRIPTION, ORGANIZATION AND CONTROL (3) LEC. 3. Principles and procedures of describing, classifying and organizing resources with applications using new technologies. May count either EDMD 7110 or EDMD 7116.

EDMD 7120 INFORMATION SOURCES, SERVICES AND INSTRUCTION (3) LEC. 3. An overview of information needs, services, and print and electronic resources; ways to teach information literacy skills. May count either EDMD 7120 or EDMD 7126.

EDMD 7130 ADMINISTRATION OF MEDIA AND TECHNOLOGY SERVICES (3) LEC. 3. Functions of and planning for media and technology services. Budget, evaluation, facilities, guidelines, legal issues, personnel and policies. May count either EDMD 7130 or EDMD 7136.

EDMD 7200 APPLIED INSTRUCTIONAL DESIGN (3) LEC. 3. Pr. EDMD 7000 or EDMD 7006. Applying instructional design skills, students will plan, develop, implement and assess instructional products using appropriate technologies. May count either EDMD 7200 or EDMD 7206.

EDMD 7210 INTEGRATION OF TECHNOLOGY INTO CURRICULUM (3) LEC. 3. Learner competence in integration of technology into curriculum, including designing and writing software and plans for using computers in instruction. May count either EDMD 7210 or EDMD 7216.

EDMD 7230 THEORY AND PRACTICE OF DISTANCE EDUCATION (3) LEC. 3. Theories, concepts, and tools that support distance education, with emphasis on application in design, development, and implementation of distance education instruction. May count either EDMD 7230 or EDMD 7236.

EDMD 7300 RESEARCH IN INSTRUCTIONAL TECHNOLOGY (3) LEC. 3. Pr. ERMA 7200 or FOUN 7200 or ERMA 7206 or FOUN 7206. A forum for sharing research perspectives, exploring processes involved in defining research problems and analyzing research theories, problems, and methods in instructional technology. May count either EDMD 7300 or EDMD 7306.

EDMD 7310 EVALUATION OF MEDIA AND TECHNOLOGY PROGRAMS (3) LEC. 3. Factors contributing to effective media and technology programs. Understanding of research process and experience with media and technology services assumed. May count either EDMD 7310 or EDMD 7316.

EDMD 7320 ADVANCED INFORMATION SOURCES AND SERVICES (3) LEC. 3. Electronic databases, advanced searching techniques, information representation, and the role of the media specialist in networking and creating electronic information sources. May count either EDMD 7320 or EDMD 7326.

EDMD 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor of student's work accomplished at regular intervals.

EDMD 7910 PRACTICUM (1-6) PRA. SU. Experiences closely relating theory and practice, usually conducted in realistic settings. Course may be repeated for a maximum of 6 credit hours.

EDMD 7920 CLINICAL RESIDENCY (1-6) DSL/INT. SU. Pr. (P/C EDMD 7120 or P/C EDMD 7126) and (P/C EDMD 7130 or P/C EDMD 7136). Supervised experience in a school media center or other appropriate setting. These experiences, accompanied by regularly scheduled meetings with the university supervisor, provide evaluation and analysis of the intern experience. May count either EDMD 7920 or EDMD 7926. Course may be repeated for a maximum of 6 credit hours.

EDMD 7930 TEACHING APPRENTICESHIP (3) SEM. 3. Departmental approval. A structured opportunity for students to apply educational media concepts and theories in the college classroom. Course may be repeated for a maximum of 6 credit hours.

EDMD 7940 DIRECTED FIELD EXPERIENCE (3-6) FLD. SU. Pr. FOUN 7200 or ERMA 7200 or ERMA 7206 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques. Course may be repeated for a maximum of 6 credit hours.

EDMD 7970 SPECIAL TOPICS IN INSTRUCTIONAL TECHNOLOGY (3-9) LEC. 3. Opportunity for study of current topics related to the field of instructional technology. Course may be repeated for a maximum of 9 credit hours.

EDMD 7980 FIELD PROJECT (3-6) INT. SU. Pr. ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques.

Electrical and Computer Engineering - ELEC

Courses

ELEC 2110 ELECTRIC CIRCUIT ANALYSIS (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (COMP 1200 or COMP 1220 or COMP 1230 or COMP 1210 or COMP 1217) and (P/C ENGR 1110 or P/C ENGR 1113) and P/C MATH 2650. Basic laws and concepts; resistive circuits; first-order transient circuits; phasors and frequency response of circuits; RMS values and complex power.

ELEC 2120 SIGNALS AND SYSTEMS (4) LEC. 3. LAB. 3. Pr. ELEC 2110 and MATH 2650 and (MATH 2630 or MATH 2633 or MATH 2637). Time-domain and frequency-domain methods for modeling and analyzing continuous and discrete-data signals and systems. Generating and observing signals in the time and frequency domains. MATLAB instruction and programming for signal analysis.

ELEC 2200 DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr. COMP 1200 or COMP 1220 or COMP 1230 or COMP 1210 or COMP 1217. Electronic devices and digital circuits; binary numbers; Boolean algebra and switching functions; gates and flip-flops; combinational and sequential logic circuits; hierarchical design of digital systems; computer-aided design tools for digital design, simulation, and testing.

ELEC 2210 DIGITAL ELECTRONICS (4) LEC. 3. LAB. 3. Pr. ELEC 2110 and ELEC 2200 and (MATH 2630 or MATH 2633 or MATH 2637) and MATH 2650. History of electronics; semiconductors; biasing and operation of PN junction diodes; field-effect transistors and bipolar junction transistors; logic families and logic technologies; flip-flops and memory circuitry.

ELEC 2220 COMPUTER SYSTEMS (3) LEC. 3. Pr. ELEC 2200. Computer hardware/software organization, processor programming models, assembly language programming, design of memory systems, I/O device interfacing, programming and multiprocessing.

ELEC 3030 RF SYSTEMS LAB (1) LAB. 3. Pr. ELEC 2210. Assembly, testing and analysis of a radio. Integration of basic concepts of electronics, electromagnetics, and signals and systems.

ELEC 3040 ELECTRICAL SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2220 and (P/C ELEC 3030 and P/C ELEC 3500). Exploration and integration of electrical engineering concepts and professional practice issues through the design of a contemporary engineering system.

ELEC 3050 EMBEDDED SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2210 and ELEC 2220 and P/C ELEC 2120. Integration of hardware and software in the design of an embedded computing system; development of professional skills.

ELEC 3060 WIRELESS DESIGN LAB (1) LAB. 3. Pr. P/C ELEC 3400. Laboratory experiments geared towards understanding the implementation and testing of components used in wireless communication systems.

ELEC 3310 FUNDAMENTALS OF APPLIED ELECTROMAGNETICS (3) LEC. 3. Pr. (MATH 2660 or MATH 2667) and ELEC 2110 and (MATH 2630 or MATH 2633 or MATH 2637) and MATH 2650. Transmission lines are studied as a bridge to understanding electromagnetic theory. Then, electric and magnetic fields are studied using vector algebra, culminating in Maxwell's equations.

ELEC 3320 ELECTROMAGNETICS FOR WIRELESS COMMUNICATION (3) LEC. 3. Pr. ELEC 3310. Maxwell's equations are used in the study of plane waves, guided waves, fiberoptics, electromagnetic compatibility and interference, antennas and radiation, and satellite communication systems.

ELEC 3400 COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3800. Pulse code modulation, line coding, information rate, equalization, amplitude modulation, angle modulation, noise in communication systems.

ELEC 3500 CONTROL SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Analog and discrete transfer function models, system response specifications, control system characteristics, root locus analysis and design, frequency response analysis and design.

ELEC 3600 ELECTRIC POWER ENGINEERING (3) LEC. 3. Pr. ELEC 2110 and (MATH 2630 or MATH 2633 or MATH 2637) and MATH 2650. Introduction to the basic concepts in electric power engineering.

ELEC 3700 ANALOG ELECTRONICS (3) LEC. 3. Pr. ELEC 2210 and ELEC 2120. Amplifier modeling. Design and analysis of single-stage and multistage transistor amplifiers. Biasing for integrated circuit design. Operational amplifier circuits.

ELEC 3800 RANDOM SIGNALS AND SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Introduction to probability, random variables, random processes and basic statistics, analysis of random signals and noise.

ELEC 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING (3) LEC. 3. Pr. (PHYS 1610 or PHYS 1617) and P/C MATH 2650. Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems. Not open to ECE majors.

ELEC 4010 CAPSTONE DESIGN I (1) LEC. 1. Pr. (ELEC 3800 and P/C ELEC 3030 and P/C ELEC 3040) or (ELEC 3800 and P/C ELEC 3050 and P/C ELEC 4200) or (ELEC 3800 and P/C ELEC 3030 and P/C ELEC 3060). The engineering design process, project management and teamwork, ethical and social impacts of design projects, project documentation and presentation, business considerations, and intellectual property.

ELEC 4020 CAPSTONE DESIGN II (3) LEC. 3. Pr. (ELEC 4010 and ELEC 3030 and ELEC 3040 and ELEC 3320 and ELEC 3600 and ELEC 3700 and P/C ELEC 3400) or (ELEC 4010 and ELEC 3050 and ELEC 3800 and ELEC 4200 and COMP 3270 and P/C ELEC 5200 and P/C ELEC 5220) or (ELEC 4010 and ELEC 3030 and ELEC 3060 and P/C ELEC 4100 and P/C ELEC 5130 and P/C ELEC 5410). A capstone design project which draws on the accumulated curricular experience. Particular project sections may have additional prerequisites. Departmental approval needed.

ELEC 4100 WIRELESS COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3400. Introduction to mobile cellular radio and wireless personal communications, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.

ELEC 4200 DIGITAL SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. ELEC 2210 and ELEC 2220. Hierarchical, modular design of digital systems, computer-aided digital system modeling, simulation, analysis, and synthesis; design implementation with programmable logic devices and FPGAs.

ELEC 4980 SPECIAL PROJECTS (1-3) IND. Departmental approval. Supervised study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

ELEC 5120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Pr. ELEC 3400. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures

ELEC 5130 RF DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 3700. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 5150 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 5190 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Pr. ELEC 3700. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on front-end design skills.

ELEC 5200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Pr. ELEC 4200. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 5210 HARDWARE SECURITY I (3) LEC. 3. Pr. ELEC 2200. Hardware design of symmetric and asymmetric ciphers, digital signature generation and verification, key management, detection and avoidance of counterfeit ICs, cryptographic primitives, and automated hardware design aids.

ELEC 5220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 5230 PARALLEL PROCESSING (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.

ELEC 5240 NEURAL NETWORKS (3) LEC. 3. Pr. ELEC 2120. Principles, architectures, and technologies of neural networks; design and implementation of neural networks using electronics and optics; applications of neural networks.

ELEC 5250 COMPUTER AIDED DESIGN OF DIGITAL INTEGRATED CIRCUITS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation, verification, fault diagnosis and testing, RTL-to-GDSII ASIC flow.

ELEC 5260 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 5290 HARDWARE SECURITY II (3) LEC. 3. Pr. ELEC 5210. This course will provide an in-depth analysis of various topics, which includes advanced cryptography, hardware Trojans, PUFs, RFID security, side-channel attacks and solutions, and blockchain.

ELEC 5310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Pr. P/C ELEC 3320. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 5320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 5340 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 5350 RADAR PRINCIPLES (3) LEC. 3. Pr. ELEC 3320 and ELEC 3800. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 5410 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Pr. ELEC 3800. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 5470 FUNDAMENTALS OF VLSI TEST (3) LEC. 3. Test economics, automatic test equipment, fault models, automatic test pattern generation, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability, scan and boundary scan, IDDQ testing.

ELEC 5530 ROBOT CONTROL (3) LEC. 3. Pr. ELEC 3500. Design, analysis, and simulation of robotic manipulator control. An exploration of kinematics, inverse kinematics, equation of motion, various control strategies, including classic computed-torque feedback control, modern optimal control and AI-based methods such as reinforcement learning and neural network control.

ELEC 5600 ELECTRIC VEHICLES (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Electric vehicles, technical aspects, mathematical relationships, and basic design guidelines on electric powertrain, traction inverters, electric machines, motor drives, power converter components, Wide Band Gap power electronics, permanent magnets, battery charging infrastructures, grid interactions, the roles in microgrids and smart grids, and computer simulations.

ELEC 5610 POWER ELECTRONICS (3) LEC. 3. Pr. ELEC 3700 and ELEC 3600. Power electronic circuits, components, and devices.

ELEC 5620 POWER SYSTEM ANALYSIS (3) LEC. 3. Pr. ELEC 3600. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.

ELEC 5630 ELECTRIC MACHINES (3) LEC. 3. Pr. ELEC 3600. Departmental approval. Fundamentals of the electromagnetic-mechanical energy conversion process. Principles of operation, application, and control of ac and dc motors and generators.

ELEC 5640 RENEWABLE ENERGY IN ELECTRICAL POWER SYSTEMS (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Conventional power plants, global renewables, energy efficiency, marine hydrokinetic (ocean currents and waves), wind power (aerodynamic, generator, plants, grid integration, finance), photovoltaic (device, inverter, plant levels, finance), hydropower (generator, plant level, pumped storage hydro, advances in hydro),power systems grid integration, system impact studies, control and operation of inverter-based resources, ancillary services provisions, and other important aspects of renewables for bulk power (transmission levels) and for distribution power systems.

ELEC 5650 POWER SYSTEM PROTECTION (3) LEC. 3. Pr. ELEC 3600. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 5660 SMART GRIDS (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Conventional power systems, renewable energy, inverter base resources, smart grid challenges and opportunities, real-time management, grid edge sensors, communications, advanced system protection, restoration, reactive/voltage control, real power/frequency regulation, monitoring and diagnostics, microgrids concept.

ELEC 5670 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. 3. Pr. ELEC 3600. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 5690 MICROGRIDS (3) LEC. 3. Pr. ELEC 3600 or ELEC 3810. Distribution power system modeling, inverter-based resources, control, protection, resilience, and security technologies within distributed energy resources (generation, distribution, energy storage, reactive compensation, renewable energy resources) covering microgrid design, analysis, and operation.

ELEC 5700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Pr. ELEC 2210. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 5710 SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 2210. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 5720 LASER-MATERIAL INTERACTIONS (3) LEC. 3. Pr. MATH 1620 or Departmental approval. Fundamental principles of lasers, optics, and laser-matter interaction mechanisms in various laser-based manufacturing, materials processing, and diagnostic techniques.

ELEC 5730 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Pr. ELEC 2210. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 5760 SOLID STATE SENSORS (3) LEC. 3. Pr. ELEC 3700. or consent of instructor. Theory, technology and design micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 5770 VLSI DESIGN (3) LEC. 3. Pr. ELEC 2210 and ELEC 2220. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 5780 ANALOG CIRCUIT DESIGN (3) LEC. 3. Pr. ELEC 3700. Departmental approval. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 5810 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 5820 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 5970 SPECIAL TOPICS (1-5) AAB. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 6120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.

ELEC 6130 RF DEVICES AND CIRCUITS (3) LEC. 3. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 6150 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 6190 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on on front-end design skills.

ELEC 6200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 6210 HARDWARE SECURITY I (3) LEC. 3. This course will provide an in-depth analysis of various topics, which include (i) introduction to cryptography - symmetric and asymmetric ciphers, message authentication codes, and digital signatures, (ii) detection & avoidance of counterfeit ICs, and (iii) security primitives - physically unclonable functions (PUFs) and true random number generators (TRNGs).

ELEC 6220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 6230 PARALLEL PROCESSING (3) LEC. 3. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.

ELEC 6240 NEURAL NETWORKS (3) LEC. 3. Principles, architectures, and technologies of neural networks; design and implementation of neural networks using electronics and optics; applications of neural networks.

ELEC 6250 COMPUTER AIDED DESIGN OF DIGITAL INTEGRATED CIRCUITS (3) DSL/LEC. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation, verification, fault diagnosis and testing, RTL-to-GDSII ASIC flow.

ELEC 6260 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 6290 HARDWARE SECURITY II (3) LEC. 3. Pr. ELEC 5210 or ELEC 6210. This course will provide an in-depth analysis of various topics, which includes advanced cryptography, hardware Trojans, PUFs, RFID security, side-channel attacks and solutions, and blockchain.

ELEC 6310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 6320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 6340 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 6350 RADAR PRINCIPLES (3) LEC. 3. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 6410 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 6470 FUNDAMENTALS OF VLSI TEST (3) LEC. 3. Test economics, automatic test equipment, fault models, automatic test pattern generation, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability, scan and boundary scan, IDDQ testing

ELEC 6530 ROBOT CONTROL (3) LEC. 3. Design, analysis, and simulation of robotic manipulator control. An exploration of kinematics, inverse kinematics, equation of motion, various control strategies, including classic computed-torque feedback control, modern optimal control and AI-based methods such as reinforcement learning and neural network control.

ELEC 6600 ELECTRIC VEHICLES (3) LEC. 3. Electric vehicles, technical aspects, mathematical relationships, and basic design guidelines on electric powertrain, traction inverters, electric machines, motor drives, power converter components, Wide Band Gap power electronics, permanent magnets, battery charging infrastructures, grid interactions, the roles in microgrids and smart grids, and computer simulations.

ELEC 6610 POWER ELECTRONICS (3) LEC. 3. Power electronic circuits, components, and devices. Departmental Approval.

ELEC 6620 POWER SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.

ELEC 6630 ELECTRIC MACHINES (3) LEC. 3. Departmental approval. Fundamentals of the electromagnetic-mechanical energy conversion process. Principles of operation, application, and control of ac and dc motors and generators.

ELEC 6640 RENEWABLE ENERGY IN ELECTRICAL POWER SYSTEMS (3) LEC. 3. Conventional power plants, global renewables, energy efficiency, marine hydrokinetic (ocean currents and waves), wind power (aerodynamic, generator, plants, grid integration, finance), photovoltaic (device, inverter, plant levels, finance), hydropower (generator, plant level, pumped storage hydro, advances in hydro), power systems grid integration, system impact studies, control and operation of inverter-based resources, ancillary services provisions, and other important aspects of renewables for bulk power (transmission levels) and for distribution power systems.

ELEC 6650 POWER SYSTEM PROTECTION (3) LEC. 3. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 6660 SMART GRIDS (3) LEC. 3. Conventional power systems, renewable energy, inverter base resources, smart grid challenges and opportunities, real-time management, grid edge sensors, communications, advanced system protection, restoration, reactive/voltage control, real power/frequency regulation, monitoring and diagnostics, microgrids concept.

ELEC 6670 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. 3. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 6690 MICROGRIDS (3) LEC. 3. Distribution power system modeling, inverter-based resources, control, protection, resilience, and security technologies within distributed energy resources (generation, distribution, energy storage, reactive compensation, renewable energy resources) covering microgrid design, analysis, and operation.

ELEC 6700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 6710 SEMICONDUCTOR DEVICES (3) LEC. 3. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 6720 LASER-MATERIAL INTERACTIONS (3) LEC. 3. Departmental approval. Fundamental principles of lasers, optics, and laser-matter interaction mechanisms in various laser-based manufacturing, materials processing, and diagnostic techniques.

ELEC 6730 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 6750 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3. Departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.

ELEC 6760 SOLID STATE SENSORS (3) LEC. 3. Theory, technology and design of micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 6770 VLSI DESIGN (3) LEC. 3. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 6780 ANALOG CIRCUIT DESIGN (3) LEC. 3. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 6810 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 6820 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 6970 SPECIAL TOPICS (1-5) DSL. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 24 credit hours.

ELEC 7190 ADVANCED RFIC DESIGN FOR WIRELESS COMMUNICATIONS (3) LEC. Pr. ELEC 5190 or ELEC 6190 or ELEC 6196. Wireless standards and multi-standard transceiver architectures, SiGe and CMOS RFIC designs for wireless transceiver building blocks, software defined radios, phase array radars, ultra-high speed data converters, and MIMO wireless transceivers.

ELEC 7250 VLSI TESTING (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Exponential nature of the test problem, fault models, test generation algorithms, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability approaches.

ELEC 7310 ADVANCED ELECTRODYNAMICS I (3) LEC. 3. Departmental approval. Review of basic electromagnetics. Electromagnetic wave propagation in infinite and bounded media. Equivalence Principle, Uniqueness Theorem, Reciprocity, Green's functions and Plane wave functions.

ELEC 7320 ADVANCED ELECTRODYNAMICS II (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Cylindrical wave functions. Spherical wave functions. Scattering by cylinders and spheres. Perturbational and variational techniques.

ELEC 7410 STOCHASTIC SIGNAL AND SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Applications of probability, random variables and stochastic processes in electrical engineering.

ELEC 7440 WIRELESS COMMUNICATION THEORY (3) LEC. 3. Pr. ELEC 3400 or ELEC 7410 or ELEC 7416. The basic of design, analysis and performance limits of wireless communication systems.

ELEC 7450 DIGITAL IMAGE PROCESSING (3) LEC. 3. Departmental approval. Digital image processing principles and applications such as enhancement, restoration and compression.

ELEC 7470 ADVANCED VLSI TEST (3) LEC. 3. Pr. ELEC 5470 or ELEC 6470. Memory/PLA/FPGA testing, delay fault testing, test compression, in-field testing, cell-aware test, adaptive test, system-level test.

ELEC 7500 STATE-VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 3. Departmental approval. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.

ELEC 7520 ADVANCED DISCRETE CONTROL (3) LEC. 3. Departmental approval. Discrete state modeling. Pole assignment and estimation. Multi-rate sampled systems. Non-synchronous sampled systems. MIMO.

ELEC 7560 NONLINEAR SYSTEMS AND CONTROL (3) LEC. 3. Pr. ELEC 7500 or ELEC 7506. Departmental approval. Principles of nonlinear system modeling and analysis; nonlinear control systems design; nonlinear system state estimation.

ELEC 7610 POWER SYSTEM DYNAMICS AND STABILITY (3) LEC. 3. Pr. (ELEC 5620 or ELEC 6620 or ELEC 6626) and (ELEC 5650 or ELEC 6650 or ELEC 6656). Departmental approval. Dynamic models of power systems and analysis of power system stability.

ELEC 7620 POWER SYSTEM OPERATION (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Unit commitment, power system security, state estimation, power system control centers and real-time applications.

ELEC 7630 ADVANCED ELECTRIC MACHINES (3) LEC. 3. Pr. ELEC 5630 or ELEC 6630 or ELEC 6636. Departmental approval. Advanced machine modeling, including Kron's generalized machine theory, Park's transformation, and generalized coordinate transformations. Derivation of traditional machine models. Machine non-linearities, including finite element analysis.

ELEC 7640 POWER SYSTEM TRANSIENTS (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Transients in electric power systems, including lightning and switching phenomena. Traveling waves on power transmission lines, BIL, BSL, line insulation. System modeling.

ELEC 7710 THE FIELD-EFFECT TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern field-effect transistor: the state-of-the art, the MOS capacitor, the 4-terminal MOSFET, short and narrow-channel effects, reliability, scaling theory, modeling, silicon-on-insulator technology, heterostructure devices.

ELEC 7720 THE BIPOLAR TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern bipolar junction transistor; the state-of-the-art, terminal currents, solutions for arbitrary doping profiles, the polysilicon emitter contact, high-injector effects, dynamic operation, device models, heterojunction bipolar transistors.

ELEC 7750 LOW TEMPERATURE ELECTRONICS (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of electronic devices operating at reduced temperatures: the case for cryogenic computers, semiconductor physics at low temperatures, carrier freeze-out, cooled CMOS technology, cooled bipolar technology, superconductors, packaging.

ELEC 7760 SILICON-BASED HETEROSTRUCTURE DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 5700 or ELEC 6700 or ELEC 6706. Departmental approval. Bandgap engineering, strained SiGe and Si, SiGe BiCMOS technology, noise, linearity, circuits applications.

ELEC 7770 ADVANCED VLSI DESIGN (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Departmental approval. Review of CMOS logic circuits; impact of fabrication issues on design; high speed switching circuits; high performance memory structures; advanced clocking strategies and clock distribution; performance optimization; deep submicron design issues; ASIC design flow: logic synthesis, placement and routing; design verification; low power design.

ELEC 7780 RF MICROELECTRONICS (3) LEC. 3. Pr. ELEC 5780 or ELEC 6780 or ELEC 6786. Departmental approval. Techniques used in the design of monolithic integrated circuits for RF applications.

ELEC 7830 PHOTOVOLTAICS (3) LEC. 3. Departmental Approval. Theory, technology, design and application of photovoltaic devices and systems.

ELEC 7900 INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 7950 ELECTRICAL ENGINEERING SEMINAR (1-10) SEM. SU. Course may be repeated for a maximum of 10 credit hours.

ELEC 7970 SPECIAL TOPICS (1-5) DSL. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change of topic. Course may be repeated for a maximum of 24 credit hours.

ELEC 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated for a maximum of 6 credit hours.

ELEC 8120 PRINCIPLES OF NETWORK PERFORMANCE ANALYSIS (3) LEC. 3. Pr. (ELEC 5120 or ELEC 6120 or ELEC 6126) and (ELEC 7410 or ELEC 7416). Data network performance analysis, queueing systems, admission control, network traffic modeling, network calculus, flow and congestion control, wireless network analysis, and network simulation.

ELEC 8420 DETECTION AND ESTIMATION THEORY (3) LEC. 3. Pr. ELEC 7410 or ELEC 7416. Decision theory concepts. Detection of deterministic and random signals in noise; parameter estimation. Bayesian and maximum likelihood approaches, non-random and random parameter estimation; signal estimation.

ELEC 8560 ADAPTIVE CONTROL (3) LEC. 3. Pr. ELEC 7500 or ELEC 7506. Departmental approval. Theory and application of adaptive control systems. Real-time parameter estimation, self-tuning regulators, model-reference adaptive systems, stability, auto-tuning and gain scheduling controllers.

ELEC 8710 ADVANCED TOPICS IN SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of selected topics in semiconductor devices. Course may be repeated for a maximum of 6 credit hours.

ELEC 8900 ADVANCED INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 8970 ADVANCED SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 9 credit hours.

ELEC 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individual doctoral dissertation research. Course may be repeated with change in topics.

Elementary Education - CTEE

Courses

CTEE 3040 PRIMARY CURRICULUM IN MATHEMATICS (3) LEC. 3, LEC. 0. Admission to Teacher Education. This course introduces primary mathematics content, pedagogy, and pedagogical content knowledge for prospective elementary school teachers. Students are provided the opportunity to explore the content and pedagogical content knowledge in the areas of: a) Foundations of Counting, b) Operations with Numbers: Base 10, and c) Operations and Algebraic Thinking. Participants will have the opportunity to delve into state and national standards, Mathematics Teaching Practices, learning trajectories, assessment and student thinking from a teaching perspective.

CTEE 3041 PRACTICUM IN ELEMENTARY EDUCATION: PRIMARY MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTEE 3040. Admission to Teacher Education. Practicum in Elementary Education: Primary Mathematics 1 credit course. This course is designed to provide 15 clock hours of teaching and experience in Primary Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTEE 3100 INTRODUCTION TO ELEMENTARY EDUCATION (3) LEC. 3. Knowledge, skills, and dispositions necessary for elementary education, with emphasis on professional expectations and school structure.

CTEE 4000 FORMATIVE ASSESSMENT AND INSTRUCTION IN INTERMEDIATE MATHEMATICS (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. This course examines mathematics content, pedagogy, and pedagogical content knowledge for prospective elementary school teachers within the intermediate grades. Students explore the areas of: a) Operations with Numbers: Base 10, c) Operations with Numbers: Fractions and c) Operations and Algebraic Thinking. Participants will have the opportunity to delve into state and national standards, Mathematics Teaching Practices, learning trajectories, assessment and student thinking from a teaching perspective.

CTEE 4010 CURRICULUM: SOCIAL SCIENCE (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. Pedagogical content knowledge in the major concepts and modes of inquiry for integrated study of social sciences for elementary learners.

CTEE 4011 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE SOCIAL SCIENCE (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4010. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Social Science Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4020 CURRICULUM: LANGUAGE ARTS (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. CTEE 4020, the final course in reading and writing instruction, deepens students' understanding of English language arts through current research in the science of reading and writing. Emphasizing expressive and receptive language in K–6 classrooms, the course highlights high-leverage teaching practices, assessment strategies, and effective feedback. Students apply learning through practicum experiences, supporting diverse learners including those with dyslexia, dysgraphia, and multilingual backgrounds, while refining their instructional approaches through lectures, readings, and guided practice.

CTEE 4021 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE LANGUAGE ARTS (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4020. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Language Arts Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4030 CURRICULUM: NATURAL SCIENCE (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of science for elementary learners.

CTEE 4031 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE NATURAL SCIENCE (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4030. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Natural Science Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4040 CURRICULUM: MATHEMATICS (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. This course examines the principles, current research, and approaches to the teaching and learning of elementary school mathematics with specific focus on geometry, measurement and data analysis. It also investigates the relationship between pedagogy and mathematical understanding appropriate for the instruction of children in kindergarten through sixth grade. Through this course, candidates explore and use major concepts and procedures in relation to geometry, measurement, probability, and data analysis.

CTEE 4041 PRACTICUM IN ELEMENTARY EDUCATION: INTERMEDIATE MATHEMATICS (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4040. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Mathematics Instruction in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4190 EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. Through exploration, discussion, reflection, and analysis students will study issues pertaining to inclusive/ multicultural K-6 classrooms. Issues related to classroom management (e.g. behavior and time management), students with special needs, parent/community relations, legal mandates, technology, planning, and professionalism.

CTEE 4191 PRACTICUM IN EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTEE 4190. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Effective Classroom Management in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTEE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research, or other work undertaken by a student focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTEE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Students and faculty cooperatively select an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEE 4920 CLINICAL RESIDENCY (11) AAB. 11. SU. Pr. P/C CTEE 4950 or P/C CTEE 4953. Admission to Teacher Education. Supervised teaching in a public elementary school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Admission to internship. May count either CTEE 4920 or CTEE 4923.

CTEE 4950 PROFESSIONAL DEVELOPMENT SEMINAR (1-4) AAB. 1. SU. Pr. P/C CTEE 4920 or P/C CTEE 4923. Admission to Teacher Education. Reflection, exploration, and study of elementary education practices in kindergarten through grade six. May count either CTEE 4950 or CTEE 4953. Course may be repeated for a maximum of 4 credit hours.

CTEE 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTEE 4970 SPECIAL TOPICS (1-6) AAB/LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTEE 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEE 7010 APPROACHES TO TEACHING (3) LEC. 3. Organizational patterns, planning and approaches to instruction in the elementary school.

CTEE 7410 CURRICULUM AND TEACHING IN SOCIAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) social science education. May count either CTEE 7410 or CTEE 7416.

CTEE 7420 CURRICULUM AND TEACHING IN LANGUAGE ARTS (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) language arts education. May count either CTEE 7420 or CTEE 7426.

CTEE 7430 CURRICULUM AND TEACHING IN NATURAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) natural science education. May count either CTEE 7430 or CTEE 7436.

CTEE 7440 CURRICULUM AND TEACHING IN MATHEMATICS (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) mathematics education. May count either CTEE 7440 or CTEE 7446.

CTEE 7490 THE ELEMENTARY SCHOOL PROGRAM (3) LEC. 3. Major curriculum areas and teaching practices in the modern elementary school. Implications of research and theory for the total elementary school program.

CTEE 7510 RESEARCH STUDIES IN EDUCATION IN AREAS OF SPECIALIZATION (3) LEC. 3. Pr. CTEE 7420 or CTEE 7426. A review, analysis and interpretation of data with emphasis on designing research to meet the changing needs of the school. May count either CTEE 7510 or CTEE 7516.

CTEE 7530 ORGANIZATION OF PROGRAMS IN ELEMENTARY EDUCATION (3) LEC. 3. Organization and development of basic and supplementary materials for guiding teachers and school systems in improvement of curriculum and teaching practices. May count either CTEE 7530 or CTEE 7536.

CTEE 7540 EVALUATION OF PROGRAMS IN AREAS OF SPECIALIZATION (3) LEC. 3. Evaluation methods and exploration of evaluation literature in areas of specialization. May count either CTEE 7540 or CTEE 7546.

CTEE 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB. SU. Departmental approval. Provides individual students with experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTEE 7970 SPECIAL TOPICS (1-6) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. May count either CTEE 7970 or CTEE 7979. Course may be repeated for a maximum of 6 credit hours.

CTEE 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTEE 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEE 8970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

CTEE 8980 FIELD PROJECT (1-10) DSL/FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May count either CTEE 8980 or CTEE 8986. Course may be repeated for a maximum of 10 credit hours.

CTEE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Engineering - ENGR

Courses

ENGR 1100 ENGINEERING ORIENTATION (0) LEC. 1. SU. Introduction to the College of Engineering and its resources, exploration of engineering careers, orientation to campus resources and facilities, and assistance with academics and transition to college. Course may be repeated with change in topics.

ENGR 1110 INTRODUCTION TO ENGINEERING (2) LEC. 1. LAB. 3. Introduction to engineering design, engineering teams, graphical presentation, technical writing, oral presentation. May count either ENGR 1110 or ENGR 1113.

ENGR 1410 ENGINEERING SUCCESS STRATEGIES (1) LEC. 1. Topics and engagement with engineering academic support strategies, academic integrity and ethics, professional development skills, engineering learning strategies, inclusive engineering teaming, inclusion and diversity, effective technical communication techniques, career exploration strategies, and exploration of engineering challenges. Explores a variety of academic, personal development, and career exploration activities intended to build a sense of community with underrepresented engineering and computer science students.

ENGR 2010 THERMODYNAMICS (3) LEC. 3. Pr. (CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117) and (MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720) and (P/C PHYS 1600 or P/C PHYS 1607). Principles and applications of thermodynamics to engineering problems.

ENGR 2030 FUNDAMENTALS OF 3D PRINTING (2) LEC. 1. LAB. 3. Introductory level practical aspects of 3D printing, including: model file generation, computer aided design (CAD), slicing, and hands-on printing. Overview of 3D printing technologies and practical troubleshooting.

ENGR 2050 STATICS (3) LEC. 3. Pr. (PHYS 1600 or PHYS 1607) and (P/C MATH 2630 or P/C MATH 2633 or P/C MATH 2637). Principles of vectors, forces, moments, free body diagrams, force systems, 2-D and 3-D equilibrium, friction, geometric properties of plane areas.

ENGR 2070 MECHANICS OF MATERIALS (3) LEC. 3. Pr. (ENGR 2050 or ENGR 2053) and P/C MATH 2650. Minimum grade of C or better in ENGR 2050. Principles of stress and strain; stress-strain relationships; uniaxially loaded members; torsion; bending; beam shear; shear, moment and thrust diagrams; transformed sections; column buckling.

ENGR 2077 HONORS MECHANICS OF MATERIALS (3) LEC. 3. Pr. Honors College. MATH 2650 and ENGR 2050 or ENGR 2053. Minimum grade of C or better in ENGR 2050. Principles of stress and strain; stress-strain relationships; uniaxially loaded members; torsion; bending; beam shear; shear, moment and thrust diagrams; transformed sections; column buckling.

ENGR 2100 FUNDAMENTALS OF ENGINEERING MECHANICS (3) LEC. 3. Pr. P/C PHYS 1600 or P/C PHYS 1607. Basic principles of two-dimensional force systems, free body diagrams, concepts of stress and strain, centroids of composite areas, kinematics and kinetics of particles and rigid bodies.

ENGR 2200 INTRODUCTION TO THERMODYNAMICS, FLUIDS AND HEAT TRANSFER (3) LEC. 3. Pr. (CHEM 1030 or CHEM 1033) and (PHYS 1610 or PHYS 1617). Principles and applications of thermodynamics, fluids and heat transfer.

ENGR 2350 DYNAMICS (3) LEC. 3. Pr. ENGR 2050 or ENGR 2053. Fundamental principles of dynamics including kinematics and kinetics of particles, kinematics and kinetics of rigid bodies, mass moments of inertia, three-dimensional dynamics of rigid bodies, and simple harmonic motion.

ENGR 2700 NUCLEAR POWER OPERATIONS, SYSTEM AND CAREERS (1) LEC. 1. SU. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Overview of nuclear power generation systems including civilian and government career options.

ENGR 3500 LEADERSHIP IN ENGINEERING & BUSINESS THEORY (4) LEC. 3. LAB. 3. This class investigates the challenges of integrating engineering design with business requirements as they related to product innovation. Specific focus is placed on strategic planning and leadership needs to successfully steer product ideas into business reality. Case study problems from business and engineering practice.

ENGR 3510 PRODUCT INNOVATION: FROM SKETCH TO SHELF (4) LEC. 3. LAB. 2.33. Pr. ENGR 3500 or ENGR 3520 and ENGR 3560. This course takes students on a journey from conceptualization (sketch) to production to market (shelf). Students are introduced to the basics of modern computer-aided design (CAD), classic manufacturing processes, and design tools. They will learn how to use Fusion 360 to create 2D and 3D models, as well as how to use CAD to generate concepts, conduct market research, benchmark designs, and create prototypes. Students will also learn about classic manufacturing processes such as casting. Department approval.

ENGR 3560 LEADERSHIP FOR BUSINESS AND ENGINEERS (1) LEC. 1. Overview of leadership concepts and skills.

ENGR 3710 BASIC NUCLEAR I: NUCLEAR AND MECHANICAL SYSTEMS (4) LEC. 3. LAB. 1. Pr. P/C ENGR 2700 and (P/C PHYS 1500 or P/C PHYS 1600 or P/C PHYS 1607). Multidisciplinary course teaching fundamental nuclear and mechanical principles as they are utilized in the nuclear power generation industry.

ENGR 3720 BASIC NUCLEAR II: MATERIALS, ELECTRIC, ELECTRONICS (4) LEC. 3. LAB. 2.5. Pr. ENGR 2700 and (PHYS 1500 or P/C PHYS 1600 or P/C PHYS 1607). Multidisciplinary course teaching fundamental electronic and electrical theory and materials theory as practiced in nuclear power generation industry.

ENGR 3920 INTERNSHIP IN ENGINEERING (0) INT. SU. Professional work experience in an engineering position. Students participating in ENGR 3920 are expected to work in a fulltime, 40 hour/week, engineering job. Course may be repeated for a maximum of 10 credit hours.

ENGR 3970 SPECIAL TOPICS: ENGINEERING, TECHNOLOGY AND SOCIETY (1-4) AAB/LLB. Special topics of interest within a global engineering context. Course may be repeated for a maximum of 9 credit hours.

ENGR 4710 ADVANCED REACTOR OPERATIONS I: HEALTH AND SAFETY (3) LEC. 3. Pr. P/C ENGR 2700. Advanced safety topics within regulatory and training structure of nuclear power industry.

ENGR 4720 ADVANCED REACTOR OPERATIONS II: SAFE OPERATIONS (4) LEC. 3. LAB. 1. Pr. ENGR 3710 or ENGR 3720. Nuclear power plant operations are discussed in detail, with a strong emphasis on safety compliance and industry's safety culture. Topics include the NRC's regulatory processes, operator licensing, reactor design certifications, reactor licensing, reactor oversight, enforcement, reactor modes of operation, plant refueling, spent fuel storage, and plant decommissioning. There is a heavy emphasis on integrated plant systems and operations. Industry leaders discuss current topics.

ENGR 4721 ADVANCED REACTOR PLANT OPERATIONS II: LAB (1) LAB. 2.5. Pr. P/C ENGR 4710. Nuclear power plant operations are discussed with a strong emphasis on safety compliance and industry's safety culture. Focus is hands-on practical factors.

ENGR 5500 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. (ENGR 3500 or ENGR 3520) and ENGR 3560 and ENGR 3510. Acceptance into the BET minor program. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products and processes that influence the competitiveness of the firm. Department approval.

ENGR 5510 BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 4. Pr. (ENGR 3500 or (ENGR 3520 and ENGR 3560)) and ENGR 3510 and (ENGR 5500 or ENGR 6500). This course is the culminating design course for the BET minor. This is a required course for undergraduate students who are admitted to the Business Engineering Technology (BET) program and are pursuing the BET minor. Students must have completed the required pre-requisites. Department approval.

ENGR 5550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Must be in BET minor program. Processes to develop and present design proposal for cooperating industry. Credit will not be given for both BUSI 5970 and ENGR 5970.

ENGR 5600 INTERNATIONAL ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. ENGR 3500 or ENGR 3520 and ENGR 3560 and ENGR 3510. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products, and processes that influence the firm's competitiveness. The main emphasis of this course will be on the process of commercializing an innovation – bringing the innovation to market via the creation of a company. Must be enrolled in the Business-Engineering-Technology minor and participating in the International BET. Department approval.

ENGR 5610 INTERNATIONAL BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 4. Pr. (ENGR 3500 or (ENGR 3520 and ENGR 3560)) and ENGR 3510 and (ENGR 5600 or ENGR 6600). Must be admitted to International BET minor. This course is intended to immerse the student in the new product design and development experience. Students will work directly with international companies and fellow international students to generate working prototypes that offer solutions. Students are expected to develop a successful new product development plan and execute all necessary activities to bring a functional prototype to life by semester's end. Specific focus is placed on creative product ideas. Departmental approval required.

ENGR 6000 ADVANCED ENGINEERING ANALYSIS (3) LEC. 3. Pr. MATH 2660. Analytical solutions of linear and nonlinear problems involving transcendental equations, ODEs/PDEs, Taylor/Fourier/asymptotic series, functional expansions, power series, and approximation methods. May count either ENGR 6000 or ENGR 6006.

ENGR 6500 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. BUSI 3500 or ENGR 3500 or BUSI 3520 or ENGR 3520 and BUSI 3560 or ENGR 3560 and BUSI 3510 or ENGR 3510. This is an optional graduate-level course for undergraduate students admitted to the Business Engineering Technology (BET) program who are pursuing a BET minor. Students must have completed the required pre-requisites and have ABM approval. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products and processes that influence the competitiveness of the firm. Department approval.

ENGR 6510 BUSINESS ENGINEERING TECHNOLOGY MINOR-CAPSTONE (4) LEC. 1. LAB. 4. Pr. (BUSI 3500 or ENGR 3500) and (BUSI 3510 or ENGR 3510) and BUSI 5500 or ENGR 5500 or ENGR 6500. Acceptance into the BET minor with completion of all required pre-requisites and approved ABM. You will be required to apply everything you've learned in the Business Engineering Technology minor to deliver a "fully realized" working product along with supporting documentation. Department approval.

ENGR 6540 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Develop student skills for starting a new business and making strategic decisions concerning technology.

ENGR 6550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Develop student skills for starting a new business and making strategic decisions concerning technology.

ENGR 6600 INTERNATIONAL ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. BUSI 3500 or BUSI 3520 and BUSI 3560 and BUSI 3510. The course focuses on the entrepreneurial aspects in the strategic management of technology and innovation in new ventures, new products, and processes that influence the firm's competitiveness. The main emphasis of this course will be on the process of commercializing an innovation – bringing the innovation to market via the creation of a company. Must be enrolled in the Business-Engineering-Technology minor and participating in the International BET minor and have ABM approval. Department Approval.

ENGR 6610 INTERNATIONAL BET CAPSTONE (4) LEC. 1. LAB. 4. Pr. BUSI 3500 or ENGR 3500 and BUSI 3510 or ENGR 3510 and BUSI 5500 or ENGR 5500 or ENGR 6500. Acceptance into the BET minor, completing all required prerequisites and approved ABM and participating in the International BET Study Abroad minor. You will be required to apply everything you've learned in the Business Engineering Technology minor to deliver a "fully realized" working product along with supporting documentation. Department approval.

ENGR 7920 INTERNSHIP IN ENGINEERING (0) INT. SU. Professional work experience in an engineering position. Course may be repeated for a maximum of 10 credit hours.

ENGR 7940 MASTER OF ENGINEERING PROGRAM ASSESSMENT (0) IND. SU. The course will require that students describe how well the program helped them to attain the outcomes that they articulated in their application to the program. In addition to a reflective description, students will provide examples of work that demonstrate the skills or knowledge that they gained as part of the degree program. These work examples will then be evaluated using a standardized rubric for program assessment purposes, only.

ENGR TECH ENGINEERING TECH ELECTIVE (3) LEC. 3. Transfer Only Equivalency for Engineering Courses. Course may be repeated with change in topics.

English - ENGL

Courses

ENGL 1100 ENGLISH COMPOSITION I (3) LEC. 3. English Composition Core. Intensive study of and practice in effective expository and argumentative writing. May not be taken concurrently with ENGL 1120 or ENGL 1127.

ENGL 1107 HONORS WRITING SEMINAR I (3) LEC. 3. Pr. Honors College. English Composition Core. Topics in writing for students in the Honors College.

ENGL 1120 ENGLISH COMPOSITION II (3) LEC. 3. Pr. ENGL 1100 or ENGL 1103 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 1127 HONORS WRITING SEMINAR II (3) LEC. 3. Pr. Honors College. ENGL 1100 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 2000 INTRODUCTION TO CREATIVE WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the genres of creative writing.

ENGL 2010 INTRODUCTION TO PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the disciplines of professional writing.

ENGL 2020 INTRODUCTION TO LITERARY STUDIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Introduces students to the academic study of literary texts in English with an emphasis on formulating an argument about a text, developing goals and strategies for research, and managing the different stages of the writing process.

ENGL 2200 WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2207 HONORS WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2210 WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2217 HONORS WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2230 BRITISH LITERATURE BEFORE 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of British literature from its beginnings to the end of the 18th century.

ENGL 2240 BRITISH LITERATURE AFTER 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of British literature from the end of the 18th century to the present.

ENGL 2250 AMERICAN LITERATURE BEFORE 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of American literature from its beginnings to 1865.

ENGL 2260 AMERICAN LITERATURE AFTER 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Survey of American literature from 1865 to the present.

ENGL 2270 AFRICAN AMERICAN LITERATURE BEFORE 1900 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. African American literature from its beginnings to 1900.

ENGL 2280 AFRICAN AMERICAN LITERATURE AFTER 1900 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. African American literature from 1900 to the present.

ENGL 3000 WRITING ACADEMIC RESEARCH (3) LEC. 3. Pr. ENGL 1100 and ENGL 1120. Writing Academic Research teaches advanced instruction in writing and research beyond ENGL 1100 and 1120.

ENGL 3020 WRITING IN LAW AND JUSTICE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. This course introduces students to the writing situations they may encounter in legal professions.

ENGL 3040 TECHNICAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Writing in engineering, scientific, and technical fields.

ENGL 3060 WRITING IN THE HEALTH PROFESSIONS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. Writing in medical and health-related fields. This course is designed to introduce students to rhetorical principles and textual and critical practices in medical and health-related fields.

ENGL 3080 BUSINESS WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Writing in business, management, or governmental service fields.

ENGL 3110 SURVEY OF LINGUISTICS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Structure of language, especially American English sounds, words, and syntax, along with study in such areas as dialects and language change.

ENGL 3120 SURVEY OF RHETORIC (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2207 or ENGL 2203 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Survey of rhetoric from Ancient Greece to the present.

ENGL 3130 SURVEY OF CRITICAL THEORY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Introduction to critical methods and theoretical approaches to the study of literature.

ENGL 3200 TOPICS IN CREATIVE WRITING (3) LEC. 3. Pr. (ENGL 1120 or ENGL 1123 or ENGL 1127) and ENGL 2000. A concentrated investigation of varying topics in Creative Writing.

ENGL 3210 FICTION WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of fiction writing; reading, studying, and writing short stories.

ENGL 3230 POETRY WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of poetry writing; reading, studying, and writing poetry.

ENGL 3250 CREATIVE NONFICTION WRITING I (3) LEC. 3. Pr. ENGL 2000. Creative Nonfiction Writing I aims to familiarize students with the intricacies of the genre, with a primary focus on work that falls under the broad label of Narrative Nonfiction.

ENGL 3360 THE BIBLE FOR STUDENTS OF LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2270 or ENGL 2280. Biblical backgrounds to English and American literature; the Bible as literature.

ENGL 3700 TOPICS IN CREATIVE WRITING (3) SEM. 3. Pr. (ENGL 1120 or ENGL 1123 or ENGL 1127) and ENGL 2000. A concentrated investigation of varying topics in Creative Writing.

ENGL 3710 SURVEY OF AFRICAN AMERICAN LITERATURE BEFORE 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. African American literature from its beginnings to 1900.

ENGL 3720 SURVEY OF AFRICAN AMERICAN LITERATURE AFTER 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. African American literature from 1900 to the present.

ENGL 3730 REPRESENTATIONS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. This topics course in literature aims to explore how writers of texts represent things, ideas, or individuals. Course may be repeated for a maximum of 6 credit hours.

ENGL 3740 IDENTITIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. This topics course in literature examines how identity is constructed in texts. Course may be repeated for a maximum of 6 credit hours.

ENGL 3750 CULTURAL STUDIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. A topics course in Cultural Studies. Course may be repeated for a maximum of 6 credit hours.

ENGL 3760 POPULAR LITERATURE & CULTURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. ENGL 3760 is a topics course in literature that addresses a genre of popular fiction with texts in "high" and popular culture, such as sci-fi, detective fiction, fantasy, romance, etc. Course may be repeated for a maximum of 6 credit hours.

ENGL 3850 STUDY IN LONDON (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Study Abroad in London providing an introduction to London's and England's literature and culture.

ENGL 3870 WORLD ENGLISH LITERATURES (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Non-British and non-American literature written in English.

ENGL 3890 WRITING CENTER THEORY AND PRACTICE (3) SEM. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2270 or ENGL 2280. Introduction to writing center theory, pedagogy, and history.

ENGL 4000 ADVANCED COMPOSITION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Theory and practice of expository and argumentative writing.

ENGL 4010 TOPICS IN WRITING (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. An in-depth study of a specific topic of writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4020 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Pr. ENGL 2010 or Departmental approval. Introduction to technical and professional editing.

ENGL 4030 DOCUMENT DESIGN IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Document design in technical and professional communication.

ENGL 4040 PUBLIC WRITING (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Writing in the public sphere.

ENGL 4140 LANGUAGE VARIATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Social, regional, and contextual forces that contribute to dialect diversity.

ENGL 4150 TOPICS IN LANGUAGE STUDY (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or ENGL 1123. Concentrated investigation of varying topics in linguistics or rhetoric. Course may be repeated for a maximum of 6 credit hours.

ENGL 4160 TECHNOLOGY, LITERACY, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280 or Departmental approval. Connections between technology, literacy, and culture, including instruction in advanced computer applications.

ENGL 4170 HISTORY OF THE ENGLISH LANGUAGE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2207 or ENGL 2210 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Chronological development of the English language. May count ENGL 5410 or ENGL 4170.

ENGL 4180 RHETORICAL THEORY AND PRACTICE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Advanced study of topics in rhetorical theory and practice.

ENGL 4210 FICTION WRITING II (3) LEC. 3. Pr. ENGL 3210 or ENGL 4200. Advanced fiction writing.

ENGL 4230 POETRY WRITING II (3) LEC. 3. Pr. ENGL 3230 or ENGL 4220. Advanced poetry writing.

ENGL 4250 CREATIVE NONFICTION WRITING II (3) LEC. 3. Pr. ENGL 3250. Creative Nonfiction Writing II explores writing lyric nonfiction.

ENGL 4300 MEDIEVAL LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British and continental medieval literature.

ENGL 4310 RENAISSANCE ENGLISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. English literature 1485-1660. Course may be repeated for a maximum of 6 credit hours.

ENGL 4320 RESTORATION AND 18TH-CENTURY LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1660-1800. Course may be repeated for a maximum of 6 credit hours.

ENGL 4330 AGE OF REVOLUTION IN BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1770-1830.

ENGL 4340 19TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1830-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4350 20TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature, 1910-2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4360 TWENTY-FIRST CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. British literature since 2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4370 IRISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Periods, movements, or major figures of the literature of Ireland.

ENGL 4400 EARLY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature from its beginnings to 1800.

ENGL 4410 19TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature 1800-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4420 20TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature 1910-2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4430 TWENTY-FIRST CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. American literature since 2000. Course may be repeated for a maximum of 6 credit hours.

ENGL 4440 SOUTHERN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Literature of the American South.

ENGL 4450 TOPICS IN AFRICAN AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Concentrated investigation of varying topics in African American literature and culture.

ENGL 4500 STUDIES IN POETRY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study in one or more kinds of poetry.

ENGL 4510 18TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of novels produced in the 18th century.

ENGL 4520 19TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of novels produced in the 19th century.

ENGL 4530 20TH-CENTURY FICTION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of fiction produced in the 20th century.

ENGL 4540 STUDIES IN DRAMA (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more periods or kinds of drama.

ENGL 4550 STUDIES IN FILM AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Examining the interconnections between film and literature.

ENGL 4600 CHAUCER (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Major works of Chaucer in Middle English.

ENGL 4610 SHAKESPEARE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Shakespeare's works, career, and culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4620 MILTON (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Milton's principal poems, especially Paradise Lost, with some attention to his prose.

ENGL 4630 BRITISH AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more British authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4640 AMERICAN AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more American authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4700 TOPICS IN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Concentrated investigation of varying topics in literature. Course may be repeated for a maximum of 6 credit hours.

ENGL 4710 TOPICS IN GENDER AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Examination of varying topics related to the intersection between literature and gender. Course may be repeated for a maximum of 6 credit hours.

ENGL 4720 TOPICS IN ETHNIC STUDIES (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2233 or ENGL 2243 or ENGL 2253 or ENGL 2263 or ENGL 2270 or ENGL 2280. Literature of one or more ethnic groups. Course may be repeated for a maximum of 6 credit hours.

ENGL 4730 TOPICS IN POPULAR CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. One or more topics in popular culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4740 ENVIRONMENT, LITERATURE, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2210 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Topics related to the intersections between the environment, literature, and culture.

ENGL 4750 TOPICS IN MYTHOLOGY AND FOLKLORE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2270 or ENGL 2280. Study of one or more topics in mythology or folklore. Course may be repeated for a maximum of 6 credit hours.

ENGL 4760 TOPICS IN DIASPORA LITERATURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. Topics class in the literature and culture of displaced groups. Course may be repeated for a maximum of 6 credit hours.

ENGL 4800 SEMINAR IN LITERATURE (3) LEC. 3. Pr. ENGL 3130. Research seminar in literature. Senior standing.

ENGL 4810 CAPSTONE IN PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 2010. Advanced course in developing complex professional writing projects.

ENGL 4820 CAPSTONE IN CREATIVE WRITING (3) LEC. 3. Pr. ENGL 4210 or ENGL 4230 or ENGL 4250. Capstone course in creative writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4830 EARLY AFRICAN AMERICAN LITERATURE (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of African American literature from beginnings to 1900 Course may be repeated for a maximum of 6 credit hours.

ENGL 4840 20TH-CENTURY AFRICAN AMERICAN LITERATURE (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of African American literature from 1900 to 2000 Course may be repeated for a maximum of 6 credit hours.

ENGL 4850 CONTEMPORARY AFRICAN AMERICAN LITERATURE (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of African American literature from 1945 to the present Course may be repeated for a maximum of 6 credit hours.

ENGL 4860 BLACK/AFRICAN AMERICAN LITERARY THEORY AND CRITICISM (3) LEC. Pr. P/C ENGL 2000 or P/C ENGL 2010 or P/C ENGL 2230 or P/C ENGL 2240 or P/C ENGL 2250 or P/C ENGL 2260 or P/C ENGL 2200 or P/C ENGL 2270 or P/C ENGL 2280 or P/C ENGL 2207 or P/C ENGL 2217 or P/C ENGL 2213 or P/C ENGL 2203. The study of Black/African American literary theory and criticism. Course may be repeated for a maximum of 6 credit hours.

ENGL 4920 INTERNSHIP IN ENGLISH STUDIES (3) AAB/IND. 3. SU. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Supervised experience in applying reading, writing, and research skills to the workplace.

ENGL 4960 SPECIAL PROBLEMS IN ENGLISH (3) IND. 3. Pr. 3.00 GPA. At least 5 courses in ENGL 4000-4999. Junior standing and Departmental approval. Individual reading programs determined by the instructor and student. Course may be repeated for a maximum of 6 credit hours.

ENGL 7000 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Research-based best practices in technical and professional editing.

ENGL 7010 TECHNICAL AND PROFESSIONAL COMMUNICATION: ISSUES AND APPROACHES (3) LEC. 3. Introduction to the history, practice, and profession of technical and professional communication.

ENGL 7020 PEDAGOGY IN WRITING STUDIES (3) LEC. 3. Methods, practices, and theories of technical and professional communication for prospective teachers.

ENGL 7030 STUDIES IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LEC. 3. Extensive study of selected types of research and writing for special purposes and novel situations. Course may be repeated for a maximum of 6 credit hours.

ENGL 7040 ENGLISH COMPOSITION: ISSUES AND APPROACHES (3) LEC. 3. Theory, research, and practice in English composition.

ENGL 7050 STUDIES IN COMPOSITION (3) LEC. 3. Advanced study of an approach or an issue in composition studies. Course may be repeated for a maximum of 9 credit hours.

ENGL 7060 WEB DEVELOPMENT (3) LEC. 3. Research-based best practices in web development.

ENGL 7070 GRANT AND PROPOSAL WRITING (3) LEC. 3. Research-based best practices in grant and proposal writing.

ENGL 7080 DOCUMENT DESIGN (3) LEC. 3. Research-based best practices in document design.

ENGL 7090 RESEARCH METHODS IN WRITING STUDIES (3) LEC. 3. An introduction to some of the most widely-used research methods and methodologies across the field (and varied subfields) of Writing Studies.

ENGL 7120 CREATIVE NONFICTION WRITING (3) LEC. 3. Workshop in the craft of writing creative nonfiction. Departmental approval required. Course may be repeated for a maximum of 9 credit hours.

ENGL 7130 FICTION WRITING (3) LEC. 3. Workshop in the craft and writing of fiction. Departmental approval required. Course may be repeated for a maximum of 9 credit hours.

ENGL 7140 POETRY WRITING (3) LEC. 3. Workshop in the craft and writing of poetry. Departmental approval required. Course may be repeated for a maximum of 9 credit hours.

ENGL 7150 STUDIES IN MEDIEVAL LITERATURE (3) LEC. 3. Major works and genres in Middle English and related literary traditions. Course may be repeated for a maximum of 9 credit hours.

ENGL 7160 EARLY MODERN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7170 18TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7180 19TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7190 AMERICAN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7200 LITERARY MODERNISMS (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7210 CONTEMPORARY LITERATURE AND CULTURE (3) LEC. 3. Major literary movements, authors, and /or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7280 STUDIES IN LINGUISTICS (3) LEC. 3. Selected topic in English linguistics, including historical syntax, dialectology, phonology. Course may be repeated for a maximum of 9 credit hours.

ENGL 7300 RHETORIC THEORY AND PRACTICE (3) LEC. 3. Issues and developments in rhetorical theory and analysis, with special attention to the rhetoric of written texts. Course may be repeated for a maximum of 9 credit hours.

ENGL 7770 AFRICAN AMERICAN LITERATURE (3) LEC. 3. Study of African American literature and literary theories of ethnicity and race. Course may be repeated for a maximum of 9 credit hours.

ENGL 7780 STUDIES IN RACE, GENDER, AND SEXUALITY (3) LEC. 3. Focused topics in literature and theory of ethnicity, sexuality, gender, race, class, or disability. Course may be repeated for a maximum of 9 credit hours.

ENGL 7790 LITERARY THEORY: ISSUES AND APPROACHES (3) LEC. 3. Overview of significant theoretical issues, approaches, and conversations in literary and cultural theory, historical and/or contemporary.

ENGL 7800 STUDIES IN LITERARY THEORY (3) LEC. 3. Close study of particular theoretical approaches to literary study, including cultural studies, postmodernism, textual criticism, anthropological approaches. Course may be repeated for a maximum of 6 credit hours.

ENGL 7810 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3. Comparative study of authors, genres, or issues from two or more cultures or critical perspectives. Course may be repeated for a maximum of 9 credit hours.

ENGL 7830 MAJORS AUTHOR(S) (3) LEC. 3. One or more major authors or a single work by a major author. Course may be repeated for a maximum of 9 credit hours.

ENGL 7850 STUDIES IN GENRE (3) LEC. 3. Study of one or more genres across literary periods. Course may be repeated for a maximum of 9 credit hours.

ENGL 7870 SPECIAL TOPICS IN ENGLISH STUDIES (3) LEC. 3. Special problems, topics, and materials in English studies not covered in other existing courses. Course may be repeated for a maximum of 9 credit hours.

ENGL 7910 PRACTICUM IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) PRA. 3. Pr., Departmental approval. Supervised client-based experience in tasks commonly performed by technical communicators analyzed through current research in technical communication.

ENGL 7920 INTERNSHIP IN ENGLISH STUDIES (3) INT. 3. SU. Departmental approval. Supervised professional experience in workplace or university outreach settings.

ENGL 7930 DIRECTED INDIVIDUAL STUDY (1-3) IND. Available on a limited basis for qualified students; requires advance permission of the department graduate committee. Credits are to be arranged. Course may be repeated for a maximum of 6 credit hours.

ENGL 7940 PRACTICUM IN TEACHING COLLEGE ENGLISH (1) LEC. 1. SU. An introduction to the teaching of English at Auburn University. Course may be repeated for a maximum of 2 credit hours.

ENGL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 20 credit hours.

ENGL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

English for Speakers of Other Languages - CTES

Courses

CTES 5410 FOUNDATIONS OF MULTILINGUAL LEARNER INSTRUCTION (3) LEC. 3. Non-major course to introduce students to the essential components of effective instruction of multilingual students in a variety of contexts. Topics include instructional models for teaching multilingual students, linguistically and culturally responsive pedagogy, second language acquisition, formative and summative assessment.

CTES 7400 TECHNOLOGY AND MEDIA IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Application of instructional technology in second language instruction, authentic materials in the ESL classroom. May count either CTES 7400 or CTES 7406.

CTES 7410 CURRICULUM DEVELOPMENT IN ESOL EDUCATION (3) LEC. 3. LAB. 0, DSL/LEC. 0. This class will explore how to teach English for specific purposes by explaining how to create a curriculum in English for a particular context. The course will describe how to conduct a needs analysis and then create a curriculum based on the needs of the students.

CTES 7420 APPLIED LINGUISTICS IN SECOND LANGUAGE ACQUISITION (3) LEC. 3. Provides basic knowledge of phonetics, morphology, syntax, semantics, pragmatics, psycholinguistics, sociolinguistics and language variation to teach English language learners. May count either CTES 7420 or CTES 7426.

CTES 7430 TEACHING ESL LISTENING AND SPEAKING (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course will prepare ESL/EFL teachers to develop engaging and effective listening and speaking lessons in a variety of contexts. Students will design and implement effective listening and speaking lessons for a variety of proficiency levels.

CTES 7440 TEACHING ESL READING AND WRITING (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course will increase understanding of the theory and practices of reading and writing skills that actively engage English learners.

CTES 7460 TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES IN P-12 (3) LEC. 3. Teaching practices and curriculum selection in P-12 ESOL. May count either CTES 7460 or CTES 7466.

CTES 7470 ISSUES IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Examination of central issues in the teaching and learning of ESOL including language policy, language diversity and multiculturalism. May count either CTES 7470 or CTES 7476.

CTES 7480 ASSESSMENT IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL) (3) LEC. 3. Theoretical perspectives on assessment of English Language Learners. Developing, administering and analyzing assessment instruments. May count either CTES 7480 or CTES 7486.

CTES 7490 METHODS IN ESL GRAMMAR (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course will explore the English language beyond the prescriptive rules commonly taught and to develop an in-depth understanding of the challenges English language learners have with grammar. It will explore ways grammar impacts writing and speaking, best practices for grammar instruction, and considerations in error correction. Key grammar lessons will be developed and practiced.

CTES 7920 CLINICAL RESIDENCY (1-9) AAB. SU. Supervised teaching in a K-12 public school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Course may be repeated for a maximum of 9 credit hours.

Entomology - ENTM

Courses

ENTM 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

ENTM 2040 INSECTS: AN INTRODUCTION TO ENTOMOLOGY (3) LEC. 3. Life processes, importance, and occurrence of insects.

ENTM 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH (1-4) IND/RES. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENTM 3040 GENERAL ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Introduction to the biology and diversity of insects. An insect collection is required.

ENTM 4020 ECONOMIC ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Consideration of the biological aspects, life histories and control of insects.

ENTM 4920 ENTOMOLOGY INTERNSHIP (5) INT. 5. SU. Practical professional experience under the supervision of internship faculty and/or representatives of state, federal or private agency.

ENTM 4960 SPECIAL PROBLEMS IN ENTOMOLOGY (1-3) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 3 credit hours.

ENTM 4980 UNDERGRADUATE RESEARCH (1-4) LAB. 2-8. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENTM 5120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 1. Pr. (BIOL 1030 or BIOL 1037) and (ENTM 3040 or ENTM 4020). Survey of insects, ticks, and mites of medical or veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 5220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Ecological interactions of insects and their environment, with emphasis on is herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 5300 INSECT DIVERSITY (4) LEC. 3. LAB. 1. Pr. ENTM 3040 or ENTM 4020. Survey of the biodiversity of insects, stressing taxon diagnostics.

ENTM 5330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

ENTM 5360 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 5370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 5500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 5660 FIGURE FUNDAMENTALS : SCIENTIFIC ILLUSTRATION (3) LEC/STU. 1. Scientific illustration and data visualization implemented through the Adobe creative cloud package. May count either ENTM 5660, APBT 5660, or ENTM 6660.

ENTM 5700 VECTOR ENTOMOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

ENTM 5820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Pr. STAT 2510. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

ENTM 5920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

ENTM 6120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Survey of insects, ticks, and mites of veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 6220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Departmental approval. Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 6300 INSECT DIVERSITY (4) LEC. 3. LAB. 1. Pr. ENTM 3040 or ENTM 4020. Survey of the biodiversity of insects, stressing taxon diagnostics.

ENTM 6330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

ENTM 6360 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 6370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 6440 INSECT MORPHOLOGY (5) LEC. 3. LAB. 6. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Comparative external anatomy and generalized internal structures of insects. Characteristics used in taxonomy will be emphasized. Credit will not be given for both ENTM 5440 and ENTM 6440.

ENTM 6500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 6660 FIGURE FUNDAMENTALS : SCIENTIFIC ILLUSTRATION (3) LEC. 2, LST. 1. Scientific illustration and data visualization implemented through the Adobe creative cloud package. May take either ENTM 5660, APBT 5660, or ENTM 6660.

ENTM 6700 VECTOR ENTOMOLOGY (3) LEC. 3. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

ENTM 6820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

ENTM 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

ENTM 7100 GENERAL TOXICOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 and CHEM 2030. Departmental approval. History, mechanism of action, metabolism, and structure activity relationship of natural and synthetic insecticides. Contemporary laboratory techniques in toxicology will be featured.

ENTM 7200 INSECT PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Departmental approval. Introduction to insect physiology stressing structure and function of each organ system. Methods used in physiological research will be emphasized.

ENTM 7230 PRACTICAL EVOLUTION (3) LEC. 3. Pr. BIOL 5800 or BIOL 6800. Students will learn evolutionary biology by making it happen, that is, by building and running simulation models. They will also learn of opportunities to apply evolutionary theory to practical problems in agriculture, public health and conservation.

ENTM 7900 DIRECTED STUDIES IN ENTOMOLOGY I (1-5) LEC. SU. Discussion groups on specific topics, assigned readings, on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

ENTM 7950 SEMINAR (1) SEM. 1. SU. Presentation and discussion of scientific literature of thesis research findings. Required of all M.S. candidates.

ENTM 7960 SPECIAL PROBLEMS IN ENTOMOLOGY (1-4) LAB. 2-8. Departmental approval. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

ENTM 7990 RESEARCH AND THESIS (1-10) MST. Topics may focus on technical laboratory problems or field research related to arthropod biology. Admission to the M.S. Program. Course may be repeated with change in topics.

ENTM 8900 DIRECTED STUDIES IN ENTOMOLOGY II (5) LEC. 5. Discussion groups on specific topics, assigned reading on laboratory problems or field research.

ENTM 8910 TEACHING PRACTICUM (1) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

ENTM 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Pr. ENTM 3040 and ENTM 4020 or (PLPA 3000 or PLPA 3003). Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

ENTM 8950 SEMINAR (1) LEC. 1. SU. Presentation and discussion of scientific literature or dissertation research findings. Required of all Ph.D. students.

ENTM 8960 ADVANCED SPECIAL PROBLEMS IN ENTOMOLOGY (1-4) LAB. 2-8. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

ENTM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Admission to the Ph.D. Program. Course may be repeated with change in topics.

Entrepreneurship and Family Business - ENFB

Courses

ENFB 3140 ESSENTIALS OF ENTREPRENEURSHIP (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2030 or ECON 2033 or ECON 2037. The application of basic business principles to the entrepreneurial environment.

ENFB 4160 FAMILY BUSINESS MANAGEMENT (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of aspects of managing an established family business, on a day-to-day basis, and of planning for succession to the next generation.

ENFB 4170 MANAGING ENTREPRENEURIAL START-UPS (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of aspects of managing and marketing concepts and processes that can be utilized to launch new ventures or a new division within an existing business.

ENFB 4180 GROWTH STRATEGIES FOR EMERGING COMPANIES (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of the important aspects of starting and managing a franchise business.

ENFB 4190 NEW VENTURE CREATION (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Analysis of industrial, competitive, market and financial aspects of starting a business.

ENFB 4200 BUSINESS PLAN FOR THE NEW VENTURE (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Application of business principles to a practical, hands-on project.

ENFB 4210 CORPORATE VENTURING-ENTREPRENEURS IN ORGANIZATIONS (3) LEC. 3. Pr. ENFB 3140 or ENFB 4140. Study of the entrepreneurial process as it applies to the operations of a department or functional area within an established organization.

ENFB 4220 DIGITAL ENTREPRENEURSHIP AND EMERGING TECHNOLOGIES (3) LEC. 3. Pr. ENFB 3140. Examines how digitalization and emerging technologies impact entrepreneurship and innovation by changing the functional areas of business including marketing, management, finance, and supply chain management.

ENFB 4920 INTERNSHIP (1-6) INT. Pr. 2.50 GPA. Departmental approval. Approval by departmental internship program committee. Course may be repeated for a maximum of 6 credit hours.

ENFB 4950 SEMINAR IN ENTREPRENEURSHIP AND FAMILY BUSINESS (3) LEC. 3. This seminar covers emerging issues in entrepreneurship. Prequisite: ENFB 3140 or Departmental Approval. Course may be repeated for a maximum of 6 credit hours.

ENFB 4970 SPECIAL TOPICS IN ENTREPRENEURSHIP & FAMILY BUSINESS (3) LEC. 3. Pr. ENFB 3140 or Departmental approval. This course covers current topics in entrepreneurship and family business. Course may be repeated for a maximum of 6 credit hours.

ENFB 5900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

ENFB 5960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

ENFB 6900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

ENFB 6960 SPECIAL PROBLEMS (3) DSL/IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

Environmental Design - ENVD

Courses

ENVD 2000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2007 HONORS ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2010 INTRODUCTION TO DESIGN AND DESIGN METHODS (3) LEC. 3. Introduces students to the importance of design and basic design methods.

ENVD 2040 DESIGN, INVENTION AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.

ENVD 2047 HONORS DESIGN, INVENTION, AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.

ENVD 2100 ENVIRONMENTAL DESIGN WORKSHOP I (6) LAB. 6. Pr. ENVD 2000. Departmental approval. Focus on general technical skill set for environmental design foundations. Digital media introduction, structure and fabrication techniques, design communication development.

ENVD 2200 READINGS IN LANDSCAPE ARCHITECTURE (3) SEM. 3. Investigates the idea of landscape through a range of texts, images, and built works that have helped form, and continue to shape, our understanding of the landscape. First year of B.ENVD.

ENVD 3000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES II (3) LEC. 3. Pr. ENVD 2100. Departmental approval. Advanced knowledge of design, construction and planning disciplines and practice. National/global environmental design issues, focus on interdisciplinary concepts, hybrid practices, & sustainability.

ENVD 3100 CIVIC ENGAGEMENT AND RESEARCH METHODS (3) LEC. 3. Pr. ENVD 3000. Departmental approval. Civic engagement and research methods for environmental design. This is a research prep course to develop research methods, projects, and community partnerships for summer ENVD 4100 workshop capstone.

ENVD 3200 SYSTEMS IN BUILT ENVIRONMENT I (3) SEM. 2.5. Pr. ENVD 2100. Focus on research of different systems in built environments, and different research methods that can be used in design in order to understand and represent them.

ENVD 3300 SYSTEMS IN BUILT ENVIRONMENT II (3) SEM. 2.5. Pr. ENVD 2100. Focuses on application of research from design and construction disciplines in built environment through testing and prototyping, thus exploring potential for application in a larger context.

ENVD 4000 ELEMENTS OF URBAN DESIGN (3) LEC. 3. Pr. ENVD 2100 or ARCH 2010 or LAND 2110. ENVD 4000 provides environmental design students with an introduction to urban design theories, methods and processes through combination of lectures and on-site instruction.

ENVD 4010 ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4017 HONORS ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4100 ENVIRONMENTAL DESIGN WORKSHOP II - CAPSTONE (6) LEC. 6. Pr. ENVD 3100. Environmental design knowledge & technical skill set using principles of collaboration, leadership & effectiveness training, hands-on experience, civic engagement & design communication skills.

ENVD 4500 PROFESSIONAL PRACTICE (3) SEM. 3. Pr. ENVD 3000. Enable students to learn elements of professional communication; create persuasive portfolio of their work; and to seek, and prepare for, internship and job opportunities.

ENVD 4900 DIRECTED STUDIES (3) IND. 3. Pr. ENVD 2100. Highly focused study (design research, design research application) in an area of interest to student that is approved by, and supervised by, a faculty member with such expertise. Must be in Junior or Senior status. Course may be repeated for a maximum of 6 credit hours.

ENVD 4920 INTERNSHIP IN ENVIRONMENTAL DESIGN (1) INT. 1. SU. Faculty Approval. Internship in the areas of environmental design, as approved by faculty supervisor.

ENVD 4970 SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3. Topics include: digital production, portfolio making and design thinking. Course may be repeated for a maximum of 9 credit hours.

ENVD 4977 HONORS SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3. Topics include: digital production, portfolio making and design thinking. Course may be repeated for a maximum of 9 credit hours.

ENVD 5030 STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) SEM. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

ENVD 5037 HONORS STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) LEC. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

Environmental Science - ENVI

Courses

ENVI 1010 INTRODUCTION TO ENVIRONMENTAL SCIENCE (1) LEC. 1. Introduction to the environmental science field and the ENVI major. Course may be repeated for a maximum of 3 credit hours.

ENVI 1020 FUNDAMENTALS OF ENVIRONMENTAL SCIENCE (3) LEC. 3. Preference given to students for whom the course is required. Survey of fundamental concepts, issues, and concerns related to environmental science.

ENVI 1030 ENVIRONMENT AND LIFE (4) LEC. 3. LAB. 3. This course is a lecture/lab course integrating principals of basic science with the impacts of humans on the environment. Topics will include population dynamics, land use change, energy, pollution, water availability, climate, human-environment interactions, biodiversity environmental policy, and sustainability. The laboratory component of the class will challenge students to observe phenomena in the world around them, construct and test hypotheses, and draw conclusions on the management and solutions to environmental problems in the world today.

ENVI 3000 INTRODUCTION TO STREAM RESTORATION (4) LEC. 2. LAB. 4. Introduction to concepts necessary for stream restoration design, construction, and maintenance and how they relate to the physical, chemical and biological processes of streams. Students will participate in research associated with stream restoration by assessing steam stability and classifying streams.

ENVI 4000 ENVIRONMENTAL REGULATION AND MANAGEMENT APPLICATIONS (3) LEC. 3. Pr. ENVI 1010 and ENVI 1020. This course provides an introduction to and overview of how municipal, state and federal regulations and programs are used in environmental management. The spectrum and development of environmental requirements, responsibilities, and direct applications as to the release of pollutants to air, soil and water are explored.

ENVI 4950 ENVIRONMENTAL SCIENCE SENIOR SEMINAR (2) LEC. 2. Pr. (ENGL 1120 or ENGL 1127) and ENVI 1010 and ENVI 1020. Departmental approval. This course will cover oral and written professional presentations, assessment of students in the ENVI major via standardized testing, and student assessment via exit surveys.

ENVI 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENVI 5100 CLIMATE CHANGE IMPACTS (3) LEC. 3. An overview of climate change for the non-climate scientist, how climate change affects global environments (forests, oceans, lakes, coasts, agriculture) in recent time periods and how historic records are used to study past climate change impacts.

ENVI 5200 ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN ENVIRONMENTAL SCIENCE (4) LEC. 3. LAB. 2, LLB. 0. Pr. (STAT 2510 or STAT 2513) and (MATH 1610 or MATH 1613 or MATH 1617). This course introduces environmental science students to the basics of artificial intelligence (AI) and machine learning (ML) and their applications in environmental science. Students will learn how to use AI/ML tools to analyze large and complex environmental data sets, make predictions, and identify patterns that are not visible to the naked eye. Students will become familiar with the potential and limitations of AI/ML in environmental science and what ethical considerations should be made.

ENVI 6100 CLIMATE CHANGE IMPACTS (3) LEC. 3. An overview of climate change for the non-climate scientist, how climate change affects global environments (forests, oceans, lakes, coasts, agriculture) in recent time periods and how historic records are used to study past climate change impacts.

ENVI 6200 ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN ENVIRONMENTAL SCIENCE (4) LEC. 3. LAB. 2. This course introduces environmental science students to the basics of artificial intelligence (AI) and machine learning (ML) and their applications in environmental science. Students will learn how to use AI/ML tools to analyze large and complex environmental data sets, make predictions, and identify patterns that are not visible to the naked eye. Students will become familiar with the potential and limitations of AI/ML in environmental science and what ethical considerations should be made.

Exploratory - EXPL

Courses

EXPL 1010 EXPLORATORY MAJOR INVESTIGATIONS I (2) LEC. 2. For students in the Exploratory Major. This course introduces students to the majors offered at Auburn, and through a program of readings, research, professional outreach, analysis, and reflection helps them decide on a degree-granting major.

EXPL 1020 EXPLORATORY MAJOR INVESTIGATIONS II (1) LEC. 1. Pr. EXPL 1010. For students in their second and final semester as an Exploratory Major. This course continues and deepens the exploration through readings, research, professional outreach, analysis, and reflection to help students select a degree-granting major.

Finance - FINC

Courses

FINC 2400 PERSONAL FINANCE (3) LEC. 3. Plans for managing personal financing problems involving insurance, housing, household budgeting, investments, personal and bank loans, personal credit and time value of money.

FINC 3010 PROFESSIONAL DEVELOPMENT IN FINANCE (1) LEC. 1. SU. Pr. (P/C FINC 3610 or FINC 3613 or FINC 3617) and P/C BUSI 2010. Career planning and preparation for employment in the finance industry.

FINC 3100 FUNDAMENTALS OF GLOBAL TRADE (3) LEC. 3. COB academic standards. Export management skills, including basic global supply chain management and trade finance. Junior standing.

FINC 3200 RISK AND INSURANCE (3) LEC. 3. Essentials of risk management, with emphasis on the use of insurance, including the characteristics of property, liability, life and health insurance. Junior standing.

FINC 3250 PRINCIPLES OF REAL ESTATE (3) LEC. 3. Fundamental principles and practices as applied to the purchase, sale and lease and management of real estate. Junior standing.

FINC 3270 SUSTAINABLE REAL ESTATE (3) LEC. 3. Pr. FINC 3250. Everyone’s story is rooted in real estate: the ways we fund, plan, build, use, and exchange real property have informed our past and will dictate our future. This course surveys the wide variety of topics that intersect to maximize sustainable development projects, including investment analysis, green building, and project certifications. Through lectures, case studies and simulations, you will learn how people, property and capital interact to help shape the evolving real estate industry.

FINC 3610 PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117 or ACCT 2810 or ACCT 3110 or ACCT 3113 or ACCT 2813. Corporate finance from the perspective of a financial manager. Topics include time value of money, valuation, and capital budgeting. May count either FINC 3610 or FINC 3810.

FINC 3617 HONORS PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. Honors College. ACCT 2117. Corporate finance from the perspective of a financial manager. Topics include financial planning and forecasting cash budgeting, capital budgeting, basic valuation, dividends. Fall, Spring. Junior standing.

FINC 3620 SMALL BUSINESS FINANCE (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Financial control, financial forecasting, working capital and sources of financing in a small and closely-held business environment.

FINC 3630 ADVANCED BUSINESS FINANCE (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3610). C or better in FINC 3610. In-depth analysis of financial concepts including valuation capital budgeting, cost of capital, leasing, financial analysis, and capital structure.

FINC 3640 INVESTMENTS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Types of investment security markets, investment instruments, concepts and strategies for institutional and individual investors.

FINC 3700 FINANCIAL MARKETS INSTITUTIONS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Overview of the financial system, organization and regulation of financial markets and institutions, the behavior and structure of interest rates.

FINC 3750 FINANCIAL MODELING (3) LEC. 3. Pr. P/C FINC 3630 and P/C FINC 3640. Application of financial management and investments concepts through Excel modeling. Topics include capital budgeting, capital asset pricing, cost of capital, stock and bond valuation. Advanced topics include DCF modeling, portfolio optimization and VBA.

FINC 3810 FOUNDATIONS OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2810 or ACCT 2813 or ACCT 2110 or ACCT 2117. Foundations of Business Finance is a broad based introductory course that will focus on finance functions and applications of finance principles. This course is not open to undergraduates majoring in business. Junior standing. May count either FINC 3610 or FINC 3810.

FINC 4210 PROPERTY AND LIABILITY INSURANCE (3) LEC. 3. Pr. FINC 3200. Commercial risks and the insurance contracts used to address these risks.

FINC 4410 FIXED INCOME (3) LEC. 3. Pr. FINC 3640. Overview of fixed income characteristics, markets, and trading. Topics include Treasuries, yield curves, corporate bond analysis, asset-backed securities, municipal bonds, preferred stock, money market instruments, measuring interest rate risk with duration and convexity, and bond portfolio management.

FINC 4630 FINANCIAL STRATEGY (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110) and (FINC 3630 or FINC 3633). The advanced application of corporate finance through case analysis, company analysis, and current topics.

FINC 4650 FINANCIAL STATEMENT ANALYSIS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Evaluation and assessment of financial condition, performance, and reporting strategies of firms using relevant financial and market information.

FINC 4660 SECURITY ANALYSIS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113 or ACCT 5110 or ACCT 6110) and (FINC 3630 or FINC 3633) and FINC 3640. Analysis, techniques and selection of securities to meet specific investment objectives. Focus on individual security analysis and portfolio management.

FINC 4700 MANAGEMENT OF FINANCIAL INSTITUTIONS (3) LEC. 3. Pr. FINC 3700. Management strategies for firms including management of credit, liquidity, capital and interest rate risks in a regulated environment.

FINC 4720 FINANCIAL SECTOR REGULATION AND SUPERVISION (3) LEC. 3. Pr. FINC 3700. The course will facilitate understanding of regulatory and supervisory oversight tools used by financial sector regulators to control new and emerging issues/ risks facing financial institutions and markets, and how financial institutions and markets manage and operate to in light of these regulatory and supervisory requirements.

FINC 4750 ADVANCED FINANCIAL MODELING (3) LEC. 3. Pr. FINC 3750 and (FINC 4650 or FINC 4653). Departmental approval. The course teaches advanced financial modeling and valuation, including public and acquisition comparables, discounted cash flows, merger consequences and leveraged buyout analysis.

FINC 4760 ADVANCED SECURITY ANALYSIS (3) LEC. 3. Pr. FINC 4750 or Departmental approval. The course focuses on the comprehensive analysis of individual securities for potential inclusion in an actively managed investment portfolio. The course will cover the basics of traditional financial statement and valuation analysis in addition to macro-economic analysis, political analysis, technical analysis, derivatives, history of financial markets, commodities, competitive analysis, fixed income analysis, and trading.

FINC 4780 ADVANCED PORTFOLIO MANAGEMENT (3) LEC. 3. Pr. FINC 4760. Departmental approval. The course teaches students to analyze financial problems and develop sophisticated financial models for modern portfolio management.

FINC 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Advanced individual research and study in finance under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

FINC 4920 INTERNSHIP (1-6) AAB/INT. SU. Departmental approval. The internship program offers the opportunity to gain relevant and meaningful work experience. Course may be repeated for a maximum of 9 credit hours.

FINC 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Specialized topics and current developments and innovations in finance. Course may be repeated for a maximum of 6 credit hours.

FINC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

FINC 5250 REAL ESTATE FINANCE (3) LEC. 3. Pr. FINC 3250 and (FINC 3610 or FINC 3613 or FINC 3617 or FINC 3810). This class presents the fundamental concepts of real estate finance. Students will study the institutions and instruments of real estate finance, factors affecting the flow of funds into various real estate markets, and how lenders assess risks and price their loans. The ultimate investment outlets for many of the financing products studied in the course are also covered in some detail.

FINC 5260 REAL ESTATE INVESTMENT (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617 or FINC 3810) and FINC 3250. This class presents the fundamental concepts of real estate investment analysis. Students will study lease analysis to allow for cash flow projection based on those leases. Students will use those cash flow projections in property valuation to enable a discussion of deal structuring, ownership structures, and funding sources. Real estate as an asset class will be discussed in a broader portfolio context.

FINC 5510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 5670 MERGERS, ACQUISITIONS, AND RESTRUCTURING (3) LEC. 3. Pr. FINC 3630 or FINC 3633. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. May count either FINC 5670 or FINC 6670/FINC 6676.

FINC 5680 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 3630 or FINC 3633 or FINC 3640 or FINC 3700. Examination of derivative securities with emphasis on applying derivative securities to the management of corporate financial risk.

FINC 6250 REAL ESTATE FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or BUSI 7110 or BUSI 7116. Departmental approval. This class presents the fundamental concepts of real estate finance. Students will study the institutions and instruments of real estate finance, factors affecting the flow of funds into various real estate markets, and how lenders assess risks and price their loans. The ultimate investment outlets for many of the financing products studied in the course are also covered in some detail.

FINC 6260 REAL ESTATE INVESTMENT (3) LEC. 3. Pr. BUSI 7110 or BUSI 7116. This class presents the fundamental concepts of real estate investment analysis. Students will study lease analysis to allow for cash flow projection based on those leases. Students will use those cash flow projections in property valuation to enable a discussion of deal structuring, ownership structures, and funding sources. Real estate as an asset class will be discussed in a broader portfolio context.

FINC 6510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 6670 MERGERS, ACQUISITIONS AND RESTRUCTURING (3) LEC. 3. Pr. BUSI 7110 or BUSI 7116. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. Departmental approval. May count either FINC 6670 or FINC 6676.

FINC 6680 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or BUSI 7110 or BUSI 7116. Departmental approval. Theory and pricing of derivative securities with emphasis on applying derivative securities in corporate financial risk management.

FINC 7630 HEALTH CARE FINANCE (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110 or BUSI 7116. Departmental approval. Techniques and analysis of financial management in a health care setting. Emphasis on financial planning and forecasting, budgeting, capital investment analysis in the regulated healthcare marketplace.

FINC 7640 ADVANCED INVESTMENTS (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Types of investment securities, regulation and operation of securities markets and the theory and practice of investments.

FINC 7650 APPLIED FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110. Departmental approval. The integration of financial theory with practice through spreadsheets, case analysis, company analysis, and current topics in finance.

FINC 7660 SECURITY ANALYSIS AND MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Advanced analytical methods for security valuation, managing investment portfolios, and developing appropriate investment strategies.

FINC 7690 GLOBAL FINANCIAL MARKETS (3) LEC. 3. Analysis and examination of financial institutions and markets in an evolving regulatory and global marketplace for financial services and products.

FINC 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth research and study under the direction of a faculty member. Topics are variable within finance and finance-related areas. Course may be repeated for a maximum of 6 credit hours.

FINC 7970 SPECIAL TOPICS (1-3) DSL. Departmental approval. Specialized topics in finance and finance-related areas not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

FINC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FINC 8620 THEORY OF FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Choice under certainty and uncertainty, time-state preference models, stochastic dominance, the mean-variance criterion, and asset pricing models Miller-Modigliani propositions would be developed.

FINC 8640 INVESTMENTS (3) SEM. 3. Pr. FINC 8620. This course focuses on current literature in Investments. Students should develop the insights necessary to identify problems and conduct research in Investments.

FINC 8650 SEMINAR IN CORPORATE FINANCE (3) SEM. 3. Pr. FINC 86250. This course focuses on current literature in Corporate Finance. Students should develop the insights necessary to identify problems and conduct research in Corporate Finance.

FINC 8690 FINANCIAL MARKETS AND INTERMEDIATION (3) LEC. 3. Pr. FINC 8620. This course focuses on current literature in financial markets and intermediation. Students should develop the insights necessary to identify problems and conduct research in this area.

FINC 8700 SPECIAL TOPICS IN FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Varies according to faculty and students interests. This could be a course like Options, Futures and Derivatives, or a course with several participating faculty members discussing their own research.

FINC 8800 SEMINAR ON FACULTY RESEARCH AND EXTENSIONS (1-3) LEC. 3. SU. Departmental approval. Rotating faculty members will present their current published and unpublished research. Readings will be assigned. Student/faculty discussions are expected to follow the usual seminar format.

FINC 8880 SEMINAR (1) SEM. SU. Admission to the Ph.D. in Business with a Concentration in Finance. Seminar presentations by visiting scholars, Finance Faculty and Ph.D. students.

FINC 8990 RESEARCH AND DISSERTATION (1-12) DSR. Course may be repeated for a maximum of 60 credit hours.

Fisheries, Aquaculture, and Aquatic Sciences - FISH

Courses

FISH 1100 FISHERIES ORIENTATION (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of a future in fisheries.

FISH 1110 DIMENSIONS OF FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1) LEC. 1. Consideration of various aspects of fisheries, aquaculture, and aquatic sciences work, career options as related to individual interests, and career planning. Overview of the different research and extension areas of the School.

FISH 2000 GENERAL BIOLOGY OF FISHES AND AQUATIC ORGANISMS (1) LEC. 1. To introduce students to the anatomy and physiology of fishes, crustaceans, and mollusks to better prepare them to take advanced courses in the School of Fisheries, Aquaculture & Aquatic Sciences.

FISH 2020 GLOBAL AND REGIONAL PERSPECTIVES IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (2) LEC. 2. Overview of historical, biological, ecological, and social aspects of fisheries, aquaculture, and aquatic sciences, including the importance of water, biodiversity, fisheries management, and aquaculture, as well as how to determine reliability of sources, impacts of aquaculture, aquatic organism life cycles, and threatened and endangered species.

FISH 3950 CAREERS IN FISHERIES (1) LEC. 1. SU. Pr. FISH 2100. Consideration of various aspects of fisheries work, career options as related to individual interests, and career planning or departmental approval. Fall.

FISH 4100 INTRODUCTION TO FISHERIES SCIENCES (3) LEC. 2. LAB. 3. Departmental approval. Hands-on field activities and site visits related to aquatic ecology, fisheries biology, and aquaculture.

FISH 4900 DIRECTED STUDIES IN FISHERIES (1-4) IND. SU. Individualized in depth study on a particular subject under the guidance of a professor. May include directed reading and research. Course may be repeated for a maximum of 4 credit hours.

FISH 4920 INTERNSHIP (1-5) INT. SU. Departmental approval. Discipline-related learning while employed with cooperating private industry or public agency. Course may be repeated for a maximum of 5 credit hours.

FISH 4960 SPECIAL PROBLEMS (1-4) LEC. Departmental approval. Individual and group problems investigations in fisheries and allied aquacultures. Course may be repeated for a maximum of 4 credit hours.

FISH 4967 HONORS SPECIAL PROBLEMS (1-4) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 4 credit hours.

FISH 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FISH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

FISH 5210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 5215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 5220 WATER SCIENCE (3) LEC. 3. Pr. CHEM 1040. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems.

FISH 5230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 5240 HATCHERY MANAGEMENT (4) LEC. 2. LAB. 8. Pr. FISH 5210 or FISH 6210. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 5245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. One year of college-level Biology or departmental consent. Overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. Taught at Dauphin Island Sea Lab. May count either FISH 5245 or FISH 6245.

FISH 5250 AQUACULTURE PRODUCTION (4) LEC. 3. LAB. 4. Pr. FISH 5210. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.

FISH 5320 LIMNOLOGY (3) LEC. 3. Pr. CHEM 1040 and (BIOL 1030 or BIOL 1037). Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 5321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and (P/C FISH 5320 or P/C FISH 6320). Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 5380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 5410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 5440 FISH ANATOMY AND PHYSIOLOGY (4) LEC. 3. LAB. 4. Gross and microscopic fish anatomy.

FISH 5510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 5520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 5. LAB. 10. Pr. BIOL 1030 or BIOL 1037. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 5630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds.

FISH 5670 FISHERIES AND AQUACULTURES EXTENSION METHODS (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037 and CHEM 1040. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 5710 AQUATIC MICROBIOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 5725 MARINE ICHTHYOLOGY (6) LEC. 6. Pr. BIOL 3060. Departmental approval. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Admission to the Gulf Coast Research Laboratory.

FISH 5970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences. Course may be repeated for a maximum of 4 credit hours.

FISH 6210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Graduate level standing in FISH or departmental approval. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 6215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 6220 WATER SCIENCE (3) LEC. 3. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems.

FISH 6230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 6240 HATCHERY MANAGEMENT (4) LEC. 4. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 6245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. This course will provide students with an overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. Taught at Dauphin Island Sea Lab. May count either FISH 5245 or FISH 6245.

FISH 6250 AQUACULTURE PRODUCTION (4) LEC. 4. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.

FISH 6320 LIMNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 6321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (P/C FISH 5320 or P/C FISH 6320). Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 6410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 6425 MARINE FISH DISEASES (4) LEC. 4. Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases.

FISH 6440 FISH ANATOMY AND PHYSIOLOGY (4) LEC. 4. Gross and microscopic fish anatomy.

FISH 6510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 4. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 6520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 3. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 6630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years.

FISH 6650 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry.

FISH 6670 FISHERIES AND AQUACULTURE EXTENSION METHODS (2) LEC. 2. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 6710 AQUATIC MICROBIOLOGY (3) LEC. 3. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 6725 MARINE ICHTHYOLOGY (6) LEC. 6. General background in the biology of marine fishes and their taxonomy.

FISH 6970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences.

FISH 7100 ADVANCED PARASITE TAXONOMY (6) LEC. 2. LAB. 16. Departmental approval. This is a lab-based course for practicing parasitologists. The course instructs students on how to describe a metazoan parasite species.

FISH 7200 MARINE PARASITOLOGY (6) LEC. 2. LAB. 16. Departmental approval. This is an intensive lab-based course for marine parasitologists. Students will collect and identify marine/estuarine parasites of aquatic animals.

FISH 7230 WATER AND SEDIMENT QUALITY MANAGEMENT IN AQUACULTURE (4) LEC. 3. LAB. 3. Pr. FISH 6220. Departmental approval. Advanced treatment of water and sediment quality management in aquaculture. Analytical methods for soil and water quality.

FISH 7240 RESOURCE USE AND ENVIRONMENTAL ISSUES IN AQUACULTURE (2) LEC. 2. Resource use, environmental effects, and sustainability of aquaculture with emphasis on approaches to improving efficiency and reducing negative environmental effects.

FISH 7270 CRUSTACEAN AND MOLLUSCAN AQUACULTURE (4) LEC. 3. LAB. 3. Departmental approval. General biology and culture techniques of the major shrimp, crawfish and shellfish species cultured throughout the world.

FISH 7300 PATHOLOGY OF AQUATIC ORGANISMS (6) LEC. 2. LAB. 16. Departmental approval. Students gain appreciation for histopathological techniques and recognize basic pathological changes to tissues in aquatic organisms.

FISH 7330 RESERVOIR LIMNOLOGY (3) LEC. 2. LAB. 5. Departmental approval. Consideration of the ecological characteristics of reservoirs as they relate to modern concepts of ecosystem management. Even years.

FISH 7340 FISH ECOLOGY (3) LEC. 2. LAB. 3. Graduate level standing in FISH or departmental approval. Study of interactions among fish and their environment. Laboratory will emphasize critical literature reading and experimental approaches.

FISH 7350 META-ANALYSIS (3) LEC. 3. Meta-analysis is a quantitative approach for synthesizing results from diverse research studies (ecology, psychology, medicine, and education) that address a similar hypothesis. Effect sizes calculated from individual studies are combined to elucidate general patterns across studies.

FISH 7360 MANAGEMENT OF AQUATIC FLORA IN FISHERIES AND AQUACULTURE (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Role of aquatic vegetation in fish production, its utilization and control.

FISH 7380 ECOLOGY AND MANAGEMENT OF RIVERINE SYSTEMS (4) LEC. 3. LAB. 3. River systems within a landscape ecology and ecosystem management context. Laboratory sessions stress techniques for assessment and management. Even years.

FISH 7410 MOLECULAR DIAGNOSIS: PRINCIPLES AND APPLICATIONS (3) LEC. 3. Introduction to molecular biology techniques currently used in disease diagnosis.

FISH 7420 FISH DISEASES (3) LEC. 3. Pr. BIOL 3200. Viral, bacterial, fungal and parasitic diseases of fishes, including etiologic agents, geographical ranges, species susceptibility, clinical signs, clinical pathology, epidemiology and management.

FISH 7450 FISH PATHOLOGY (3) LEC. 2. LAB. 3. Departmental approval. Morphological and physiological changes in fish with infectious or non-infectious diseases. Even years.

FISH 7460 CLINICAL FISH DISEASE DIAGNOSIS (1-3) DSL/LEC. Pr. FISH 6410 or FISH 7420. Practical experience in necropsy of diseased fish. Identification of causative agents and prescription of appropriate disease control.

FISH 7530 FISH POPULATION DYNAMICS (3) LEC. 2. LAB. 4. Departmental approval. Derivation of fish population estimates, growth, recruitment and mortality; use of modeling techniques to assess exploited fish populations. Even years.

FISH 7540 QUANTITATIVE TECHNIQUES IN FISHERY ASSESSMENT (3) LEC. 2. LAB. 4. Departmental approval. Quantitative techniques to assess and manage fish populations in freshwater. The laboratory will analyze actual fisheries data using SAS on personal computers. Odd years.

FISH 7640 FISH NUTRITION (3) LEC. 3. Fundamental and applied aspects of fish nutrition, including nutrient requirements, physiology of food assimilation, feed preparation, and practical feeding.

FISH 7650 TRADITIONAL APPROACHES TO FISH GENETIC ENHANCEMENT (2) LEC. 2. Graduate level standing in FISH or departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, selective breeding, genetic management and inheritance.

FISH 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Graduate level standing in FISH or departmental approval. Principles and application of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies.

FISH 7715 ADVANCED MARINE ECOLOGY (2) LEC. 2. Departmental approval. Mechanisms that control distribution of plants and animals at scales ranging from individual organism to ecosystem

FISH 7725 MARINE BIOGEOCHEMICAL PROCESSES (2) LEC. 2. Departmental approval. Marine biogeochemical cycling of carbon, nitrogen, sulfur, phosphorus and metals, with emphasis on estuarine systems.

FISH 7750 BIOTECHNOLOGICAL APPROACHES TO FISH GENETICS (2) LEC. 2. Pr. FISH 7650. Departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, genetic management genetic engineering, genomic manipulation and genetic biotechnology.

FISH 7785 PHYSICAL OCEANOGRAPHY (4) LEC. 4. Departmental approval. Describes observed physical setting of the marine environment, and qualitatively explains how and why observed physical phenomena occur.

FISH 7800 PRINCIPLES OF ECOTOXICOLOGY (3) LEC. 3. Ecotoxicology-an interdisciplinary science studies the impacts of pollutants upon the structure and function of ecological systems. The broad scope of ecotoxicology requires a multidisciplinary approach of a variety of specialties, such as ecology, environmental chemistry, and applied biology.

FISH 7900 DIRECTED STUDIES IN FISHERIES I (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 7920 INTERNSHIP IN FISHERIES AND AQUACULTURE (1-10) INT. SU. Departmental approval. Field experience in aquaculture, fisheries or aquatic resource management on farm or with research, extension or aquatic management agency. Course may be repeated for a maximum of 10 credit hours.

FISH 7930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 7950 GRADUATE RESEARCH SEMINAR (1) SEM. 1. SU. Departmental approval. Oral presentation and discussion of research in the field of specialization.

FISH 7960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) IND. Individual or group project and research in consultation with faculty member on problem in fisheries, aquaculture, and/or aquatic sciences. Course may be repeated for a maximum of 9 credit hours.

FISH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FISH 8900 DIRECTED STUDIES IN FISHERIES II (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 8930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 8950 GRADUATE RESEARCH SEMINAR (1) SEM. 1. SU. Departmental approval. Acquaint students with current research and related activities.

FISH 8960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) IND. Individualized work and research in consultation with faculty member on problem in fisheries, aquaculture, and/or aquatic sciences. Course may be repeated for a maximum of 9 credit hours.

FISH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Flight Education - AVMF

Courses

AVMF 2141 FLIGHT ORIENTATION (1) LAB. 1. Basic flight experience for non-pilots to familiarize aviation majors, engineers, teachers, and other students desiring a limited exposure to flight. Includes ground discussion and aircraft time. Special fee.

AVMF 2150 PRINCIPLES OF PRIVATE FLIGHT (3) LEC. 3. General introduction and preparation for the FAA Private Pilot Knowledge Test. Theory of flight, aircraft and engine performance, regulations, meteorology, navigation, airspace utilization, and aviation physiology. Special Fee.

AVMF 2171 PRIVATE PILOT FLIGHT TRAINING I (2) LAB. 2. Pr. AVMF 2150. Dual and solo flight instruction and discussion to prepare for FAA Private Pilot Certificate. Special fees. Requires a valid FAA 1st Class Medical Certificate. Departmental approval required.

AVMF 2181 PRIVATE PILOT FLIGHT TRAINING II (2) LAB. 2. Pr. AVMF 2171. Departmental approval. Continuation of AVMF 2171 to prepare for FAA Private Pilot Certification. Special fees. Requires a valid FAA 1st Class Medical certificate and Student Pilot certificate.

AVMF 2230 PRINCIPLES OF INSTRUMENT FLIGHT (3) LEC. 3. Pr. AVMF 2181. Flight instruments, FAA regulations, air traffic procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Airplane Aeronautical Knowledge Test (IRA). Special Fee.

AVMF 2241 INSTRUMENT FLIGHT TRAINING I (2) LAB. 2. Pr. AVMF 2230. Instruments, FAA regulations, air traffic control procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Practical Test. Special fees. Requires a valid FAA 1st Class Medical Certificate. Departmental approval required.

AVMF 2251 INSTRUMENT FLIGHT TRAINING II (2) LAB. 2. Pr. AVMF 2241. Departmental approval. Continuation of AVMF 2241 in preparation for the FAA Instrument Rating - Airplane Practical Test. Special fees. Requires a valid FAA 1st Class Medical certificate.

AVMF 2260 PRINCIPLES OF COMMERCIAL FLIGHT (3) LEC. 3. Pr. AVMF 2251. FAA regulations, high altitude operations, aerodynamics, commercial flight maneuvers, environmental, ice control, retractable landing gear, and aircraft performance as applied to commercial flying. Preparation for the FAA Commercial Pilot Aeronautical Knowledge Test (CAX). Special Fee.

AVMF 2261 COMMERCIAL PILOT FLIGHT TRAINING I (2) LAB. 2. Pr. AVMF 2251. Flight training toward FAA Commercial Pilot Certification. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 2271 COMMERCIAL PILOT FLIGHT TRAINING II (2) LAB. 2. Pr. AVMF 2261. Continuation of AVMF 2261 towards FAA Commercial Pilot Certification. Emphasis on advanced commercial maneuvers, and cross country flying. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4271 MULTI-ENGINE FLIGHT TRAINING (2) LAB. 2. Pr. AVMF 2271. Specialized instruction in methods and techniques of multi-engine airplane operations. Sufficient ground and flight instruction is given towards an FAA Multi-Engine Airplane Rating. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4280 PRINCIPLES OF FLIGHT INSTRUCTION (3) LEC. 3. Pr. AVMF 4271. Principles of teaching as applied to instructing, analyzing, and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instructing (FOI) and the Flight Instructor-Airplane (FIA) Aeronautical Knowledge Tests. Special Fee.

AVMF 4281 FLIGHT INSTRUCTION TRAINING (3) LAB. 3. Discussion, instruction and arranged practice in flight instruction in preparation for the FAA Flight Instructor Certification with an Airplane Single-Engine rating. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4310 TRANSPORT CATEGORY AIRCRAFT SYSTEMS (3) LEC. 3. Pr. P/C AVMF 2260. Study of design and operation of the major systems in transport category aircraft, using the Boeing 737 as a model. Systems include turbine engine, fuel, lubrication, electrical, hydraulic, pneumatic, pressurization, environmental control, and flight management. Also examines the use of normal checklists, the Quick Reference Handbook (QRH), Minimum Equipment List (MEL), and Configuration Deviation List (CDL). School of Aviation, Junior or Senior, or Departmental approval required.

AVMF 4320 AIRLINE TRANSPORT CATEGORY SYSTEMS AND PROCEDURES (4) LEC. 3. LAB. 1. Pr. AVMF 2250 or AVMF 2260. Airbus A320 systems and operational procedures (normal, abnormal, and emergency). Part 121 carrier flight and crew management. Special fee.

AVMF 4331 TRANSPORT AIRCRAFT FLIGHT TRAINING (2) LAB. 2. Departmental approval. Includes instrument and night instruction, emergency procedures and actual air transportation operations. Preparation for the Airline Transport Pilot Certification, if otherwise qualified. Special fees. Requires a valid FAA 1st Class Medical Certificate.

AVMF 4351 INSTRUMENT FLIGHT INSTRUCTOR TRAINING (2) LAB. 2. Discussion, instruction, and arranged practice in instrument flight instruction in preparation for FAA Instrument-Airplane Flight Instructor Certification. Special fees. Requires a valid FAA 1st Class Medical certificate. Departmental approval required.

AVMF 4371 MULTI-ENGINE FLIGHT INSTRUCTOR TRAINING (2) LAB. 2. Departmental approval. Discussion, instruction and arranged practice in multi-engine flight instruction in preparation for FAA Multi-Engine Airplane Flight Instructor Certification. Special fees. Requires a valid FAA 1st Class Medical certificate and Flight Instructor Certificate (ASE).

AVMF 4400 APPLIED AERODYNAMICS AND PROPULSION SYSTEMS (3) LEC. 3. Pr. PHYS 1400 or PHYS 1000. Private Pilot Certificate or departmental approval. The principles of aerodynamics and propulsion and how aerodynamic factors affect lift, thrust, drag, in-air performance, stability, and flight control.

Food Science - FDSC

Courses

FDSC 1000 INTRODUCTORY FOOD SCIENCE (3) LEC. 3. Overview of food science discipline including food selection, food composition, food safety and sanitation, food processing, packaging, commodity types, and food laws.

FDSC 4290 PROFESSIONAL DEVELOPMENT IN FOOD SCIENCE (1) LEC. 1. Preparing for careers; enhancing computer and communication skills; planning for professional advancement.

FDSC 4920 FOOD SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the food industry. Course may be repeated for a maximum of 9 credit hours.

FDSC 4960 SPECIAL PROBLEMS IN FOOD SCIENCE (1-3) IND. 2.50 GPA or departmental approval. Individual or group projects with a faculty member in food science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

FDSC 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Instruction and discussion of current topics associated with food science. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

FDSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FDSC 5660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 1. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 1. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 7430 FLAVOR CHEMISTRY (3) LEC. 3. Chemistry of flavor compounds; Analytical approaches and sensory evaluation to characterize flavor.

FDSC 7600 MOLECULAR PATHOGENESIS OF FOODBORNE PATHOGENS (3) LEC. 3. Pr. BIOL 6260 or VBMS 7460. This course covers a detailed description of major foodborne pathogens that affect human health and their pathogenesis. Lectures will detail how the pathogen's adherence and invasion, host dissemination, and host cell damage lead to pathogenesis.

FDSC 7730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. History and methods of sensory testing of food products, factors affecting results.

FDSC 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either POUL 7950 or FDSC 7950. Course may be repeated for a maximum of 3 credit hours.

FDSC 7960 SPECIAL PROBLEMS (1-4) IND/ST1. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 8 credit hours.

FDSC 7970 SPECIAL TOPICS IN FOOD SCIENCE (1-4) LEC. Instruction and discussion of current advanced topics associated with food science. Course may be repeated for a maximum of 8 credit hours.

FDSC 7980 NONTHESIS RESEARCH (1-4) RES. Departmental approval. enrolled as FDSG MAg student. Research conducted as part of the Master of Agriculture degree.

FDSC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

FDSC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

Forest Engineering - FOEN

Courses

FOEN 3040 FOREST SURVEYING (2) PRA. 2. Basic land surveying concepts and procedures as applied to Forestry. Use of basic surveying instruments and calculations for land areas, boundaries, and topographic features. Summer.

FOEN 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Individual or small group study of a specialized area in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 8 credit hours.

FOEN 5700 HARVESTING (3) LEC. 2. LAB. 3. Pr. FORY 3180. Analysis of the administration of timber harvest, equipment choice, planning methods, movement of timber products, machine and system costs, balancing of harvesting systems, logging safety, and environmental impact.

FOEN 5710 SYSTEMS ANALYSIS FOR FORESTRY AND BIOLOGICAL OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 2210 and (STAT 3010 or STAT 2510). Junior standing or greater. Analysis methods for timber harvesting productivity and costs including gathering of time and production data, preparation of data for analysis and statistical modeling.

FOEN 6230 ENGINEERED WOOD STRUCTURE DESIGN (3) LEC. 2. LAB. 3. Pr. ENGR 2070. Load, deflection criteria; engineering characteristics of wood; designing wood components and mechanical connections; shear walls and diaphragms; trusses; bridges; post-frame construction.

FOEN 6700 HARVESTING (3) LEC. 2. LAB. 3. Pr. FORY 3180. Analysis of the administration of timber harvest, equipment choice, planning methods, movement of timber products, machine and system costs, balancing of harvesting systems, logging safety, and environmental impact.

FOEN 6710 OPERATIONS ANALYSIS IN BIOSYSTEMS AND FORESTRY (3) LEC. 2. LAB. 3. Analysis methods for timber harvesting productivity and costs including gathering of time and production data, preparation of data for analysis and statistical modeling.

FOEN 7970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Individual or small group study of an advanced specialized area in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 12 credit hours.

Forest Products - FOPR

Courses

FOPR 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Fall, Spring, and Summer. Course may be repeated for a maximum of 12 credit hours.

FOPR 7990 RESEARCH AND THESIS (1-15) MST. Credit to be arranged. Course may be repeated with change in topics.

FOPR 8970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 12 credit hours.

Forestry & Wildlife Sciences - FOWS

Courses

FOWS 1010 INTRODUCTION TO RENEWABLE NATURAL RESOURCES (1) LEC. 1. Introduction to the wealth and breadth of renewable natural resources in the state, region, nation, and world. Speakers cover topics in forestry, wildlife, water, and soil.

FOWS 1020 SCIENCE OF NATURE I (3) LEC. 3. Coreq. FOWS 1021. Introduction to how the natural world is relevant to society. Lectures will focus on connections using the scientific method to assess ecosystems and the effects human use has on them. The course will develop engaged citizens for our planet by helping students to see how science helps identify and solve real natural resources problems.

FOWS 1021 SCIENCE OF NATURE I LABORATORY (1) LAB. 1. Coreq. FOWS 1020. Hands on learning using both laboratory and field exercises to introduce students to how the natural world is relevant to society and its success.

FOWS 1030 SCIENCE OF NATURE II (3) LEC. 3. Pr. FOWS 1020. Coreq. FOWS 1031. In depth exposure for students to think critically about the issues in the natural world, including the history of natural resource use in North America. Students will delve deeper into specific natural resource topics with a focus on the habitats and ecosystems of Alabama including issues on how the natural world is relevant to society.

FOWS 1031 SCIENCE OF NATURE II LABORATORY (1) LAB. 1. Coreq. FOWS 1030. In depth exposure using both laboratory and field exercises to introduce students to how the natural world is relevant to society. As part of the course students will collect real-world data, analyze it, summarize it, and disseminate it for use by the public.

FOWS 1040 CLIMATE SCIENCE I (3) LEC. 3. LAB. 0. Coreq. FOWS 1041. Basics of the Earth’s climate system including atmospheric environment, the energy budget, and biogeochemical cycles. Knowledge of the greenhouse effect, major greenhouse gases (GHG), and their sources and the consequences on Climate Change.

FOWS 1041 CLIMATE SCIENCE I - LABORATORY (1) LEC. 0. LAB. 3. Coreq. FOWS 1040. A field and laboratory course with student exercises designed to introduce students to the basics of Climate Science.

FOWS 1050 CLIMATE SCIENCE II (3) LEC. 3. LAB. 0. Pr. FOWS 1040 and FOWS 1041. Coreq. FOWS 1051. Enhanced examination of the Climate Science and causes of climate change and its impacts on natural and managed ecosystems, natural resources, wildlife, and human health, locally, regionally and internationally.

FOWS 1051 CLIMATE SCIENCE II - LABORATORY (1) LAB. 3. Pr. FOWS 1040 and FOWS 1041. Coreq. FOWS 1050. A field and laboratory course with student exercises designed to bring together concepts discussed and examined in lecture (FOWS 1050) for students to analyze and summarize for decision making.

FOWS 2030 INTRO TO ENVIRON EDUCATION (3) LEC. 3. Students will learn about the historical and theoretical foundations of environmental education while participating in experiential learning exercises.

FOWS 2060 INTRODUCTION TO FORESTED LANDSCAPES (2) LEC. 2. Pr. BIOL 1020 or BIOL 1027. This course will serve as an introduction to forest tree biology, forest types of North America, forest ecology and tree identification. The overall course objective is to introduce students to important concepts in forest ecosystem science and management.

FOWS 3500 FORESTRY, ENVIRONMENT & WILDLIFE LEADERSHIP ACADEMY I (1) LEC. 1. SU. Departmental approval. FEWL Academy I is designed to introduce students to the basic leadership styles that are necessary for critical problem solving in issues related to the management, utilization, and stewardship of natural resources.

FOWS 3510 FORESTRY, ENVIRONMENT & WILDLIFE LEADERSHIP ACADEMY II (1) LEC. 1. SU. Pr. FOWS 3500. Departmental approval. FEWL Academy II is designed to allow students to apply the leadership styles introduced in FOWS 3500 necessary for critical problem solving in issues related to the management, utilization, and stewardship of natural resources.

FOWS 3800 INTRODUCTION TO THE ROLE OF FORESTS ON HUMAN HEALTH AND LIVELIHOODS IN SOUTH AFRICA AND MA (1) LEC. 1. This course is intended to prepare students for the study abroad trip to South Africa and Madagascar (FOWS 3810). Students will gain knowledge as to cultural practices of South Africa and Madagascar, issues faced by communities and the role forests play in livelihoods and human health. Knowledge and theoretical approaches to various issues to ensure the well-being of people, animals and environment through collaborative multidisciplinary problem solving will be introduced and discussed.

FOWS 3810 ROLE OF FORESTS ON HUMAN HEALTH AND LIVELIHOODS IN SOUTH AFRICA AND MADAGASCAR (4) AAB. 4. Pr. FOWS 3800. This is a study abroad course, students will travel to South Africa and Madagascar to learn about the importance of trees for rural community livelihood and human health. Using the knowledge obtained in the pre-requisite theoretical course (FOWS 3800) students will interact with communities and researchers in South Africa and Madagascar to witness and learn about putting theory into action. Students will witness how issues, discussed in FOWS 3800, are addressed through collaborative, multi-disciplinary problem solving that results in unique approaches to ensure the well-being of people, animals and the environment.

FOWS 3850 PROFESSIONAL PREPARATION IN FORESTRY, WILDLIFE, AND THE ENVIRONMENT (1) LEC. 1. Assessment of career opportunities. Prepares students for their CFWE internship and post-graduation employment and career development.

FOWS 3950 UNDERGRADUATE SEMINAR (1) LEC. 1. Students will practice speaking in front of a scientific audience, learn to research topics, and organize presentations for professional audiences, faculty, and other students.

FOWS 4970 SPECIAL TOPICS (1-4) LEC. 1-4. Overview of forest soil composition, formation, biota, classification, chemistry, ecology, and sustainable management. Course may be repeated for a maximum of 8 credit hours.

FOWS 4980 UNDERGRADUATE RESEARCH (1-4) IND. Departmental approval. Directed research in the area of specialty under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

FOWS 5210 RESTORATION ECOLOGY (3) LEC. 3. Pr. BIOL 1030. Overview of the history, science, ethics, and current practice of restoration ecology to recognize and understand the need for restoration.

FOWS 5220 LANDSCAPE ECOLOGY (3) LEC. 3. Pr. BIOL 3060 or FORY 4230. Ecological effects and management of heterogeneous spatial pattern on ecosystems over large areas. May count either FOWS 5220 or FOWS 6220.

FOWS 5230 FOREST STAND DYNAMICS (3) LEC. 3. Pr. BIOL 1030. Forest stand dynamics studies the changes in stand structure over time. Examines phases of stand development and how we can help and aid forest, wildlife, and restoration management decisions.

FOWS 5240 FIRE ECOLOGY (3) LEC. 3. Pr. BIOL 1030. Examines the history of fire management, fire behavior, fuel management and models, ignition techniques, fire suppression techniques, urban interface, smoke management, fire weather, elements of a prescribed burn plan, fire and wildlife, and outreach.

FOWS 5250 LONGLEAF PINE ECOLOGY, MANAGEMENT, AND RESTORATION (3) LEC. 3. Pr. BIOL 1030. Covers the ecology of the once-dominant species, the role fire played in maintaining these ecosystems, management possibilities, conversion to longleaf pine, and an overview of the current restoration efforts.

FOWS 5260 FOREST WETLANDS RESTORATION ECOLOGY (3) LEC. 3. Pr. BIOL 3060 or FORY 4230. History and policy of wetlands destruction and restoration, wetland classification and inventory, techniques for assessing wetland functions, and techniques for forest wetlands restoration.

FOWS 5270 NATURAL RESOURCE POLICY (3) LEC. 3. Departmental approval. Examination of attitudes, philosophies and policies that govern management of the natural resource.

FOWS 5340 INVASION ECOLOGY (3) LEC. 3. The history, ecology, and management issues pertaining to non-native invasive species will be examined and discussed.

FOWS 5450 CONFLICT AND COLLABORATION IN NATURAL RESOURCES MANAGEMENT (3) DSL. Overview of issues, theories, and approaches to conflict management and collaboration in natural resources. Topics include conflict management, collaborative processes, and negotiation; tools and frameworks for analyzing conflict; and evolving management approaches to natural resource conflict.

FOWS 5620 NATURAL RESOURCE FINANCE AND INVESTMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Principles of corporate and real estate finance as applied to natural resources and the place of natural resources in individual and institutional portfolios. May count one of: FORY 6620, FOWS 5620, FOWS 6620.

FOWS 6210 RESTORATION ECOLOGY (3) LEC. 3. Overview of the history, science, ethics, and current practice of restoration ecology to recognize and understand the need for restoration.

FOWS 6220 LANDSCAPE ECOLOGY (3) LEC. 3. Ecological effects and management of heterogeneous spatial pattern on ecosystems over large areas. May count either FOWS 5220 or FOWS 6220.

FOWS 6230 FOREST STAND DYNAMICS (3) LEC. 3. Forest stand dynamics studies the changes in stand structure over time. Examines phases of stand development and how we can help and aid forest, wildlife, and restoration management decisions.

FOWS 6240 FIRE ECOLOGY (3) LEC. 3. Examines history of fire management, fire behavior, fuel management and models, ignition techniques, fire suppression techniques, urban interface, smoke management, fire weather, elements of a prescribed burn plan, fire and wildlife, and outreach.

FOWS 6250 LONGLEAF PINE ECOLOGY, MANAGEMENT, AND RESTORATION (3) LEC. 3. Covers the ecology of the once-dominant species, the role fire played in maintaining these ecosystems, management possibilities, conversion to longleaf pine, and an overview of the current restoration efforts.

FOWS 6260 FOREST WETLANDS RESTORATION ECOLOGY (3) LEC. 3. This course will cover the history and policy of wetlands destruction and restoration, wetland classification and inventory, techniques for assessing wetland functions, and techniques for forest wetlands restoration.

FOWS 6270 NATURAL RESOURCE POLICY (3) LEC. 3. Departmental approval. Examination of attitudes, philosophies and policies that govern management of the natural resource.

FOWS 6340 INVASION ECOLOGY (3) LEC. 3. The history, ecology, and management issues pertaining to non-native invasive species will be examined and discussed.

FOWS 6450 CONFLICT AND COLLABORATION IN NATURAL RESOURCE MANAGEMENT (3) DSL. 45. Overview of issues, theories, and approaches to conflict management and collaboration in natural resources. Topics include conflict management, collaborative processes, and negotiation; tools and frameworks for analyzing conflict; and evolving management approaches to natural resource conflict.

FOWS 6620 NATURAL RESOURCE FINANCE AND INVESTMENT (3) LEC. 3. Principles of corporate and real estate finance as applied to natural resources and the place of natural resources in individual and institutional portfolios. May count either FORY 5620 or FORY 6620.

FOWS 7150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3) LEC. 3. LAB. 1. Applications of spatial statistics in the natural resources. Three types of spatial data including point pattern data, geostatistical data and lattice (areal) data will be covered to introduce basic concepts, theories and methodology of spatial (spatial-tempo) data analyses and modeling.

FOWS 7200 DISEASE ECOLOGY (3) LEC. 3. Discusses the critical importance of relationships between human and animal diseases and the ecology of vectors, pathogens and the environment.

FOWS 7220 FOREST HISTORY OF ALABAMA AND THE SOUTHEASTERN UNITED STATES (3) LEC. 3. This course will focus on the natural, human and societal factors that influenced forests and land management in the southeastern United States from the 1700s to present. FOWS 7220 or FOWS 7226.

FOWS 7260 FOREST WETLANDS RESTORATION ECOLOGY (3) DSL. This course will cover the history and policy of wetlands destruction and restoration, wetland classification and inventory, techniques for assessing wetland functions, and techniques for forest wetlands restoration.

FOWS 7270 WETLANDS POLICY (3) LEC. 3. This course will cover historical development of wetland protection and will discuss current U.S. and international wetland policies.

FOWS 7300 CURRENT TOPICS IN ONE HEALTH (1) LEC. 1. The One Health concept refers to connections among health of people, animals and ecosystems and is used as a framework for addressing health related problems. Course explores the concept from the perspective of current and relevant health issues. Course may be repeated for a maximum of 2 credit hours.

FOWS 7400 INTRODUCTION TO PUBLIC HEALTH (3) DSL. 3. This is a survey course intended to provide an introduction to and overview of the wide-ranging field of Public Health.

FOWS 7480 ADVANCED NATURAL RESOURCE POLICY (3) LEC. 3. Pr. FORY 5400 or FORY 6400. Policy process and players, theory and evolution of property rights, public choice theory, land ethics, policy analysis, programs and statutory laws, forest policy in an international context.

FOWS 7500 OUTBREAKS TO PANDEMICS: EMERGING INFECTIOUS DISEASES IN A MODERN WORLD (2) DSL. This course explores modern and historical disease outbreaks, particularly zoonotic emerging infectious diseases. Students will understand key approaches necessary to contain and halt infectious diseases. Students will learn about multisectoral emergency responses to outbreaks and about the strengths and weaknesses of health systems during epidemics.

FOWS 7950 GRADUATE SEMINAR (1) SEM. 1. Students develop ability and confidence in making oral presentations based upon research and provide constructive criticism of their peers' presentations.

FOWS 7970 SPECIAL TOPICS (1-4) IND. Analysis of a problem in the natural resources, forestry, wildlife arena involving lectures, discussions, laboratory for field work. Department approval and agreement with faculty and students. Course may be repeated for a maximum of 12 credit hours.

Forestry - FORY

Courses

FORY 3010 FOREST SOILS (3) LEC. 2. LAB. 3. Pr. CHEM 1010 or CHEM 1030. Overview of forest soil composition, formation, biota, classification, chemistry, ecology, and management.

FORY 3020 FOREST BIOLOGY (3) LEC. 1. LAB. 3. Field exposure to important principles of forest biology and some examples of their applications to forest resources; identification of major tree species and critical analysis of forest stand structure. Summer.

FORY 3050 FIELD MENSURATION (4) LEC. 1. LAB. 3. Basic concepts and procedures for measuring trees, stands and other forest resources; units of measure, log rules, volume tables, condition class mapping and timber estimation. Summer.

FORY 3060 INTRODUCTION TO FOREST MANAGEMENT STRATEGIES (1) LEC. 1. LAB. 3. Biological, social, and economic principles underlying forest management strategies, the diversity of forestry enterprises, and the complexities facing forest managers. Summer.

FORY 3100 DENDROLOGY (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) or FORY 3020. Taxonomy and identification of important forest trees of the U.S., including cover types of forest regions.

FORY 3180 FOREST RESOURCE SAMPLING (3) LEC. 2. LAB. 3. Pr. FORY 3050. Theoretical and empirical estimates of tree and log volumes, tree taper, and yield tables. Sampling design and analysis to estimate current conditions of timber stands.

FORY 3200 FOREST TREE PHYSIOLOGY (3) LEC. 3. Pr. FORY 3020. Relationship between cultural, environmental and genetic factors that affect metabolism and growth of individual trees.

FORY 3500 FORESTRY FOR SMALL WOODLAND OWNERS (3) LEC. 3. An appreciation of forest trees and the environment, the environmental functions of trees, and the economic potential of a balanced land-use plan.

FORY 4190 FOREST BIOMETRICS (3) LEC. 2. LAB. 3. Pr. FORY 3180. Factors affecting and mathematical principles of tree-volume and stand growth.

FORY 4230 FOREST ECOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Forests as functional systems, the biotic and abiotic environment, temporal changes in ecosystem structure and function, application of ecological information.

FORY 4260 LONGLEAF PINE: HISTORY, ECOLOGY, MANAGEMENT, AND RESTORATION (2) LEC. 2. History of forestry in the south, focusing on the longleaf pine ecosystem. Also, information on species that are part of the longleaf ecosystem, comparisons with other southern pines, and management and restoration techniques.

FORY 4450 FOREST SECTOR ECONOMICS (3) LEC. 3. Pr. FORY 5400. Status, trend, employment and other fundamentals of forest industry. Timber supply and demand, forest products supply and demand, technological change, international trade.

FORY 4830 INDUSTRIAL WOOD PROCUREMENT PRACTICUM (1) PRA. 2. SU. Pr. FORY 3050. Strategies, field and office procedures involved in purchasing wood for an industrial forestry firm. Taught as a weekend field exercise at Solon Dixon Forest Education Center. Course may be repeated for a maximum of 2 credit hours.

FORY 4930 DIRECTED STUDY (1-3) AAB/IND. Departmental approval. Fall, Spring, and Summer. Course may be repeated for a maximum of 6 credit hours.

FORY 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Topics of an undergraduate nature pertinent to Forestry. Course may be repeated for a maximum of 3 credit hours.

FORY 4970 SPECIAL TOPICS (1-4) AAB/LEC. Course may be repeated for a maximum of 8 credit hours.

FORY 4980 SENIOR CAPSTONE PROJECT (1-4) LAB. 1-4. Pr. FORY 5230 and FORY 5410. Integrated study of Forest Resource Management using a case-study approach through development of a comprehensive plan related to the declared emphasis. Spring. Course may be repeated for a maximum of 4 credit hours.

FORY 5140 FOREST REGENERATION AND SEEDLING PRODUCTION (3) LEC. 3. Pr. P/C FORY 4230 or P/C HORT 3220. Principles of forest nursery seedling culture. Evaluation of activities to improve out planting performance. Plantation establishment problems and practices in Southern US.

FORY 5150 FOREST HEALTH (3) LEC. 3. Pr. FORY 3020 or BIOL 3060. Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products.

FORY 5151 FOREST HEALTH LABORATORY (1) LAB. 1. Coreq. FORY 5150. Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment. Credit will not be given for both FORY 5151 and FORY 6151.

FORY 5230 SILVICULTURE (4) LEC. 3. LAB. 3. Pr. FORY 4230 or BIOL 5140 or BIOL 3060 or BSEN 3230. Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives.

FORY 5360 CONSULTING FORESTRY (2) LEC. Business and professional requirements of forest resource management consulting. Presentations will be provided by consulting foresters, and analyses of the services they provide will be covered.

FORY 5400 FOREST ECONOMICS (3) LEC. 2. LAB. 3. Pr. FORY 3180. Marginal analysis, investment theory, resource supply, economics of conservation, and taxation principles applied to forestry. Structure and performance of forest products markets.

FORY 5410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3. Pr. FORY 5400 and FORY 4190. Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies.

FORY 5440 INTERNATIONAL FORESTRY (3) LEC. 3. Survey global forest location, characteristics, management systems, international forest products trade, current issues, and international forest governance.

FORY 5460 FOREST FIRE MANAGEMENT (3) LLB. Pr. FORY 4230 or BIOL 3060. The management of fire, both as a tool and wildfire suppression in the management of forested ecosystems. Emphasis placed on experience, technique and administration.

FORY 5470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1. LAB. 3. Basic understanding of GIS through discussion of the basic components of a GIS and how GIS are used in forestry applications.

FORY 5480 GIS DATABASE DESIGN AND ANALYSIS (3) LEC. 3. Pr. GSEI 5800 or COMP 1220 or GEOG 5890. Departmental approval. Geographic information system database planning, design, creation, management and analysis using a project oriented approach.

FORY 5540 ENVIRONMENTAL LAW (3) LEC. 3. A review of environmental law including common and administrative law, land use, and Federal statues on water, air, toxins and waste. May count either FORY 5540 or FORY 6540.

FORY 5550 PROPERTY LAW (3) LEC. 3. Land ownership, transfer and management including trespass, nuisance, adverse possession, easements, concurrent ownership, land use regulations and regulatory takings. May count either FORY 4550 or FORY 5550/6550.

FORY 5620 FOREST FINANCE AND INVESTMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Principles of corporate and real estate finance as applied to commercial timberland and its place in individual and institutional portfolios. May count either FORY 5620 or FORY 6620.

FORY 5650 URBAN FORESTRY (3) LEC. 2. LAB. 3. Pr. FORY 3100 or HORT 3200. Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented.

FORY 5820 FORESTRY IN THE PRIVATE SECTOR (3) SEM. 3. Pr. FORY 3050. Management systems and practices used in wood purchasing, timber harvesting and timberland management including public relations, forest sustainability, certification and personal business skills.

FORY 6140 FOREST REGENERATION AND SEEDLING PRODUCTION (3) LEC. 3. Pr. P/C FORY 4230 or P/C HORT 3220. Principles of forest nursery seedling culture. Evaluation of activities to improve out planting performance. Plantation establishment problems and practices in Southern US.

FORY 6150 FOREST HEALTH (3) LEC. 3. Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products.

FORY 6151 FOREST HEALTH LABORATORY (1) LAB. 1. Coreq. FORY 6150. Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment. Credit will not be given for both FORY 5151 and FORY 6151.

FORY 6230 SILVICULTURE (4) LEC. 3. LAB. 3. Pr. FORY 4230 or BIOL 3060 or BIOL 5140 or BIOL 6140 or BSEN 3230. Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives.

FORY 6360 CONSULTING FORESTRY (2) LEC. Business and professional requirements of forest resource management consulting. Presentations will be provided by consulting foresters, and analyses of the services they provide will be covered.

FORY 6400 FOREST ECONOMICS (3) LEC. 2. LAB. 3. Pr. FORY 3180. Marginal analysis, investment theory, resource supply, economics of conservation, and taxation principles applied to forestry. Structure and performance of forest products markets.

FORY 6410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3. Pr. (FORY 5400 or FORY 6400) and (FORY 4190). Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies.

FORY 6440 INTERNATIONAL FORESTRY (3) LEC. 30. Survey global forest location, characteristics, management systems, international forest products trade, current issues, and international forest governance.

FORY 6460 FOREST FIRE MANAGEMENT (3) LLB. The management of fire, both as a tool and wildfire suppression in the management of forested ecosystems. Emphasis placed on experience, technique and administration.

FORY 6470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1. LAB. 3. Basic understanding of GIS through discussions of the components of a GIS and how GIS are used in natural resource applications.

FORY 6480 GIS DATABASE DESIGN AND ANALYSIS (3) LEC. 3. Departmental approval. Geographic information system database planning, design, creation, management and analysis using a project oriented approach.

FORY 6540 ENVIRONMENTAL LAW (3) LEC. 3. A review of environmental law including common and administrative law, land use, and Federal statues on water, air, toxins and wastes. May count either FORY 5540 or FORY 6540.

FORY 6550 PROPERTY LAW (3) LEC. 3. Land ownership, transfer and management including trespass, nuisance, adverse possession, easements, concurrent ownership, land use regulations and regulatory takings. May count either FORY 4550 or FORY 5550/6550.

FORY 6650 URBAN FORESTRY (3) LEC. 2. LAB. 3. Pr. FORY 3100 or HORT 3200. Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented.

FORY 6820 FORESTRY IN THE PRIVATE SECTOR (3) SEM. 3. Management systems and practices used in wood purchasing, timber harvesting and timberland management including public relations, forest sustainability, certification and personal business skills.

FORY 7110 FOREST BIOGEOCHEMISTRY (3) LEC. 2. LAB. 3. Pr. FORY 6230. Fundamental and applied aspects of forest biogeochemical processes at scales of the individual tree, forest community, and forest ecosystem.

FORY 7160 ECOSYSTEM RESPONSES TO CHEMICAL CLIMATE CHANGE (3) LEC. 2. LAB. 3. Plant responses to changes in the chemical climate. Emphasis on sources, effects, methodologies used and ecosystem and global effects.

FORY 7170 ECOPHYSIOLOGY OF FOREST TREES (3) LEC. 3. Pr. BIOL 3100 or FORY 3200. Interactions among the environment, silvicultural practices, physiological mechanisms and tree growth. Integration of root, shoot and foliar functions and leaf, tree and stand level processes.

FORY 7210 ECOSYSTEM ECOLOGY (3) LEC. 3. Pr. BIOL 3060 or FORY 4230 or BIOL 5140 or BIOL 6140. To create a conceptual model of the terrestrial ecosystem including spatial distributions over time; and the impact of human activity and natural disturbance.

FORY 7250 ADVANCED ECOSYSTEM MODELING (3) LEC. 3. Pr. FORY 4230 or BIOL 3060. Exploration of the theory and rationale in modeling the structure and functions of ecological ecosystems.

FORY 7300 FOREST BUSINESS AND INVESTMENTS SEMINAR (1) LAB. 1. This course is designed to prepare Forest Business and Investments students with the processes, practices, values, actions, and visions associated with finance and investment in commercial timberland.

FORY 7320 FOREST GROWTH, SILVICULTURE, AND MANAGEMENT (3) LEC. 3. Understanding of forest growth and yield, measurements, management practices and methods, and optimization techniques necessary to make management decisions that maximize objectives.

FORY 7330 ECOLOGY AND SILVICULTURE OF EASTERN HARDWOOD FORESTS (3) LEC. 2. LAB. 3. Pr. FORY 4230. Silvical characteristics of major hardwood species and community composition, dynamics, site relationships, and silviculture of Southern and Eastern deciduous forests, emphasizing oaks.

FORY 7350 APPLIED STATISTICS FOR FOREST BUSINESS (3) LEC. 3. Gain an understanding of applied statistics related to forest business and statistical software to make informed and accurate business and investment decisions.

FORY 7400 FOREST VALUATION AND ECONOMICS (3) DSL. Forest valuation and the economic theory of forest resource allocation. Topics covered include forest valuation and appraisal, analysis of consumer behavior, production, market structure and the role of government, economics of forest management and policy, international trade, and financial analysis.

FORY 7450 FOREST SECTOR ECONOMICS (4) LEC. 4. Pr. FORY 5400 or FORY 6400. Fundamentals of forest industry, timber supply and demand, forest products supply and demand, technological change, international trade and development, sophisticated forest sector modeling.

FORY 7460 LAND ECONOMICS (3) LEC. 3. Evolution of the role of economics in forestry, policy and production analysis methods, non-market valuation, and regional analysis.

FORY 7510 RESEARCH METHODS (2) LEC. 1. LAB. 3. Overview of the scientific method and its application in forestry/natural resources research. Evaluation and preparation of project proposals with emphasis on research quality and written communication skills.

FORY 7620 FOREST FINANCE, ACCOUNTING AND TAXATION (3) LEC. 3. Course will provide students with an overview of core concepts in finance, accounting and taxation and how these concepts can be specifically applied to various types of forest operations.

FORY 7650 FOREST OPERATIONS AND WOOD SUPPLY CHAIN MANAGEMENT (3) DSL. 3. This course will review all the intricacies of the wood supply chain, from the diverse landowner base (private landowners, TIMO's and REIT's and government) to the independent logger to the wood supplier and then the consuming mill.

FORY 7850 URBAN FORESTRY SEMINAR (1) SEM. 1. Presentation and discussion of research, scientific papers and issues related to urban forest establishment, care and planning. Credit will not be given for both FORY 7850 and HORT 7850. Fall.

FORY 7910 PRACTICUM IN COLLEGE TEACHING (1) PRA. 1. SU. Techniques and practice of collegiate teaching at the level of Graduate Assistant. Students work under direct supervision and tutelage of the instructor. Fall, Spring, and Summer.

FORY 7930 DIRECTED STUDIES (1-3) AAB/IND. Course may be repeated for a maximum of 9 credit hours.

FORY 7950 CFWE SEMINAR (1) SEM. SU. Participation in the College of Forestry, Wildlife and Environment Seminar Series. Students will learn about research being conducted in various field and by various individuals internal and external to the university. Course may be repeated for a maximum of 3 credit hours.

FORY 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in Forestry or wood utilization involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 12 credit hours.

FORY 7980 MASTER OF NATURAL RESOURCES PAPER (2) IND. In-depth study involving library review, data collection and/or data analysis. Departmental Program.

FORY 7990 RESEARCH AND THESIS (1-15) MST. Credit to be arranged.

FORY 8930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 9 credit hours.

FORY 8970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in Forestry or wood utilization involving library research, laboratory or field work and report on the findings. Course may be repeated for a maximum of 12 credit hours.

FORY 8990 RESEARCH AND DISSERTATION (1-15) DSR. Credit to be arranged.

Foundations of Education - FOUN

Courses

FOUN 3000 DIVERSITY OF LEARNERS AND SETTINGS (3) LEC. 2. LAB. 3. Pr. EDUC 1010 or EDUC 1013. Exploration of how sociopolitical factors and students' diverse identities shape their experiences and opportunities in educational settings and society, with a focus on the interaction between schooling and inequity. Includes a service-learning requirement.

FOUN 3100 CHILD DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT (6) LEC. 5. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000) or (FOUN 3000 and RSED 3003). With grades of "C" or better. Cognitive, psychosocial, and moral aspects of child development; integration of development, learning, motivation, assessment, and evaluation in context of instructional planning. May count either FOUN 3100 or FOUN 3103.

FOUN 3110 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT I (3) LEC. 2. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000) or (FOUN 3000 and RSED 3003). An integrated approach to the effective instruction of the adolescent learner in context.

FOUN 3120 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT II (3) LEC. 3. Pr. (FOUN 3110-3113 or CTSE 4070-4073 or CTSE 4090) and (EDUC 3000 or (FOUN 3000 and RSED 3000-3003)). Study of the adolescent development, learning, motivation, evaluation, and assessment concepts central to effective instruction. May count either FOUN 3120 or FOUN 3123.

FOUN 3500 DEVELOPMENT, LEARNING AND MOTIVATION (3) LEC. 3. LAB. 0, LEC. 0. The course will cover physical, cognitive, psychosocial and moral aspects of development. Next, the course will cover behavioral, cognitive, learner-centered constructivist and more contemporary theories of learning with emphasis on applications to classroom instruction. Finally, the course will cover various theories of motivation with educational applications.

FOUN 7000 CULTURAL FOUNDATIONS OF EDUCATION (3) LEC. 3. Advanced study of culture and its impact on the development and structure of education and schooling. Utilizing historical, philosophical, anthropological, and sociological perspectives, contemporary issues regarding the nature and practice of schooling will be examined. May count either FOUN 7000 or FOUN 7006.

FOUN 7010 HISTORY OF AMERICAN EDUCATION (3) LEC. 3. Examination of ideas, actors, and events which influenced the emergence of the formal school system, beginning with early American forms of education. May count either FOUN 7010 or FOUN 7016.

FOUN 7020 SOCIAL AND CULTURAL DIVERSITY IN AMERICAN EDUCATION (3) LEC. 3. Advanced study of education's response to cultural pluralism. The impact of religious, ethnic, social, and racial diversity on the structure of the American public school will be examined. May count either FOUN 7020 or FOUN 7026.

FOUN 7030 PHILOSOPHY AND EDUCATION (3) LEC. 3. Advanced study of philosophical questions and concepts as well as their application in education. May count either FOUN 7030 or FOUN 7036.

FOUN 7040 PHILOSOPHY AND EDUCATIONAL RESEARCH (3) LEC. 3. Advanced philosophical study of educational research within the context of education's professional culture.

FOUN 7050 GLOBAL PERSPECTIVES ON EDUCATION (3) LEC. 3. Exploration of global transformations in education and their implications for equity, diversity, and justice through the lens of comparative and international research.

FOUN 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

FOUN 7930 TEACHING APPRENTICESHIP (3) IND. 3. Departmental approval. A structured opportunity for students to explore social foundations of education concepts and pedagogies in the college classroom. Course may be repeated for a maximum of 6 credit hours.

FOUN 7970 SPECIAL TOPICS IN FOUNDATIONS OF EDUCATION (3-6) LEC. 3-6. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

FOUN 8010 MODERN EDUCATION AND COMPARATIVE PERSPECTIVES (3) LEC. 3. Advanced comparative study of selected contemporary educational issues within the American and international urban context.

FOUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Courses may be repeated for a maximum for 10 hours. Course may be repeated with change in topics.

Geography - GEOG

Courses

GEOG 1000 INTRODUCTION TO GEOGRAPHY (1) LEC. 1. LAB. 0, LEC. 0. Introduction to fundamental concepts and major fields of study in geography

GEOG 1010 GLOBAL GEOGRAPHY (3) LEC. 3. Social Science I Core. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 1017 HONORS GLOBAL GEOGRAPHY (3) LEC. 3. Pr. Honors College. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 1020 GLOBAL SYSTEMS WEATHER/CLIMATE (4) DSL/LLB. The ‘Weather and Climate’ GS course will teach students the difference between weather and climate. They will evaluate the effect of weather on the food we eat, where we live, what we wear and the science behind climate change. This course will identify and describe Earth’s physical systems and make connections between them.

GEOG 1030 GLOBAL SYSTEMS LAND/WATER (4) DSL/LLB. The ‘Land and Water’ Global Systems course will compare the modification of land and water resources due to human interventions and weather anomalies over time. It will highlight the connection between temperature and precipitation, weathering of rocks, soil type and the river system, human nature interactions and ecosystems of the Earth.

GEOG 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOG 2010 HUMAN GEOGRAPHY (3) LEC. 3. Spatial perspectives on modern society such as population change, economics, politics, urban development, and local culture, and geography's approach to solving problems using case studies and issues.

GEOG 2017 HONORS HUMAN GEOGRAPHY (3) LEC. 3. Spatial perspectives on modern society such as population change, economics, politics, urban development, and local culture, and geography's approach to solving problems using case studies and issues.

GEOG 2020 PHYSICAL GEOGRAPHY (3) LEC. 3. Selected elements of the earth's physical system to include such items as landforms, basic weather elements, soils and vegetation.

GEOG 3000 SPORTS GEOGRAPHY (3) LEC. 3. Geographical basis of sports at different spatial scales, including locational strategies, sportive nationalism, and the urban political economy of sports.

GEOG 3110 UNITED STATES AND CANADA (3) LEC. 3. Survey of the region incorporating physical and cultural elements, providing a synthesis of the economic and political processes of the U.S. and Canada.

GEOG 3120 ALABAMA AND THE SOUTHEAST (3) LEC. 3. Study of the physical and cultural environments of the state.

GEOG 3130 LATIN AMERICA (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development and problems and prospects affecting major countries.

GEOG 3140 AFRICA (3) LEC. 3. Analysis of the relationships among diverse population groups and the physical environments of sub-Saharan Africa.

GEOG 3150 EUROPE (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development, and problems and prospects affecting several of the major countries.

GEOG 3300 INTERNATIONAL TRAVEL AND TOURISM (3) LEC. 3. Environmental and cultural patterns that characterize places attractive to tourists. Provides realistic situations for developing travel plans and programs.

GEOG 3720 STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 10. LAB. 5. Coreq. PARK 3630 and NATR 3320 and NATR 4250. Three-week course intended to give students a general understanding of the potential impacts of climate change on the environment in the tropics via a mix of lectures, hands-on activities and field trips. Departmental approval required.

GEOG 3810 CARTOGRAPHY AND GRAPHICS (4) LEC. 2. LAB. 2. Techniques of map production including relevant computer graphics applications and related laboratory exercises.

GEOG 4740 SENIOR SEMINAR (2) SEM. 2. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count GEOG 4740 or GEOL 4740.

GEOG 4920 INTERNSHIP (3) LEC. 3. Opportunity to apply classroom experience to real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOG 4930 DIRECTED STUDIES (1-4) AAB/IND. Departmental approval. Conferences, reading, research and/or reports may fulfill course requirement. Course may be repeated for a maximum of 4 credit hours.

GEOG 5010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. Senior standing or Departmental approval. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 5210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth's climate system (e.g. surface-atmosphere energy budge, the hydrologic cycle, and atmospheric motion) as well as climate change and sea level rise.

GEOG 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 2. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Study of the origin of landforms with emphasis on the eologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOG 5350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 5380 POLITICAL GEOGRAPHY (3) LEC. 3. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 5400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 5510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation of the inter-relationships between humans and their natural or physical environments.

GEOG 5550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 5600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. Departmental approval. Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons.

GEOG 5700 QUANTITATIVE METHODS AND SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. Pr., STAT 2510 or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills, evaluates written materials in geography, reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 5820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 5830 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 5850 DRONES AND GEOSPATIAL APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. This course will introduce the concepts of drone data collection, processing, and analysis and focus on how these high-resolution datasets can be used in a multitude of geospatial (including GIS and remote sensing) applications. This class will have both in-class and field components. Prerequisite: An Intro to GIS class is preferred, please contact the instructor if you have questions.

GEOG 5880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 5830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and process. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 5890 GIS PROGRAMMING (3) LEC. 2. LAB. 2. Pr. P/C GEOG 5830. This course is an introduction to programming and scripting for intermediate Geographic Information Systems (GIS) users. Students will learn how to design and write clearly structured scripts in Python using a standalone development environment. Students will develop programs to manage geospatial data, perform geoprocessing analysis, and design custom tools that can be integrated into common GIS software packages. Intro to GIS is a prerequisite which can be met if taken during the same semester (co-requisite). Credit will not be given for both GEOG 5890 and GEOG 6890

GEOG 5970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 6010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 6210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth's climate system (e.g surface-atmosphere energy budge, the hydrologic cycle, and atmospheric motion, as well as climate change and sea level rise.

GEOG 6220 GEOMORPHOLOGY (3) LEC. 3. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Credit will not be given for both GEOG 5220 and GEOG 6220.

GEOG 6350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 6380 POLITICAL GEOGRAPHY (3) LEC. 3. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 6400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 6510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation the inter-relationships between humans and their natural or physical environments.

GEOG 6550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 6700 QUANT METH & SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5700 and GEOG 6700.

GEOG 6710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 6800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills; evaluates written materials in geography; Reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 6820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 6830 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Departmental approval. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 6850 DRONES AND GEOSPATIAL APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. This course will introduce the concepts of drone data collection, processing, and analysis and focus on how these high-resolution datasets can be used in a multitude of geospatial (including GIS and remote sensing) applications. This class will have both in-class and field components. Prerequisite: An Intro to GIS class is preferred, please contact the instructor if you have questions.

GEOG 6880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 6830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and processes. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 6890 GIS PROGRAMMING (3) LEC. 2. LAB. 2. Pr. P/C GEOG 6830. This course is an introduction to programming and scripting for intermediate Geographic Information Systems (GIS) users. This course teaches students to design and write clearly structured scripts in Python using a standalone development environment. Students will develop programs to manage geospatial data, perform geoprocessing analysis, and design custom tools that can be integrated into common GIS software packages. Intro to GIS is a prerequisite which can be met if taken during the same semester (co-requisite). Credit will not be given for both GEOG 5890 and GEOG 6890

GEOG 6970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Departmental approval. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 7000 ESSENTIAL TEACHING SKILLS FOR GEOSCIENCE GTAS (3) LEC. 3. LAB. 0, LEC. 0. This course is designed to equip graduate teaching assistants (GTAs) in the geosciences with the foundational skills and knowledge necessary to succeed as effective educators in higher education. Participants will explore essential topics such as backwards design, active learning strategies, classroom management, effective communication, assessment design, the integration of technology in teaching, and navigating power dynamics. The course emphasizes practical application through hands-on activities, peer collaboration, and reflective teaching practices. Department approval.

GEOG 7930 DIRECTED STUDIES (1-3) AAB. Departmental approval. Individualized literature, field and/or laboratory research not available through regularly offered coursework. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOG 7980 CAPSTONE RESEARCH (1-3) RES. SU. Departmental approval. enrolled as GEOG MS non-thesis student. Literature, field and/or laboratory research directed toward the completion of capstone project for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOG 7990 M.S. RESEARCH AND THESIS (1-10) RES. Research and Thesis. Course may be repeated with change in topics.

GEOG 8900 DIRECTED STUDIES (1-6) IND. Provides exposure to discipline-specific research procedures in Earth System Science. Students will work closely with their mentors to explore an Earth-System problem through directed readings, literature searches, field work, laboratory experimentation, and quantitative analysis. Course may be repeated for a maximum of 6 credit hours.

Geology - GEOL

Courses

GEOL 1100 DYNAMIC EARTH (4) LEC. 3. LAB. 2. Science Core. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and landforms. Study of geologic maps. Credit will not be given for both GEOL 1100 and GEOL 3150.

GEOL 1107 HONORS DYNAMIC EARTH (4) LEC. 3. LAB. 2. Pr. Honors College. General physical geology for Honors students and for Geology majors. Topics similar to GEOL 1110 but covered in greater depth. Science Core.

GEOL 1110 EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Science Core. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans.

GEOL 1117 HONORS EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans. For Honors students and Geology majors. Science Core.

GEOL 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOL 2010 MINERALOGY AND OPTICAL CRYSTALLOGRAPHY (5) LEC. 4. LAB. 2. Physical and chemical properties of minerals, classification and roles with emphasis on natural systems, materials science, health, and environment. Credit will not be given for both GEOL 2010 and GEOL 2013.

GEOL 2050 IGNEOUS AND METAMORPHIC PETROLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 2010 or GEOL 2013. Principles and processes of igneous and metamorphic activity in a plate tectonic and petrologic context. Description, classification and interpretation of igneous and metamorphic rocks.

GEOL 2100 ENVIRONMENTAL GEOLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Emphasis on geology as an environmental science; applied geology, geological hazards and environmental regulations as applied to geologic environmental remediation.

GEOL 3060 LUNAR AND PLANETARY GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Departmental approval. Geology of the planets, moons, asteroids and comets. Origin of the solar system. Space exploration. Impact cratering.

GEOL 3200 INTRODUCTION TO PALEOBIOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 1110 or GEOL 1113 or GEOL 1117. The nature of the fossil record, applications of that data to geological and biological questions with emphasis on the concepts using examples from all biotic groups.

GEOL 3300 EVOLUTION AND EXTINCTION OF THE DINOSAURIA (3) LEC. 2. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Departmental approval. Survey of the dinosaurs, their evolution and extinction. Southeastern U.S. dinosaurs.

GEOL 3400 STRUCTURAL GEOLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 2050. Fundamentals of rock deformation. The mechanics of rock flow, fracture, and folding. Geometric techniques of structural analysis.

GEOL 3550 FIELD GEOLOGY: METHODS AND APPLICATION (3) LEC. 2. LAB. 2, AAB/LLB. 2. Pr. GEOL 1100 and GEOL 1110. Departmental approval. Through a combination of classroom, laboratory, and field-based activities, this course develops skills of geologic data collection, observation, interpretation, and communication.

GEOL 3650 ADVANCED FIELD GEOLOGY (3) LEC. 1. LAB. 10. Pr. GEOL 3400 and GEOL 3550. Instruments and methods used in geological field mapping, interpretation of sedimentary, igneous and metamorphic rocks and deformational analysis. Summer only.

GEOL 4110 STRATIGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOL 4010. Departmental approval. Description and correlation of layered earth materials. Synthesis and interpretation of stratigraphic correlations. North American Stratigraphic Code. History and theory of stratigraphy.

GEOL 4200 SEDIMENTARY PETROLOGY AND STRATIGRAPHY (4) LEC. 3. LAB. 2, LLB. 0. Pr. GEOL 2050. Description, classification, and interpretation of sediments and sedimentary rocks. Description and correlation of layered Earth materials. Stratigraphic correlation methods, and sequence stratigraphy. Department approval.

GEOL 4210 ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3400. The origin, distribution and classification of mineral deposits formed by igneous, metamorphic and sedimentary processes. Introduction of methods of exploration and development.

GEOL 4260 INTRODUCTION TO GEOCHEMISTRY (3) LEC. 3. Pr. CHEM 1040 and GEOL 2050. Principles governing the distribution of major, minor and trace elements within the earth; differentiation of elements due to geologic processes and the hydrosphere.

GEOL 4300 GEODYNAMICS (3) LEC. 3. Pr. GEOL 3400 and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Structure and dynamics of the earth deduced from seismology, gravity, heat flow and magnetism.

GEOL 4740 SENIOR SEMINAR (2) SEM. 2. Geology majors with upperclass standing. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count either GEOL 4740 or GEOG 4740.

GEOL 4920 INTERNSHIP (1-3) INT. SU. Geology majors with upper-class standing (juniors or seniors). An opportunity to apply classroom experience to a real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOL 4930 DIRECTED STUDIES IN UNDERGRADUATE RESEARCH (1-3) AAB. Departmental approval. Directed studies in areas of geology not covered by an existing course or to supplement knowledge gained from an existing course. Course may be repeated for a maximum of 3 credit hours.

GEOL 4970 SPECIAL TOPICS IN GEOLOGY (1-4) ST1. Instruction and discussion of selected topics in geosciences. Course may be repeated for a maximum of 8 credit hours.

GEOL 4980 UNDERGRADUATE RESEARCH METHODS (1-3) IND. Departmental approval. Active participation in original research under supervision of a senior investigator. Course may be repeated for a maximum of 3 credit hours.

GEOL 5060 INTRODUCTION TO MICROPALEONTOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3200 and (BIOL 1030 or BIOL 1037). A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 5100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 1. Study of the origin of landforms with emphasis on the geologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOL 5300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. P/C GEOL 4010. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 5440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction in the theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). The course provides an understanding the EMPA as a research tool for evaluating the composition and structure of a wide range of materials.

GEOL 5500 PETROLEUM GEOLOGY (3) LEC. 3. Pr. GEOL 4010. Coverage of petroleum source rocks, migration, reservoir rock characters, and trapping mechanics. Overview of exploration methods including well-log analysis and seismic interpretation.

GEOL 5600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 5700 GEOHEALTH (3) LEC. 3. Pr. GEOL 1100 and CHEM 1030. The effects of the composition of Earth materials and the local geological phenomena on human, plant, and animal health. The application of principles of geology and chemistry to predict and prevent diseases.

GEOL 5840 CLIMATE CHANGE AND SOCIETY (3) LEC. 3. The science of Earth’s changing climate, the societal influences on climate change, as well as the expected impacts based on the collected scientific evidence. Analyzes key aspects of climate science, the drivers of climate change, Earth’s climate trends, the evidence of climate change, the predicted future climate scenarios, the expected impacts, and the array of possible response options.

GEOL 6060 INTRODUCTION TO MICROPALEONTOLOGY (3) LEC. 3. LAB. 1. A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 6100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 6220 GEOMORPHOLOGY (3) LEC. 2. LAB. 1. Study of origin of landforms with emphasis on geologic processes and structures that generate landforms; includes the applications of landform analysis. May count either GEOL 6220 or GEOG 6220.

GEOL 6300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 4010. Departmental approval. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 6400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2. LAB. 2. Departmental approval. A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography.

GEOL 6440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction to theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). Provides an understanding of EMPA as a research tool for evaluating composition and structure of wide range of materials. GEOL 5440 or GEOL 6440.

GEOL 6500 PETROLEUM GEOLOGY (3) LEC. 3. Pr. P/C GEOL 4010. Geology/Geography graduate students who took GEOL 4010 ("P/C"). Coverage of petroleum source rocks, migration, reservoir rock characters, and trapping mechanics. Overview of exploration methods including well-log analysis and seismic interpretation.

GEOL 6600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 6700 GEOHEALTH (3) LEC. 3. The effects of the composition of Earth materials and the local geological phenomena on human, plant, and animal health. The application of principles of geology and chemistry to predict and prevent diseases.

GEOL 6840 CLIMATE CHANGE AND SOCIETY (3) LEC. 3. The course will investigate the science of Earth’s changing climate, the societal influences on climate change, as well as the expected impacts based on the collected scientific evidence. Analysis of peer-reviewed literature on the key aspects of climate science, the drivers of climate change, Earth’s climate trends, the evidence of climate change, predicted future climate scenarios, expected impacts, and the array of possible societal response options to prevent/mitigate the consequences of anthropogenic climate change. The class will have a strong component of discussion of literature and foundational knowledge as well as reflection on what students have learned and the implications of this knowledge for their areas of interest and generally for their lives.

GEOL 7100 GEOCOMMUNICATION (3) LEC. 3. Departmental approval. Instruction and practice in written and oral communication skills necessary for a successful career in the geosciences; emphasis on preparation of scientific articles, technical reports, abstracts, and thesis; preparation and delivery of oral presentations.

GEOL 7170 IMPACT AND PLANETARY GEOLOGY (3) LEC. 3. Pr. GEOL 1100 and GEOL 1110. Study of impact craters and their formation. Identification of impact crates. Role of impacts in planetary evolution and in evolution and extinction of life on Earth. Study of rocky and icy geologic surface terrains and their geologic processes.

GEOL 7200 TECTONICS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. Emphasis will be placed on plate tectonics and driving forces, evolution of collisional, transform and extensional systems, and dynamic indicators of past and current tectonic processes.

GEOL 7250 GROUNDWATER HYDROGEOLOGIC MODELING (3) LEC. 2. LAB. 2. Pr. GEOL 6100. Departmental approval. Overview of groundwater modeling techniques with environmental and geologic applications. Interaction of geology and subsurface groundwater flow. Basin hydrology modeling. Practical experience in computer simulations of subsurface hydrogeologic processes.

GEOL 7260 AQUEOUS AND ENVIRONMENTAL GEOCHEMISTRY (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Departmental approval. Study of water-rock reactions that control the chemical composition of groundwater; aqueous geochemistry of trace elements; groundwater pollution, remediation and geomic robiology.

GEOL 7300 CYCLES THROUGH EARTH HISTORY (3) LEC. 2. LAB. 2. Pr. GEOL 4100 and GEOL 4260. Discussion of the fundamental processes controlling sedimentary cycles at different physical, biotic, and temporal scales.

GEOL 7400 ADVANCED ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 4210. Departmental approval. The practical and theoretical aspects of economic geology as applied to exploration and development of natural resources.

GEOL 7410 GEOLOGY OF ORGANIC MATTER (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. The origins, classifications, taphonomy of organic matter, modern and ancient processes and environments of deposition of organic-rich strata, including hydrocarbon- source rocks and coals. Laboratory and field trips required.

GEOL 7450 MINERAL RESOURCES AND THE ENVIRONMENT (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Overview of geology and geographic distribution of mineral resources; economic aspects affecting their extraction; environmental impacts and cost of mineral resource extraction.

GEOL 7500 PALEOCLIMATOLOGY (3) LEC. 3. Explores how Earth's climate has evolved dynamically over time, varying within restricted boundaries that allowed life to exist and evolve. Explores interactions among Earth's surface abiotic and biotic components, and includes plate tectonics, atmospheric chemistry and physics, and ocean productivity.

GEOL 7550 ADVANCED GEOPHYSICAL METHODS (3) LEC. 2. LAB. 2. Pr. GEOL 6600. Departmental approval. Advanced treatment of geophysical methods, data interpretation and modeling. Applications to resource development and environmental assessments will be explored, with emphasis on seismic methods.

GEOL 7600 PETROLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. The description, classification, formative processes, and petrologic interpretation of igneous, metamorphic and sedimentary rocks.

GEOL 7610 STRUCTURAL AND METAMORPHIC ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 3400 and GEOL 3650. Quantitative analysis of dynamic, kinematic and chemical responses of rocks and minerals to crustal movements and dynamo thermal metamorphism.

GEOL 7650 FACIES ANALYSIS AND SEQUENCE STRATIGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. Systematic analysis of modern and ancient deposition facies, and their interpretation in a sequence stratigrahic context. Laboratory and field trips required.

GEOL 7700 ANALYTICAL ISOTOPE GEOCHEMISTRY (3) LEC. 2. LAB. 1. Pr. CHEM 1040 or PHYS 1510 or MATH 1620. Biweekly lectures will teach the theory and principles of isotope geochemistry and mass spectrometry, leading to applications in geoscience research. Lab sessions and problem sets will support lectures and emphasize work with various mass spectrometers in the Department of Geosciences.

GEOL 7930 DIRECTED STUDIES (1-3) LEC. 3. Departmental approval. Directed studies. May incorporate literature, field and/or laboratory research in any proportion. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOL 7980 CAPSTONE PROJECT (1-3) LEC. SU. Literature, field and/or laboratory research directed towards completion of capstone project required for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOL 7990 RESEARCH AND THESIS (1-10) MST. Departmental Approval. Course may be repeated with change in topics.

GEOL 8900 DIRECTED STUDY (1-6) IND. 3. Provides exposure to discipline-specific research procedures in Earth System Science. Students will work closely with their mentors to explore an Earth-system problem through directed readings, literature searches, field work, laboratory experimentation, and quantitative analysis. Course may be repeated for a maximum of 6 credit hours.

Geosciences - GEOS

Geospatial and Environmental Informatics - GSEI

Courses

GSEI 1200 INTRODUCTION TO GEOSPATIAL TECHNOLOGY (3) LEC. 2. LAB. 2. Introduction to geospatial technologies, spatial thinking, and job markets in these areas. Exploration of location-based services, global positioning systems, geographic information systems, remote sensing, virtual globes, and web based mapping. Skills and techniques for spatial thinking and environmental analysis.

GSEI 2070 INTRODUCTION TO ENVIRONMENTAL INFORMATICS (3) LEC. 2. LAB. 2. Pr. GSEI 1200. Introduction to the environment as a system of linked, interactive components. Application of information science to environmental management. Skills and techniques required for collecting, collating, archiving, modeling, analyzing, visualizing, and communicating information in support of natural resource management.

GSEI 5150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3) LEC. 3. Pr. (GSEI 1200 or GSEI 2070) and (WILD 5750). Applications of spatial statistics in natural resources. Introduction of basic concepts, theories, and methodologies of spatial and spatio-temporal data analyses and modeling. Topics include spatial correlation, spatial interpolation, detection of clusters/hotspots/patterns of interest, and spatial prediction.

GSEI 5360 ENVIRONMENTAL MODELING (3) LEC. 2. LAB. 1. Pr. FORY 5470 and FORY 5480 and GSEI 1200. Students will build models of environmental systems such as ecological, climatic, hydrologic, geochemical, and human systems, explore the basic concepts of systems modeling, and use models to test hypotheses and assumptions, evaluate system behavior, and predict changes in system behavior under different climate scenarios.

GSEI 5430 APPLICATIONS IN ENVIRONMENTAL INFORMATICS (3) LEC. 2. LAB. 1. Pr. GSEI 1200 and FORY 5470. This course emphasizes applications of earth observations to forestry, wildlife, environment and natural resources and covers both the technology and application of observing earth from space as well data acquired from airborne platforms.

GSEI 5800 PYTHON PROGRAMMING FOR THE ENVIRONMENT (4) LEC. 3. LAB. 2. Fundamental conceptual, methodological, and operational issues in Python programming with respect to environmental applications. Topics include Python programming concepts, scripting, and skills; data processing and management; data manipulation, visualization, and analysis; and connection to spatial data analysis.

GSEI 6150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3) LAB. 3. Applications of spatial statistics in natural resources. Introduction of basic concepts, theories, and methodologies of spatial and spatio-temporal data analyses and modeling. Topics include spatial correlation, spatial interpolation, detection of clusters/hotspots/patterns of interest, and and spatial prediction.

GSEI 6360 ENVIRONMENTAL MODELING (3) LEC. 2. LAB. 1. Students will build models of environmental systems such as ecological, climatic, hydrologic, geochemical, and human systems, explore the basic concepts of systems modeling, and use models to test hypotheses and assumptions, evaluate system behavior, and predict changes in system behavior under different climate scenarios.

GSEI 6430 APPLICATIONS ENVIRONMENTAL INFORMATICS (3) LEC. 2. LAB. 1. This course emphasizes applications of earth observations to forestry, wildlife, environment and natural resources and covers both the technology and application of observing earth from space as well data acquired from airborne platforms.

GSEI 6800 PYTHON PROGRAMMING FOR THE ENVIRONMENT (4) LEC. 3. LAB. 2. Fundamental conceptual, methodological, and operational issues in Python programming with respect to environmental applications. Topics include Python programming concepts, scripting, and skills; data processing and management; data manipulation, visualization, and analysis; and connection to spatial data analysis.

GSEI 7200 LAND PROCESSES AND CLIMATE INTERACTIONS (3) LEC. 2. LAB. 2. This is an advanced graduate level course designed to teach the modeling of land surface processes and study its impact on local, regional and global climate. Students will also perform global/regional climate model simulations using supercomputers.

GSEI 7500 DIGITAL EARTH AND BIG DATA (3) LEC. 2. LAB. 2. This is an advanced graduate-level course designed to teach the modeling of digital earth and study its impact on local, regional and global climate. Students will also perform global/regional geographic model simulations using supercomputers.

GSEI 7600 CLIMATE MODELING (3) LEC. 2. LAB. 2. Teaches modeling of the Earth's climate system. Students will also perform global climate model simulations using supercomputers, and analyze climate model outputs using NCAR Command Language.

Global Studies/Human Sciences - GSHS

Courses

GSHS 2000 GLOBAL STUDIES HUMAN SCIENCES (3) LEC. 3. An introduction to global studies with emphasis on topics relevant to Human Sciences majors.

GSHS 2007 HONORS GLOBAL STUDIES HUMAN SCIENCES (3) LEC. 3. Pr. Honors College. An introduction to global studies with emphasis on topics relevant to Human Sciences majors.

GSHS 3000 GLOBAL STUDIES IN HUMAN SCIENCES LECTURE SERIES (1) LEC. 1. Pr. GSHS 2000. Coreq. GSHS 3010. Invited speakers and lectures will explore global studies topics from a human sciences perspective.

GSHS 3010 PROFESSIONAL DEVELOPMENT IN GLOBAL STUDIES (2) LEC. 2. Pr. GSHS 2000. Coreq. GSHS 3000. Job-seeking and career development skills for Global Studies Professionals, based upon individual needs.

GSHS 3970 SPECIAL TOPICS GLOBAL STUDIES IN HUMAN SCIENCES (1-3) LEC. 1-3. Departmental approval. Study of topics of special interest beyond the current GSHS course offerings. Course may be repeated for a maximum of 9 credit hours.

GSHS 4920 GLOBAL STUDIES INTERNSHIP (12) INT. Pr. GSHS 2000 and GSHS 3000 and GSHS 3010. Supervised professional internship. Senior standing and 2.25 GPA.

GSHS 4980 RESEARCH GLOBAL STUDIES IN HUMAN SCIENCES (1-6) RES. 1-6. Pr. GSHS 2000 and GSHS 3000. Research in Global Studies in Human Sciences Course may be repeated for a maximum of 6 credit hours.

GSHS 4997 HONORS THESIS (1-6) LEC. 1-6. SU. Pr. GSHS 2000 and GSHS 3000 and GSHS 3010 and GSHS 4920. Honors thesis course for Global Studies in Human Sciences majors. Course may be repeated for a maximum of 6 credit hours.

GSHS 5000 GLOBAL STUDIES IN HUMAN SCIENCES CAPSTONE (3) LEC. 3. Pr. GSHS 2000 and GSHS 3000 and GSHS 4920 and GSHS 3010. A capstone course designed to bring global studies issues that are relevant to the human sciences field into focus through problem-based learning.

GSHS 5050 DESIGN THINKING IN GLOBAL STUDIES IN HUMAN SCIENCES (3) LEC. 3. Pr. (GSHS 2000 or GSHS 2007) and GSHS 3000 and GSHS 3010. Application of design thinking methodology to understand global issues in the Human Sciences.

GSHS 6050 DESIGN THINKING IN GLOBAL STUDIES IN HUMAN SCIENCES (3) LEC. 3. Application of design thinking methodology to understand global issues in the Human Sciences.

GSHS 6920 GRADUATE INTERNSHIP IN DEVELOPMENT PRACTICE (1-3) INT. Departmental Approval. Supervised professional internship. Course may be repeated for a maximum of 3 credit hours.

GSHS 7040 PROTOCOL FOR MDP GRADUATE STUDY (1) LEC. 1. SU. Departmental approval. Introduction to policies, practices, and expectations for successful completion of the graduate degree.

GSHS 7850 RESEARCH SEMINAR FOR MDP PROGRAM (1) LEC. 1. SU. Departmental approval. Current topics in development research.

GSHS 7950 APPLIED RESEARCH IN DEVELOPMENT (1) RES. 1. Departmental approval. Applied research in development.

GSHS 7980 INTEGRATED DEVELOPMENT PROJECT (3) LEC. 3. Departmental approval. Integrates knowledge gained from MDP courses and applies that knowledge to address an issue in development.

Graduate Studies - GRAD

Courses

GRAD 5AA0 AUTHORIZED DROP BELOW FULL-TIME (0) IND.

GRAD 6AA0 AUTHORIZED FOR FULL-COURSE OF STUDY (0) IND. Departmental approval. Course should not be printed in bulletin or in the schedule of classes booklet.

GRAD 7000 CLEARING REGISTRATION (0) LEC. May be used to register graduate students to graduate who have finished all graduation requirements by the last day of the previous semester, to remove incomplete grades, or to complete comprehensive examination for non-thesis students.

GRAD 7010 GRADUATE LEARNING COMMUNITY (0) DSL. Guided discussion of current topics in graduate education. May count either GRAD 7010 or GRAD 7016. Course may be repeated for a maximum of 6 credit hours.

GRAD 7100 FOUNDATIONS OF LEADERSHIP (3) LEC. 3. Introductory course about leadership principles that focus on personal and professional development, building teams, thinking critically, and communicating effectively.

GRAD 7200 INTRODUCTION TO RESPONSIBLE AND ETHICAL CONDUCT OF RESEARCH (1) LEC. 1. This course prepares graduate students to navigate ethical challenges likely to emerge when conducting research, including matters related to human and animal subjects, data management, peer review, and authorship. The course also examines fundamentals of the broader research environment, including collaboration, mentorship, regulations, and responding to suspected wrongdoing.

GRAD 7300 EMOTIONAL INTELLIGENCE IN LEADERSHIP (3) LEC. This course provides opportunities to explore relationships among emotional intelligence, leadership, and professional development.

GRAD 7AA0 THESIS OR PROJECT COMPLETION (0) IND. Coreq., Minimum of one (1) hour of 7910/6, 7920/6, 7950/6 or 7980 or 7990 or enrollment in GRAD 7000. Open to thesis option graduate students, non-thesis students engaged in research for special projects, or students completing practica or internships. No grade.

GRAD 8100 PROFESSIONAL DEVELOPMENT (3) LEC. This course introduces graduate students to a variety of non-academic professional environments. Course participants engage in active learning and peer review exercises to develop their personal portfolios and learn about scientific integrity, research skills, and other areas of professional development.

GRAD 8200 PRINCIPLES OF RESPONSIBLE CONDUCT OF RESEARCH AND SCIENTIFIC INTEGRITY (3) LEC. 3. Responsible conduct of research (RCR) is foundational in the scientific enterprise, offering a framework for progress and appropriate designation of credit. This course is designed to offer an introduction to the policy and ethical basis for research integrity. Students will learn about past failures that have shaped the current regulatory environment, understand the current expectations for researchers, and explore ethical dilemmas in the research space.

GRAD 8940 PREPARING FUTURE FACULTY SEMINAR I (1) LEC. 1. SU. Departmental approval. This course introduces graduate students to a variety of faculty roles and work environments. Seminar participants prepare teaching philosophy and research statements, engage in micro-teaching and peer review, discuss evolving definitions of scholarship, and engage in other professional activities. Students participate in seminars and workshops to discuss faculty teaching and research roles and responsibilities, campus life and faculty governance at differing types of academic

GRAD 8950 PREPARING FUTURE FACULTY SEMINAR II (1) PRA/SEM. 1. SU. Pr. GRAD 8940. This course is a continuation of PFF Seminar 1. It It introduces graduate students to a variety of faculty roles and work environments. Seminar participants prepare online professional portfolios, present present instruction and critique job talks and learn about the role of technology in teaching. Students participate in seminars and workshops to discuss faculty faculty teaching, research, service and outreach roles and responsibilities, campus life and faculty governance at differing types of academic institutions.

GRAD 8970 EVIDENCE-BASED TEACHING IN STEM SEMINAR (1) SEM. 1.5. SU. Permission from instructor. This 1-hour seminar will help students apply core principles and learning outcomes related to evidence-based teaching including teaching as research, learning communities, and learning through diversity. Course may be repeated for a maximum of 3 credit hours.

GRAD 8AA0 DISSERTATION COMPLETION (0) IND. Restricted to doctoral students. No grade. Additional prerequisite: minimum of 1 hour of 8910, 8920, 8950, 8980, or 8990.

GRAD 8XX0 AU/AUM JOINT PROGRAM IN PUBLIC ADMINISTRATION (0) IND. Joint Program in Public Administration. AU registration for PUB doctoral students who are registered concurrently at AUM. Enrollment at AUM.

Graphic Design - GDES

Courses

GDES 1110 FOUNDATION DRAWING (4) STU. 8. Coreq. GDES 1210. PGDE majors only; school approval. Representational drawing with various media. Emphasis on accurate observation, pictorial organization, depiction of space as well as on concept development and creativity.

GDES 1210 FOUNDATION DESIGN I (4) LEC. 1, STU. 6. Coreq. GDES 1110. PGDE majors only; school approval. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.

GDES 1220 FOUNDATION DESIGN II (4) LEC. 1, STU. 6. Pr. GDES 1210. Elements and principles of design with emphasis on basic three dimensional design. Emphasis on spatial organization, color, and media exploration, planning and craft.

GDES 2210 GRAPHIC PROCESSES (4) LEC. 1, STU. 6. Pr. GDES 1110 and GDES 1220 and (ARTS 2100 and ARTS 2150). Coreq. GDES 2220. Design and production processes, preparation of design for printing, paper, copyright, electronic techniques, and related subjects. School approval.

GDES 2220 TYPOGRAPHICS I (4) LEC. 1, STU. 6. Pr. GDES 1110 and GDES 1220 and (ARTS 2100 and ARTS 2150). Coreq. GDES 2210. Historical development and practical applications of typography for design, layout, and other contemporary formats. School approval.

GDES 2230 INTRODUCTION TO GRAPHIC DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Design, layout, and image-making procedures for creative problem-solving in graphic design, with emphasis on presentation, creativity, and visualization. School approval. Portfolio review required.

GDES 3110 ELEMENTS & PRINCIPLES OF DESIGN I: FORM AND COMPOSITION (3) LEC. 3. Pr. INDD 1120. This course will expose students to a variety of design methods, and their applicability to non-design disciplines, highlighting the parallel between critical thinking and design thinking.

GDES 3120 ELEMENTS & PRINCIPLES OF DESIGN II: TYPOGRAPHY AND IMAGE (3) LEC. 3. Pr. INDD 1120. This course will teach the basic concepts and vocabulary of typography with an emphasis on the expressive potential of typography when combined with imagery in layout form.

GDES 3130 GRAPHIC DESIGN LITERACY: MESSAGE, CONTEXT, MEANING (3) LEC. 3. Pr. INDD 1120. This course is a seminar that prepares students to participate actively and confidently in conversations about visual communications. Students investigate the historical bases of graphic design as well as examine contemporary issues informing the practice of graphic design. Seminar members read and discuss case studies and design criticism, and apply analytical approaches to examples of contemporary design through oral presentations and written arguments.

GDES 3140 DESIGN THINKING: INTRODUCTION TO DIGITAL SCREEN MEDIA (3) LEC. 3. Application of design thinking (focus on experience of the user) in the context of screen-based (computers, web applications, phones) design. Projects may include the redesign of an existing website, design concept for a new mobile application, and a new video game concept.

GDES 3147 HONORS DESIGN THINKING: INTRODUCTION TO DIGITAL SCREEN MEDIA (3) LEC. 3. Application of design thinking (focus on experience of the user) in the context of screen-based (computers, web applications, phones) design. Projects may include the redesign of an existing website, design concept for a new mobile application, and a new video game concept.

GDES 3210 PHOTO DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Traditional black and white film photography that covers covers technical aspects of the 35mm camera and film and basic darkroom procedures for black and white film and and basic darkroom procedures for black and white film and an awareness of the aesthetics and semantics associated with photographic imagery.

GDES 3220 PHOTO COMMUNICATIONS (4) STU. 8. Photography as applied communication such as advertising, editorial photography, and annual report photography. Emphasis on advanced technological and studio techniques.

GDES 3240 INTERACTIVE MEDIA (4) STU. 8. Pr. GDES 2230. Exploration of the technical and conceptual aspects of Web site design and motion graphics through a series of problem-solving processes. Emphasis on the research and development of effective graphic interfaces and information architecture.

GDES 3250 TYPOGRAPHICS II (4) STU. 8. Pr. GDES 2230. Experimental application of typography for design and layout, exploring contemporary techniques. Historical understanding expected. Emphasis on presentation and visualization of concepts.

GDES 3260 KINETIC TYPOGRAPHY (4) LEC. 4. Pr. GDES 2230. Focuses on how motion affects meaning and how new meaning can be developed through time, space, and sound.

GDES 3710 GRAPHIC DESIGN HISTORY (4) LEC. 4. Pr. GDES 2210 and GDES 2220. History of graphic design, with emphasis on social and cultural contexts, symbolic application, formal characteristics, and significant movements.

GDES 3910 GRAPHIC DESIGN INTERNSHIP PRACTICUM (2) LEC. 2. Pr. GDES 2210 and GDES 2220. Acceptance into the GDES program. Focuses on the professional practices of Graphic Design through portfolio creation and presentation, resume and cover letter writing and the tactics of searching for an internship.

GDES 3920 GRAPHIC DESIGN INTERNSHIP (4) INT. 4. Pr. GDES 2230. a fifteen-week period working full time as a staff member with an approved internship sponsor under the direction of a supervising art director.

GDES 4240 GRAPHIC DESIGN I (4) STU. 8. Pr. GDES 3240. Application of communicative procedures and skills necessary to convey messages by means of graphic presentation: problem solving in corporate identity, advertising design, self promotion, etc. Development of student's individual style.

GDES 4250 GRAPHIC DESIGN II (4) STU. 8. Pr. GDES 4240. Development of individual style in communication via graphic graphic presentation, with emphasis on problem-solving in publication design, self-promotion, large-format design, and layout.

GDES 4270 ADVANCED INTERACTIVE MEDIA (4) STU. 8. Pr. GDES 3240. Focuses on the principles and methodologies used throughout the interactive design industry for creating screen-based dynamic media. Students develop a conceptual framework for real world applications, exploring industrial, social and cultural issues.

GDES 4640 IMAGE I (4) STU. 8. Pr. GDES 2230. Application of illustration techniques and concepts to various graphic formats. Development of personal skills and individual style.

GDES 4650 IMAGE II (4) STU. 8. Pr. GDES 2230. Exploration of two dimensional and three dimensional imaging techniques and concepts. Development of personal skills and an individual style.

GDES 4900 DIRECTED STUDIES FOR GRAPHIC DESIGN (2-3) AAB. Pr. GDES 2210 and GDES 2220. Directed Studies in Graphic Design focuses on individualized study in Graphic Design. Student must have a 3.0 average in GDES course curriculum and departmental approval. Topics may include Graphic Design, Imaging, Web Design. Course may be repeated for a maximum of 9 credit hours.

GDES 4970 SPECIAL TOPICS FOR GRAPHIC DESIGN (4) LEC. 1. Pr. GDES 2230 and GDES 3710. Special Topics in Graphic Design focuses on topics in graphic design that are additional to the regular curriculum. Specific course topics are developed by the instructor. Student must have a 3.0 average in GDES GDES course curriculum. Course may be repeated for a maximum of 12 credit hours.

GDES 4990 SENIOR PROJECT FOR GRAPHIC DES (5) STU. 10. Pr. GDES 4250. Coreq. GDES 4991. A directed terminal studio project with choice of subject and medium. Project will be exhibited and a faculty committee will award a letter grade. Must be taken in student's final semester.

GDES 4991 RESEARCH, WRITING AND PRESENTATION (1) LEC. 1. Pr. GDES 4250. Coreq. GDES 4990. Addresses research, writing and presentation requirement associated with the student's terminal studio project. Must be taken in student's final semester.

Health Administration - HADM

Courses

HADM 2100 MEDICAL TERMINOLOGY (3) LEC. 3. Prefixes, suffixes, and word roots used in the language of medicine; medical vocabulary and terms related to the health care field.

HADM 3000 GATEWAY TO HEALTH CARE ADMINISTRATION (3) LEC. 3. Basic concepts and principles of health care administration.

HADM 3300 HEALTH CARE POLICY (3) LEC. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (P/C HADM 2100 or P/C HADM 2103). Political policies that affect health care services.

HADM 3700 HEALTH LAW (3) LEC. 3. Legal issues that arise between patients and health care providers.

HADM 3800 HEALTH CARE ANALYTICS (3) LEC. 3. Pr. (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610) and (MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683) and (ACCT 2110 or ACCT 2117). Majors only. This course focuses on using big data to drive decision making and improve health care quality through data aggregation and validation, strategic management data manipulation and technical reporting implementation.

HADM 4000 HEALTHCARE MANAGEMENT & LEADERSHIP (3) LEC. 3. Pr. HADM 3300 and HADM 3800. Health Services Administration major only. Organizational strategies for effective interfacing of medical, nursing, allied health and administrative staff with patient needs.

HADM 4200 HEALTH CARE INSURANCE AND REIMBURSEMENT (3) LEC. 3. Pr. HADM 3000 and HADM 3700 and HADM 3800. Health Services Administration major only. Health insurance operations, principles, payment methods and contracts.

HADM 4810 CHANGE IN HEALTH ADMINISTRATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Changes in modern technology, cultural diversity, and governmental policies on the administration of health services organizations.

HADM 4820 LONG-TERM CARE ADMINISTRATION (3) LEC. 3. Pr. P/C HADM 4000. Health Services Administration major only. Analysis of the components (e.g. nursing homes, home health care) of the long-term care system for the elderly.

HADM 4830 COMPARATIVE HEALTH CARE SYSTEMS (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Comparative Study and analysis of health care systems around the world.

HADM 4840 DATA-DRIVEN DECISION MAKING IN HEALTH CARE (3) LEC. 3. LAB. 0. Pr. P/C HADM 4200 and HADM 3800. An evaluation of current healthcare quality reporting requirements and how quality reporting relates to improving patient outcomes across all healthcare venues.

HADM 4850 LONG-TERM CARE POLICY (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Policy issues surrounding the provision of long-term care to the elderly.

HADM 4880 HEALTH INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HADM 4000 and HADM 4200. Health Services Admiistration major only. Overview and utilization of health care information technology in health care administration.

HADM 4890 ELECTRONIC HEALTH RECORD APPLICATIONS (3) LEC. 3. Pr. HADM 4000 and HADM 3300 and HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. This course covers the definition, benefits, regulations, standards, functionality, and impact of Electronic Health Records (EHR) in the healthcare environment. The course provides the student with a thorough understanding of the terminology of EHR systems as well as practical experience with the clinical and administrative use of EHRs in a medical settings.

HADM 4920 INTERNSHIP (6) AAB/INT. 6. SU. Pr. HADM 4000 and HADM 4200 and FINC 3810 or (FINC 3610 or FINC 3613 or FINC 3617) and (HRMN 3420 or HRMN 3423) or (MNGT 3423 or MNGT 3420). Health Services Administration major only. Internship in selected areas of Health Administration.

HADM 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. HADM 3000 and ACCT 2100 and (MATH 1680 or MATH 1683) and (MATH 1610 or MATH 1613 or MATH 1617) and (STAT 2010 or STAT 2017) or (STAT 2510 or STAT 2513) or STAT 2610. Health Services Administration major only. This course is designed to facilitate an independent study in an area of special interest of the student and a sponsoring faculty member. Course may be repeated for a maximum of 3 credit hours.

HADM 4950 CAPSTONE SEMINAR (3) LEC. 3. Pr. HADM 4000 and HADM 4200 and (FINC 3810 or FINC 3610 or FINC 3613 or FINC 3617). Health Services Administratrion major only. Integrates knowledge from courses and internship; applies managerial and research skills to the completion of a research project and the organization of a research symposium.

HADM 4960 SPECIAL PROBLEMS IN HEALTH ADMINISTRATION (1-6) IND. Pr. HADM 3300. Directed readings in Health Administration. Course may be repeated for a maximum of 6 credit hours.

HADM 4970 SPECIAL TOPICS (3) ST1. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683) or (MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. Special Topics courses are used to inform and educate students about new and emerging changes within the health care field. The Topics addressed change to coincide with changes in the health care environment. Course may be repeated for a maximum of 6 credit hours.

Health Outcomes Research & Policy - HORP

Courses

HORP 7510 HEALTH SERVICES DELIVERY AND EVALUATION (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. Introduction to basic methods and frameworks for undertaking research and program evaluation within health services organizations and systems.

HORP 7520 SOCIAL AND BEHAVIORAL THEORY IN HEALTH (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option Introduction to the basic theories of behavior and intervention used in practice and research to evaluate changes in health, humanistic, and economic outcomes among patients.

HORP 7530 PHARMACEUTICAL ECONOMICS, OUTCOMES, AND POLICY (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. The graduate-level course is intended to introduce students to concepts relevant to pharmaceutical outcomes, economics, and policy. The course provides foundational knowledge surrounding healthcare.

HORP 7540 PHARMACOEPIDEMIOLOGY: METHODS AND APPLICATIONS (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. STAT 6110 or equivalent SAS training. The course covers topics in pharmacoepidemiology focusing on the methods and applications of analyzing large healthcare claims databases and electronic medical records.

HORP 7720 MOTIVATIONAL INTERVIEWING FOR HEALTH BEHAVIORS (3) LEC. 2, IND/LEC. 1. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. Concepts, current research applications, and intervention development training in motivational interviewing for health behavior change interventions.

HORP 7820 RESEARCH METHODS AND DESIGN HEALTH SCIENCE I (2) LEC. 2. Departmental approval. Application of scientific methods in health care.

HORP 7830 RESEARCH METHODS IN THE HEALTH SCIENCES (3) LEC. 3. Pr. PYPC 7820 or HORP 7820. Application of the principles and concepts obtained in PYPC 7820/HORP 7820.

HORP 7840 MEDICATION INFORMATION SYSTEMS (3) LEC. 3. Health system informatics theories and methodologies. Demonstration of how information reduces uncertainty in health-care decision-making.

HORP 7860 THE PHARMACIST'S ROLE IN IMPROVING PATIENT ADHERENCE (3) LEC. 3. Pr. PYPC 7820. Theories and methodologies involved in adherence to medication regimens.

HORP 7870 SOCIAL, BEHAVIORAL, AND ADMINISTRATIVE ASPECTS OF PHARMACY PRACTICE (3) LEC. 3. Theories and applications in social, behavioral, and administrative aspects of pharmacy practice and medication use systems.

HORP 7950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Required of all Pharmaceutical Science MS students with Health Outcomes Research and Policy Option. Course may be repeated for a maximum of 6 credit hours.

HORP 7960 SPECIAL PROBLEMS IN HEALTH OUTCOMES RESEARCH (2-3) LEC. Departmental approval. Special problems. Course may be repeated for a maximum of 6 credit hours.

HORP 7980 NON-THESIS RESEARCH (1-3) RES. SU. Pharmaceutical Sciences Non-Thesis MS Graduate Student and approval from the Graduate Program Coordinator. The specific research topic and its credit hour(s) will be decided by the student's research advisor, in collaboration with the student and the student's research advisory committee. Course may be repeated for a maximum of 4 credit hours.

HORP 7990 RESEARCH AND THESIS (1-10) MST. Credit hours to be arranged. Course may be repeated with change in topics.

HORP 8950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Required of all Pharmaceutical Science PhD students with Health Outcomes Research and Policy Option. Course may be repeated for a maximum of 10 credit hours.

HORP 8960 SPECIAL PROBLEMS IN HEALTH OUTCOMES RESEARCH (1-3) LEC. Departmental approval. Credit hours to be arranged. Course may be repeated for a maximum of 6 credit hours.

HORP 8990 RESEARCH AND DISSERTATION (1-10) DSR. Credit hours to be arranged. Course may be repeated with change in topics.

Higher Education Administration - HIED

Courses

HIED 7200 ORGANIZATIONAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Theory and practice of higher education organizations with emphasis on supervision and management of personnel.

HIED 7210 LEADERSHIP IN HIGHER EDUCATION (3) LEC. 3. Exploration, discussion and application of theories, concepts and principles of leadership applied to higher education organizations. May count either EDLD 7210 or HIED 7210.

HIED 7220 HIGHER EDUCATION MANAGEMENT (3) LEC. 3. Procedures and practices in school educational management.

HIED 7230 STUDENT SERVICES ADMINISTRATION POSTSECONDARY EDUCATION (3) LEC. 3. Organization, administration and evaluation of student personnel services in postsecondary education.

HIED 7240 LEGAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Constitutional and statutory provisions for education and an analysis of judicial decisions affecting higher education.

HIED 7250 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3. Overview of major developmental theories affecting college students.

HIED 7260 COUNSELING AND ADVISING IN HIGHER EDUCATION (3) LEC. 3. Introduces counseling and advising theory and application for student services professionals in higher education.

HIED 7270 OVERVIEW OF POSTSECONDARY EDUCATION (3) LEC. 3. Overview of the history and evolution of postsecondary education in North America. May count either HIED 7270 or HIED 7276.

HIED 7400 SPORT MARKETING AND PUBLIC RELATIONS (3) LEC. 3. Marketing and public relations of sport organizations as associated with higher education institutions.

HIED 7410 SPORT ETHICS (3) LEC. 3. Covers ethical issues in sport organizations as associated with higher education institutions.

HIED 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

HIED 7910 PRACTICUM (3) PRA. 3. Departmental approval. Experience in the management of specific administrative offices. Course may be repeated for a maximum of 6 credit hours.

HIED 7920 INTERNSHIP (1-6) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 6 credit hours.

HIED 7970 SPECIAL TOPICS (1-6) LEC. 1-6. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

HIED 8200 ASSESSMENT AND EVALUATION IN HIGHER EDUCATION (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making.

HIED 8230 PLANNING AND BUDGETING IN HIGHER EDUCATION (3) LEC. 3. Components and implementation of a comprehensive, ongoing planning and budgeting program in higher education.

HIED 8270 FINANCIAL MANAGEMENT IN HIGHER EDUCATION (3) LEC. 3. Educational finance including revenues, expenditures, cost, budgeting and accounting, and the local, state and federal role in supporting education.

HIED 8480 INSTITUTIONAL RESEARCH IN HIGHER EDUCATION (3) LEC. 3. Components of institutional research and assessment that support comprehensive planning, analysis, decision support and management needs of the higher educational institution May count either EDLD 8480 or HIED 8480.

HIED 8500 THE PROFESSORIATE (3) LEC. 3. Study of differences and similarities in faculty roles, work, and career paths using various disciplinary and institutional lenses.

HIED 8510 SEMINAR IN COLLEGE TEACHING (3) LEC/SEM. 3. Overview of major issues in higher education and methods of instruction in college teaching. Involves use of experiential learning, group and collaborative activities.

HIED 8950 SEMINAR (3) LEC. 3. Presentation by graduate students of research projects and/or analysis of procedures and finding. Course may be repeated for a maximum of 6 credit hours.

HIED 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 credit hours.

History - HIST

Courses

HIST 1000 AUBURN IN THE WORLD: INDUSTRY AND SOCIETY (4) LEC. 3. LAB. 1. Part of the Auburn Global International Accelerator Program, HIST1000 exposes first-year students to Auburn, Alabama, and regional history from a wide range of perspectives, among them social, cultural, and environmental changes, economics, technology, and politics.

HIST 1010 WORLD HISTORY I (3) LEC. 3. History Core. Survey of world history from early humanity to the 1500s. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures. May count either HIST 1010 or HIST 1013.

HIST 1017 HONORS WORLD HISTORY I (3) LEC. 3. Pr. Honors College. History Core. Survey of world history from early humanity to the 1500s. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures.

HIST 1020 WORLD HISTORY II (3) LEC. 3. History Core. Survey of world history from the 1500s to the present. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures.

HIST 1027 HONORS WORLD HISTORY II (3) LEC. 3. Pr. Honors College. History Core. Survey of world history from the 1500s to the present. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures.

HIST 1210 TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1217 HONORS TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1220 TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 1227 HONORS TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 2010 SURVEY OF UNITED STATES HISTORY TO 1877 (3) LEC. 3. Social, political, and economic development of the United States from earliest occupation through Reconstruction. May count either HIST 2010 or HIST 2013.

HIST 2020 SURVEY OF UNITED STATES HISTORY SINCE 1877 (3) LEC. 3. Social, political, and economic development of the United States from the end of Reconstruction to the present.

HIST 2070 SURVEY OF EUROPEAN HISTORY FROM THE RENAISSANCE TO 1789 (3) LEC. 3. Survey of European history from the first outbreak of the bubonic plague to the eve of the French Revolution.

HIST 2080 SURVEY OF EUROPEAN HISTORY FROM 1789 PRESENT (3) LEC. 3. European history from the French Revolution to the present.

HIST 2100 SURVEY OF LATIN AMERICAN HISTORY (3) LEC. 3. Latin American history from its Amerindian beginnings to the present.

HIST 2110 SURVEY OF ASIAN HISTORY (3) LEC. 3. Asian history from prehistoric times to the present.

HIST 2120 SURVEY OF MODERN AFRICAN HISTORY (3) LEC. 3. Modern African history, from the end of the slave trade to the rise of nationalism and independence.

HIST 2130 SURVEY OF MIDDLE EASTERN HISTORY I (3) LEC. 3. The course examines the history of the Middle East from late antiquity to the Ottoman era.

HIST 2140 SURVEY OF MIDDLE EASTERN HISTORY II (3) LEC. This course is a survey of Middle Eastern history from the Ottoman era to the present.

HIST 3000 HISTORY OF SOUTHEASTERN INDIANS (3) LEC. 3. History of the southeastern Indians from pre-contact to removal, including native culture, cultural change, trade, imperial rivalries, and wars.

HIST 3010 HISTORY OF ALABAMA (3) LEC. 3. Broad study of Alabama history since its European settlement.

HIST 3020 HISTORY OF WOMEN IN THE UNITED STATES (3) LEC. 3. History of women in America from colonial period to the present; explores differences of region, race, and class.

HIST 3030 AFRICAN-AMERICAN HISTORY (3) LEC. 3. History of African Americans from African origins to the modern era, focusing on enslavement, emancipation and the struggle for equal rights.

HIST 3040 AMERICAN RELIGIOUS HISTORY (3) LEC. 3. Religious ideas and institutions from the colonial period to the present, including how religion has intersected with political and social history.

HIST 3060 ISSUES IN AFRICAN-AMERICAN HISTORY (3) LEC. 3. Issues and personalities in African-American history. Course may be repeated for a maximum of 6 credit hours.

HIST 3080 THE CIVIL RIGHTS MOVEMENT (3) LEC. 3. History of the civil rights movement and its place in the broader African-American struggle for freedom. Social, political, and cultural history, with geographic and chronological focus on the United States South in the post-World War II period.

HIST 3090 HISTORY OF APPALACHIA (3) LEC. 3. Survey of the history of the Appalachian region from before European contact to the present.

HIST 3100 THE CIVIL WAR IN AMERICAN MEMORY (3) LEC. 3. A survey of the ways that Americans have remembered their civil war from 1865 to the present.

HIST 3300 GRECO-ROMAN CIVILIZATION (3) LEC. 3. Classical civilizations of the Greeks and Romans as well as the Egyptian and Persian civilizations that influenced them.

HIST 3310 EUROPE IN THE MIDDLE AGES (3) LEC. 3. Survey of the thousand years that has been called the birth of Europe.

HIST 3330 ISSUES IN THE HISTORY OF GERMANY AND CENTRAL EUROPE (3) LEC. 3. Variable topics in the history of Germans, Slavs, and other Central Europeans from the Era of Enlightened Absolutism through the fall of the Berlin Wall. Course may be repeated for a maximum of 6 credit hours.

HIST 3340 ISSUES IN THE HISTORY OF MODERN FRANCE (3) LEC. 3. Focus on specific issues, themes, or topics within the political, social, or cultural history of France between the 18th and 20th centuries. Themes will vary.

HIST 3350 SURVEY OF RUSSIAN HISTORY (3) LEC. 3. Russian history from the earliest development of a state in the area of Kiev down to the present Russian Federation.

HIST 3370 EUROPE AND THE WORLD (3) LEC. 3. Variable topics in the history of European interactions with non-European peoples, cultures, politics, and societies.

HIST 3500 HISTORY OF AVIATION (3) LEC. 3. History of aviation from the beginnings of human flight to the present.

HIST 3510 HISTORY OF SPACE EXPLORATION (3) LEC. 3. Origins, motivations, and culture of space exploration in a global context.

HIST 3520 SCIENTIFIC REVOLUTIONS (3) LEC. 3. History of science, focusing on the concept of scientific revolutions in their social and intellectual context.

HIST 3530 SCIENCE FICTION AS INTELLECTUAL HISTORY (3) LEC. 3. Interaction between science, technology, and other aspects of modern culture as dramatized in classic and contemporary works of science fiction.

HIST 3540 ISSUES IN TECHNOLOGY AND CULTURE (3) LEC. 3. Issues such as the automobile, environment, industrialization, and popular culture relating to the role technology plays in society and culture. Course may be repeated for a maximum of 6 credit hours.

HIST 3550 AMERICAN ENVIRONMENTAL HISTORY (3) LEC. 3. Environmental history of the United States from colonial era to present.

HIST 3560 TECHNOLOGY AND GENDER HISTORY (3) LEC. 3. Exploration of the relationship between gender and technology in comparative cultural, social, and historical perspectives from 18th century to present.

HIST 3570 THE AUTOMOBILE IN HISTORY (3) LEC. 3. Global history of the automobile, including technological developments as well as role of the automobile in culture.

HIST 3580 ISSUES IN THE HISTORY OF MEDICINE (3) LEC. 3. In this course students will explore the changing relationship between medicine, health, and society in different historical and geographic contexts. Themes will vary. Course may be repeated for a maximum of 6 credit hours.

HIST 3590 ISSUES IN FOOD AND AGRICULTURE (3) DSL/LEC. This course looks at the history of agricultural systems, foodways, and food politics. It explores debates and trends in food and agriculture and the social and cultural forces driving them.

HIST 3600 ISSUES IN WOMEN'S AND GENDER HISTORY (3) LEC. 3. Topics in the history of women and gender. Course may be repeated for a maximum of 6 credit hours.

HIST 3610 PRIVATE LIVES AND PUBLIC PLACES (3) LEC. 3. Examination of the shifting boundaries between the public and private in history including topics such as work, family, sexuality, and the state. Course may be repeated for a maximum of 6 credit hours.

HIST 3640 WORLD MILITARY HISTORY (3) LEC. 3. Economic, social, political, and technological roots of the ways of war employed by different civilizations throughout the ages.

HIST 3650 20TH-CENTURY WORLD WARS (3) LEC. 3. Causes, conduct, and consequences of World Wars I and II.

HIST 3660 WORLD NAVAL HISTORY (3) LEC. 3. Naval history from its origins in ancient times to the present, including the evolution of strategy and tactics, and the influences of, foreign policy and technological change.

HIST 3670 CONTEMPORARY HISTORY (3) LEC. 3. Examination of developments in the contemporary world to provide historical background on developments in selected areas or nations across the globe.

HIST 3800 HISTORIAN'S CRAFT (3) LEC. 3. Historical research methods and an introduction to historiography. For history majors only.

HIST 3920 HISTORY INTERNSHIP (3) LEC. 3. Pr., Departmental approval. Supervised on-the-job experience at archives, historical museums, historic preservation authorities, historical editing projects, and similar historical agencies.

HIST 3930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval and; 3.0 overall GPA. Individual reading or research projects in a specific area of history. Course may be repeated for a maximum of 3 credit hours.

HIST 3970 SPECIAL TOPICS (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 4950 SENIOR THESIS: HISTORICAL RESEARCH AND WRITING (3) LEC. 3. Pr. HIST 3800. with minimum grade of "C." Writing an original paper based on research in primary source materials.

HIST 4970 SENIOR SEMINAR (3) LEC. Pr. HIST 3800. Senior Seminar is a capstone course for upper-level undergraduate students. It may be research-based or historiography-based. Topics vary widely. HIST 4970 may be repeated once for credit. Course may be repeated for a maximum of 6 credit hours.

HIST 4997 HONORS THESIS (3) LEC. 3. Pr. Honors College. Writing an original paper based on research in primary materials.

HIST 5000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the North American colonies from European settlement to 1763.

HIST 5010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Revolutionary era and the foundations of the United States, including the struggle with England, Declaration of Independence, Revolutionary War, Confederation, Constitution, and Federalist-Republican conflicts.

HIST 5020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the early nation, including the influences of Thomas War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflicts.

HIST 5030 SOUTH TO 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 5040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Sectional conflict, Civil War, and Reconstruction including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 5050 THE SOUTH SINCE 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.

HIST 5060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the American economy, rise of big business, agrarian and labor protests, immigration, race relations, role of women, and role of government.

HIST 5070 MODERN UNITED STATES HISTORY: 1929 TO THE PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. United States history since 1929 with particular emphasis on the economy, changing role of government, America's role in world affairs and social changes.

HIST 5090 AMERICAN LEGAL HISTORY (3) LEC. 3. Pr. HIST 3800 or departmental approval. Survey of American legal history from the Constitution to the World Wars. Topics include citizenship, criminal justice, and economic regulation. C or better in HIST 3800

HIST 5300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 5310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 5320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Pr. HIST 3800. Departmental approval. Students not majoring in history must obtain a waiver from the department. Cultural, economic, and social developments as well as the politics and international relations of the major European states.

HIST 5330 20TH CENTURY EUROPE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 5360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the Roman period to the Tudor dynasty.

HIST 5370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from 1485 to the early 18th century.

HIST 5380 MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the political unification of England and Scotland to the present.

HIST 5500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. The Industrial Revolution of 18th, 19th and 20th centuries, with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 5580 THE HISTORY OF FLIGHT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of flight in political, economic, social, and cultural perspective.

HIST 5620 MODERN LATIN AMERICA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Latin America in the 19th and 20th centuries, using a thematic approach arranged chronologically.

HIST 5640 HISTORY OF ISLAM (3) LEC. 3. Pr. HIST 3800. HIST 3800 with grade of "C" or better. This course examines the history of Islam and Islamic Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 5650 HISTORY OF MODERN SOUTH ASIA (3) LEC. 3. Pr. HIST 3800. Development of the Indo-Islamic culture, the British rule of India, and the creation of Muslim Pakistan and secular India. Attention to role of individuals and events in history of nation-building.

HIST 5660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in China from 1800-2000.

HIST 5680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Pr. HIST 3800. Students not majoring in history must obtain a waiver from the department. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 5710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 5810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 5820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 5970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in the history must obtain a waiver from the department. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 6000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Development of the North American colonies from European settlement to 1763.

HIST 6010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3. Revolutionary era and the foundations of the United States, including struggle with England, Declaration of Independence, Revolutionary War, Confederation, Constitution, and Federalist-Republican conflicts.

HIST 6020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Development of the early nation, including the influences of Thomas Jefferson, War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflict.

HIST 6030 SOUTH TO 1877 (3) LEC. 3. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 6040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Sectional conflict, Civil War, and Reconstruction, including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 6050 THE SOUTH SINCE 1877 (3) LEC. 3. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.

HIST 6060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3. Development of the American economy, rise of big business, agrarian and labor protest, immigration, race relations, role of women, and role of government.

HIST 6070 MODERN UNITED STATES HISTORY: 1929 PRESENT (3) LEC. 3. United States history since 1929, with particular emphasis on the economy, changing role of government, America's role in world affairs, and social changes.

HIST 6090 AMERICAN LEGAL HISTORY (3) LEC. 3. This course provides an upper-level chronological survey of American Legal History from the Constitution to the Civil Rights Era through broad themes that include: race and law, economic development, citizenship and belonging, marriage and family law, and criminal justice. The course will examine how major events and processes like Emancipation, Industrialization, and the World Wars brought changes in the workings of American law. At its heart, legal history investigates how law actually worked, how it affected the lives of individuals, and how that shifted over time. This course helps students refine universally-applicable skills, such as conducting original legal-historical research, writing, oral communication, and teaching, all while focusing on those areas of American Legal History that most interest them. The class requires regular reading quizzes, two exams, and a research project that is broken up into smaller assignments throughout the semester. This course also requires a teaching demonstration for graduate students.

HIST 6300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 6310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 6320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Cultural, economic, and social developments as well as the politics and international relations of the major European states between 1815-1918.

HIST 6330 20TH CENTURY EUROPE (3) LEC. 3. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 6360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. British history from the Roman period to the Tudor dynasty.

HIST 6370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. British history from 1485 to the early 18th century.

HIST 6500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. The Industrial Revolution of 18th, 19th, and 20th centuries with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 6580 TOPICS IN THE HISTORY OF FLIGHT (3) LEC. 3. The history of flight in political, economic, social, and cultural perspective.

HIST 6620 MODERN LATIN AMERICA (3) LEC. 3. History of Latin America in 19th and 20th centuries using a thematic approach arranged chronologically.

HIST 6640 HISTORY OF ISLAM (3) LEC. 3. This course examines the history of Islam and Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 6660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Examination and analysis of the political, social, economic and intellectual changes in China from 1800-2000.

HIST 6680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 6710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 6810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 6820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 6970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 7110 SEMINAR IN AMERICAN COLONIAL HISTORY (3) SEM. 3. Development of the British North American colonies, including discussions concerning Indians, English background, exploration, settlement, rebellions, religion, slavery, imperial rivalries, and women.

HIST 7120 SEMINAR IN AMERICAN REVOLUTION AND EARLY NATION (3) SEM. 3. Birth of the American nation and its re-birth under the Constitution.

HIST 7130 SEMINAR IN EARLY AMERICAN REPUBLIC (3) SEM. 3. Issues in the Early Republic, including political transformations, sectional conflict, women and gender roles, industrialization, and reform movements.

HIST 7140 SEMINAR IN OLD SOUTH (3) SEM. 3. History of the Old South, including discussions of colonial settlement, slavery, political transformations, sectional conflict, women and gender roles, and religion.

HIST 7150 SEMINAR IN CIVIL WAR ERA (3) SEM. 3. Sectional conflict, Civil War, and Reconstruction, including political, military and social development.

HIST 7160 SEMINAR IN NEW SOUTH (3) SEM. 3. The South in United States history since 1877.

HIST 7180 SEMINAR IN MODERN UNITED STATES HISTORY (3) LEC. 3. Broad introduction to United States history since 1929.

HIST 7190 SEMINAR IN AFRICAN-AMERICAN HISTORY (3) SEM. 3. Analysis of the major historiographical works on the social, political, and economic history of African Americans.

HIST 7200 SEMINAR IN UNITED STATES WOMEN'S HISTORY (3) SEM. 3. Change and continuity in the lives of American women.

HIST 7210 SEMINAR IN AMERICAN RELIGIOUS HISTORY (3) SEM. 3. Role of religion in American history; recent writing on religion; and sociological and anthropological theories of religion.

HIST 7220 DEVELOPMENT IN CIVIL RIGHTS MOVEMENT (3) LEC. 3. In-depth study of the civil rights movement, with emphasis on the United States South in the post-World War II period. Major topics, basic literature, and historiographical debates examined.

HIST 7230 SEMINAR IN AMERICAN SLAVERY (3) SEM. 3. This course will explore the history of the institution of chattel slavery in the Americas. Focusing primarily on North American slavery, the course will begin with an overview of the development and continuation of the slave systems of the Americas. The course explores the many ways that slavery differed based on the particular time, place, and colonial power or government structure in place at that time. This seminar investigates slaves' lives and experiences from the perspectives of legal history, medical history, gender history, and social history, encompassing such themes as resistance, culture, work lives, and politics. The course will conclude with a look at the Mississippi Valley, its slave system, and its commitment to slavery's economy and politics in the late antebellum years. The course will require weekly book review assignments and students will give one short lecture each semester.

HIST 7240 DEBATES IN EARLY AMERICAN HISTORY (3) SEM. A reading intensive course that introduces students to some of the major debates, methods, and controversies in Early American historiography. Course may be repeated for a maximum of 6 credit hours.

HIST 7250 DEBATES IN MODERN AMERICAN HISTORY (3) SEM. A reading intensive course that introduces students to some of the major debates, methods, and controversies in Modern American historiography. Course may be repeated for a maximum of 6 credit hours.

HIST 7380 THE GLOBAL COLD WAR (3) SEM. This course uses a global approach to explore the post-World War Two rivalry between the United States and the Soviet Union over ideologies, governments, and economic systems.

HIST 7420 SEMINAR IN POPULAR CULTURE IN EARLY MODERN EUROPE (3) SEM. 3. Major themes in the popular culture of Early Modern Europe, 1450-1800.

HIST 7440 SEMINAR IN MODERN EUROPEAN CULTURAL POLITICS (3) SEM. 3. Traditional and revisionist approaches to the study of the political uses of culture in 19th and 20th century Europe.

HIST 7450 SEMINAR IN THE FRENCH REVOLUTION (3) SEM. 3. Historiography in the French Revolution's origins and legacy.

HIST 7460 SEMINAR IN EARLY MODERN BRITAIN (3) SEM. 3. Main themes and events of British history between 1603 and the 1760s.

HIST 7470 SEMINAR IN FASCISM (3) SEM. 3. Seminar on the history of fascism in interwar Europe and the debates over the definition of fascism as an ideology.

HIST 7480 DEBATES IN EUROPEAN HISTORY (3) SEM. A reading intensive course that introduces students to some of the major debates, methods, and controversies in European historiography. Course may be repeated for a maximum of 6 credit hours.

HIST 7510 INTRODUCTORY SEMINAR IN HISTORIOGRAPHY OF TECHNOLOGY (3) SEM. 3. Problems and issues in the history of technology; reviews important, literature.

HIST 7520 SEMINAR IN POLITICS AND TECHNOLOGY IN THE SPACE AGE (3) SEM. 3. Political and technological context of the space age.

HIST 7540 SEMINAR IN AEROSPACE HISTORY (3) SEM. 3. Central problems, issues, and literature in aerospace history.

HIST 7590 AMERICAN LABOR AND WORKING CLASS HISTORY (3) SEM. This course surveys the historiographical themes and issues of the history and lives of the working class in the modern United States from the late 19th through the early 21st centuries.

HIST 7690 SEMINAR IN MODERN WORLD HISTORY (3) SEM. 3. Examination of world historiography and theory, with topical readings on comparative themes such as imperialism and colonialism, catch-up industrialization, decolonization, the Atlantic world, gender systems, religious diasporas, trade, and exploration.

HIST 7700 SEMINAR IN HISTORICAL METHODS (3) SEM. 3. Methodology and theory of historical research. Preparation of a significant original research paper.

HIST 7710 GRADUATE RESEARCH AND WRITING SEMINAR (3) SEM. 3. Pr. HIST 7700. A writing-intensive course designed to sharpen graduate students' research and writing skills.

HIST 7720 SEMINAR IN ARCHIVAL THEORY AND PRACTICE (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Development of archival theory in the major functional areas of archival practice, including appraisal, acquisition, description, preservation, reference and access, outreach, and advocacy.

HIST 7730 SEMINAR IN THE HISTORY OF RECORDS AND ARCHIVES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Origins, organization, and development of records, record keeping systems, and archival institutions in Europe and North America.

HIST 7760 PRACTICUM IN PUBLIC DIGITAL HUMANITIES (3) PRA/SEM. 3. Only graduate students in History or Public History Certificate program. An interdisciplinary course on the theory, method, and practice of public facing digital humanities.

HIST 7770 PRACTICUM IN MUSEUM STUDIES (3) SEM. 3. This course acquaints students with issues relating to the history and contemporary practice of museums. With a focus on both theoretical concepts and current professions within the field, the class balances practical applications with methodological training.

HIST 7810 RESEARCH SEMINAR IN UNITED STATES HISTORY SINCE 1865 (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7820 RESEARCH SEMINAR IN EARLY MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7830 RESEARCH SEMINAR IN MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7840 RESEARCH SEMINAR IN HISTORY OF TECHNOLOGY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7860 RESEARCH PROJECT DESIGN (3) SEM. SU. This course introduces students to the task of formalizing a research project proposal, typically referred to as a thesis or dissertation prospectus. Students will produce a draft project proposal that includes 1) a review of the relevant historiography that justifies the topic as a meaningful contribution to the literature; 2) an historical context that situates the topic within a chronological timeline, a geography, and an overall theme; 3) a reasonable plan for accomplishing the research.

HIST 7910 PUBLIC HISTORY INTERNSHIP (3) PRA. 3. Pr. HIST 6810 and P/C HIST 7700. Application of principles of public history practice within a functioning venue or site under supervision of public historian; final written report required. Course may be repeated for a maximum of 6 credit hours.

HIST 7920 ARCHIVAL INTERNSHIP (1-6) INT. Pr. HIST 6710 or Departmental approval. Application of the principles of archival practice within the context of a functioning archival repository under the supervision of professional archivists. Course may be repeated for a maximum of 6 credit hours.

HIST 7970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 9 credit hours.

HIST 7990 RESEARCH AND THESIS (1-10) MST. Research and writing of the MA thesis. Course may be repeated with change in topic.

HIST 8000 READING COURSE IN AMERICAN HISTORY TO 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history to 1877. Course may be repeated for a maximum of 6 credit hours.

HIST 8010 READING COURSE IN AMERICAN HISTORY SINCE 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history since 1877 Course may be repeated for a maximum of 6 credit hours.

HIST 8300 READING COURSE IN EUROPEAN HISTORY TO 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history to 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8310 READING COURSE IN EUROPEAN HISTORY SINCE 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history since 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8500 READING COURSE IN THE HISTORY OF TECHNOLOGY (3) PRL. 3. Pr., Departmental approval. Selected topics in the history of technology. Course may be repeated for a maximum of 6 credit hours.

HIST 8600 READING COURSE IN LATIN AMERICAN HISTORY (3) PRL. 3. Pr., Departmental approval. Selected topics in Latin American history. Course may be repeated for a maximum of 6 credit hours.

HIST 8610 READING COURSE IN WORLD HISTORY (3) LEC. 3. Pr., Departmental approval. Directed readings in modern world history, focusing on one or two geographic areas or themes.

HIST 8700 HISTORIOGRAPHY AND THEORY OF HISTORY (3) SEM. 3. Exploration of the nature of history by tracing changing conceptions of historical thought and practice from their origins to the present.

HIST 8710 INTRODUCTION TO THE TEACHING OF HISTORY (3) SEM. SU. Introduction to some of the challenges involved in teaching history at the college level.

HIST 8720 INTRODUCTION TO GRADUATE STUDIES (1) SEM. SU. This course is required for all graduate students in their first semester to prepare them for the history department’s graduate program and to introduce them to the fundamentals of the history profession. Students are introduced to various aspects of graduate level study in history.

HIST 8730 INTRODUCTION TO THE HISTORICAL PROFESSION (1) SEM. SU. This course is a required pass/fail course that students take in the second semester of their second year (for M.A. students) or in the second semester of their third year (for PhD students) to further prepare them for the history profession. Students are introduced to various aspects of “professional life after graduate school.”

HIST 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and writing of the PhD dissertation. Course may be repeated with change in topics.

Honor - HONR

Courses

HONR 1007 HONORS TECHNOLOGY AND CULTURE I (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. From an interdisciplinary perspective, this course examines the intersections of technology & technology & culture in a variety of social, historical, professional, and global setting.

HONR 1017 HONORS TECHNOLOGY AND CULTURE II (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. From an interdisciplinary perspective, this course examines the intersections of technology & technology & culture in a variety of social, historical, professional, and global settings.

HONR 1077 HONORS FRESHMAN EXPLORATION (1) LEC. 1. SU. Pr. Honors College. Honors Interdisciplinary Track or Honor's College Participant. Colloquium that introduces new Honors College students to the College and helps students become better informed about its resources and services.

HONR 1087 HONORS LYCEUM (1) LEC. 1. SU. Pr. Honors Interdisciplinary Track or Honor's College Participant. Weekly academic lectures followed by discussion and interaction. Course may be repeated for a maximum of 4 credit hours.

HONR 2077 HONORS FORUM (1) LEC. 1. SU. Pr. Honors College. Attendance at co-curricular events held in and around the Auburn campus and community. Course may be repeated for a maximum of 6 credit hours.

HONR 2087 HONORS BOOK CLUB (1) LEC. 1. SU. Pr. Honors College. Honors Interdisciplinary Track or Honor's College Participant. Moderated discussions of significant ideas found in recent reowned books. Each discussion group is led by an experienced teacher or university leader. Course may be repeated for a maximum of 4 credit hours.

HONR 2097 HONORS RESEARCH METHODS (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. This team-taught course fills a need for our Honors students to receive a broad introduction to both STEM and Humanities research methodologies to prepare them for future research endeavors. Course may be repeated for a maximum of 6 credit hours.

HONR 2717 HONORS HUMAN ODYSSEY 1 (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. Examines the human endeavor from pre-history through the 18th century by exploring connections between the sciences, the social sciences, and humanities.

HONR 2727 HONORS HUMAN ODYSSEY LL (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. Examines the human endeavor from pre-history from the 18th century to the present by exploring connections between the sciences and humanities.

HONR 3007 HONORS SEMINAR (3) LEC. 3, AAB/SEM. 3. Pr. Honors College. Honors Interdisciplinary Track or Honor's College Participant or departmental approval. This seminar involves critical reading and research in advanced topics having both intra- and interdisciplinary implications and applications. Course may be repeated for a maximum of 15 credit hours.

HONR 3087 HONORS COLLEGE STUDY & TRAVEL (3) LEC. 3. Pr. Honors College. Concentrated study in US or abroad. Course may be repeated for a maximum of 12 credit hours.

HONR 3987 HONORS RESEARCH SEMINAR (3) LEC. 3, IND. 3. Pr. Honors College. Directed research in an area of speciality within a specified area. Course may be repeated for a maximum of 9 credit hours.

HONR 4007 HONORS APOGEE PROJECT (3) IND. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. Advanced directed study, usually based in a student's undergraduate research, leading to the completion of an Honors Apogee Experience, the capstone of the Honors College. Course may be repeated for a maximum of 6 credit hours.

Horticulture - HORT

Courses

HORT 1010 INTRODUCTION TO HORTICULTURE (1) LEC. 1. Introduces scientific and practical aspects of pomology, olericulture, floriculture and landscape horticulture. Also presents the broad scope of career opportunities in the field of horticultural science. Fall.

HORT 2010 FRUIT AND NUT PRODUCTION (4) LEC. 2. LAB. 4. Introductory course in cultural practices and economics associated with commercial fruit and nut production. Fall.

HORT 2020 HORTICULTURE CROP PRODUCTION (3) LEC. 2. LAB. 3. Techniques of plant propagation and cultural methods for successful fruit, vegetable, and ornamental plant production. Fall.

HORT 2030 VEGETABLE PRODUCTION (3) LEC. 3. Principles, practices, establishment, production, maintenance, harvesting, storage and marketing of commercial vegetable crops. Fall and Spring.

HORT 2040 ORGANIC GARDENING (3) LEC. 3. Principles, production practices, maintenance, harvesting and marketing of organically and traditionally home-grown vegetables.

HORT 2060 HYDROPONICS: PRINCIPLES AND TECHNIQUES OF SOILLESS PLANT PRODUCTION (3) LEC. 3. This course is a survey of the science of hydroponic plant production and is focused on commercial and home vegetable crop production. Specific topics include plant growth and nutrition in hydroponic growing systems, challenges and opportunities, and system design. Fall.

HORT 2210 LANDSCAPE GARDENING (4) LEC. 2. LAB. 4. Principles of landscape gardening applied to residential and small-scale commercial grounds. Involves plant identification and use, basic landscape design, and landscape installation and management concepts.

HORT 2240 PLANT PROPAGATION (3) LEC. 2. LAB. 2. Pr. P/C BIOL 1030 or BIOL 1037. Basic principles and practices involved in the propagation of horticulture plants. Departmental approval. Spring.

HORT 2250 ART OF FLORAL DESIGN (3) LEC. 2. LAB. 2. Basic art principles and design elements and their use with flowers and foliage; history and utilization of flowers within society.

HORT 3000 GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1030. Growth and development of plants with concepts applied to the practice of Horticultural Science. Summer and Fall.

HORT 3110 A HISTORY OF GARDENS IN CULTURAL CONTEXT (3) LEC. 3. Heritage and traditions influencing the development of public and private garden styles, context, and function including cultural expressions, plant use, and impact of noted designers and horticulturists throughout history. Only taught in Study Abroad programs.

HORT 3200 WOODY LANDSCAPE PLANT IDENTIFICATION I (4) LEC. 2. LAB. 4. This course introduces students to the language of botany and the Southeastern palate of landscape plants with distinguished fall characteristics. Specific topics include taxonomy, morphology, plants with global popularity, cultivation practices, structural plantings, and use in the landscape. Fall.

HORT 3210 WOODY LANDSCAPE PLANT IDENTIFICATION II (4) LEC. 2. LAB. 4. This course introduces students to the language of botany and the Southeastern palate of landscape plants with distinguished spring characteristics. Specific topics include taxonomy, morphology, plants with global popularity, cultivation practices, structural plantings, and use in the landscape. Spring.

HORT 3220 ARBORICULTURE (4) LEC. 2. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Identification, culture and use of ornamental trees in landscape plantings. Fall.

HORT 3280 LANDSCAPE CONSTRUCTION (4) LEC. 2. LAB. 4. Principles and practices used in the interpretation and implementation of landscape construction and planting plans. Fall.

HORT 3840 STUDY/TRAVEL IN HORTICULTURE (1-10) AAB/FLD. Study of horticultural or fruit and vegetable science, landscape design, nursery and greenhouse management in U.S. or international location. Course may be repeated for a maximum of 10 credit hours.

HORT 3910 PROFESSIONAL LANDSCAPE (3) LEC. 3. Departmental approval. Field-based course designed for learning to prepare and compete in the NALP National Collegiate Landscape Competition. Spring.

HORT 3920 HORTICULTURE INTERNSHIP (1-4) INT. 1-4. Practical on-the-job training for selected commercial horticultural companies. Course may be repeated for a maximum of 8 credit hours.

HORT 3950 CAREERS IN HORTICULTURE (2) LEC. 2. Current developments and career opportunities in horticulture. Fall and Spring.

HORT 4000 PESTICIDE MANAGEMENT IN HORTICULTURE (3) LEC. 3. Pr. (ENTM 4020 or ENTM 3040) and PLPA 3000. Proper management of pesticides in horticulture; decision making skills in relation to control strategies; environmental issues relevant to horticulture; safety considerations; scouting and application techniques. Fall.

HORT 4100 HERBACEOUS ORNAMENTALS (4) LEC. 2. LAB. 4. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Identification, culture, and use of herbaceous annuals and perennials, bulbs, herbs, and ornamental grasses. Consideration of flower bed and border preparation, care and maintenance. Spring and Summer.

HORT 4250 INTERMEDIATE FRUIT & VEG PROD (3) LEC. 3. Pr. (HORT 2040 or HORT 2043) or HORT 2030. Intermediate horticulture course in which students apply knowledge gained in the classroom to hands-on fruit and vegetable gardening practices.

HORT 4270 INTERMEDIATE LANDSCAPE DESIGN (4) LEC. 2. LAB. 4. Pr. HORT 3210 or HORT 3220 or HORT 4100. A study of the design principles and elements and technical skills used to create a functional and aesthetically pleasing residential landscape design. Fall.

HORT 4300 COMPUTER AIDED PLANTING DESIGN (3) LEC. 3. Pr. HORT 4270. Graphic concepts relating to spatial visualization and communication and project cost estimation using computer aided drafting and project management software developed for landscape professionals. Spring.

HORT 4930 DIRECTED STUDIES (1-3) AAB/IND. Departmental approval. Directed Studies related to research, teaching or outreach educational programs in Horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 4970 SPECIAL TOPICS (1-3) IND. Principles, methods and techniques for understanding various horticultural disciplines. Course may be repeated for a maximum of 6 credit hours.

HORT 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

HORT 5100 HORTICULTURAL PLANT BREEDING (3) LEC. 3. Pr. (BIOL 3000 or CSES 3300 or AGRI 3000). This class will introduce students to traditional and modern technologies for breeding horticultural crops such as fruits, vegetables, and ornamental crops. Students will learn about the importance of plant breeding for horticultural crop improvement, mechanisms of traditional and modern breeding technologies, and biotechnologies with an emphasis on specific applications for horticultural crops. Credit will only be given for one of the following: HORT 5100 or HORT 6100.

HORT 5110 TREE FRUIT CULTURE (3) LEC. 3. Pr. HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Credit will only be given for one of the following courses: HORT 5110 or HORT 6110. Summer.

HORT 5120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Pr. HORT 3000. Principles and practices involved in the production and marketing of small fruits and pecans. Credit will only be given for one of the following courses: HORT 5120 or HORT 6120. Spring.

HORT 5130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and HORT 3000. Best management practices and quality of vegetable crops. Credit will only be given for one of the following: HORT 5130 or HORT 6130. Spring.

HORT 5140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. (PLPA 3000 or PLPA 3003) and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.

HORT 5150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Pr. HORT 3210 or HORT 3220 or Departmental approval. The following topics will be covered: financing, location, design, stocking, selling, personnel management, advertising and maintaining plants. May count either HORT 5150 or HORT 6150. Summer.

HORT 5200 CONTROLLED ENVIRONMENT AGRICULTURE (4) LEC. 3. LAB. 2. Pr. HORT 2060. This course will provide a thorough overview of the aerial factors that influence crop production in controlled environments. Credit will only be given for one of the following courses: HORT 5200 or HORT 6200.

HORT 5210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Pr. CSES 2040 and PLPA 3000. Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 5220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Pr. HORT 3000 and HORT 2240 and CSES 2040. Management, culture and economics of commercial greenhouse production. Fall.

HORT 5230 NURSERY MANAGEMENT (4) LEC. 2. LAB. 4. Pr. HORT 2240 and HORT 3000. Factors affecting plant production. Environmental issues related to facilities design and pesticide and nutrient management. Departmental approval. Spring.

HORT 5240 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 4. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens. Spring.

HORT 5330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/5333/6330/6336.

HORT 5910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Spring. Course may be repeated for a maximum of 8 credit hours.

HORT 6100 HORTICULTURAL PLANT BREEDING (3) LEC. 3. This class will introduce students to traditional and modern technologies for breeding horticultural crops such as fruits, vegetables, and ornamental crops. Students will learn about the importance of plant breeding for horticultural crop improvement, mechanisms of traditional and modern breeding technologies, and biotechnologies with an emphasis on specific applications for horticultural crops. Credit will only be given for one of the following: HORT 5100 or HORT 6100.

HORT 6110 TREE FRUIT CULTURE (3) LEC. 3. Manipulation of growth and development of tree fruit crops by cultural methods. Credit will only be given for one of the following courses: HORT 5110 or HORT 6110. Summer.

HORT 6120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Principles and practices involved in the production and marketing of small fruits and pecans. Credit will only be given for one of the following courses: HORT 5120 or HORT 6120. Spring.

HORT 6130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2. LAB. 2. Advanced course in best management practices and quality of vegetable crops. Credit will only be given for one of the following courses: HORT 5130 or HORT 6130. Spring.

HORT 6140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 2. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.

HORT 6150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Topics included: financing, location, design, stocking, selling, personnel management, advertising, and maintaining plants. Graduate students will evaluate garden centers and provide feedback for improvement. Summer.

HORT 6200 CONTROLLED ENVIRONMENT AGRICULTURE (4) LEC. 3. LAB. 2. This course will provide a thorough overview of the aerial factors that influence crop production in controlled environments. Credit will only be given for one of the following courses: HORT 5200 or HORT 6200.

HORT 6210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 6220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Management, culture and economics of commercial greenhouse production. Fall.

HORT 6230 NURSERY MANAGEMENT (4) LEC. 2. LAB. 4. Factors affecting plant production. Environmental issues related to facilities design and pesticide and nutrient management. Departmental approval. Spring.

HORT 6240 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 4. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens. Spring.

HORT 6330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/5333/6330/6336.

HORT 6910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Spring. Course may be repeated for a maximum of 8 credit hours.

HORT 7010 EXPERIMENTAL METHODS IN HORTICULTURE (3) LEC. 2. LAB. 2. Principles and methodologies of horticultural research, experimental design, preparation of project and grant proposals, and development of publication skills. Summer

HORT 7040 ADVANCED GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Plant growth and development from seed germination, through maturity and senescence. Spring.

HORT 7050 NUTRITIONAL REQUIREMENTS OF HORTICULTURAL PLANTS (3) LEC. 3. LAB. 2. Pr. HORT 3000. Nutritional requirements of horticulture crops and factors affecting these requirements. Departmental approval. Summer, odd years.

HORT 7070 PLANT BIOTECHNOLOGY (3) LEC. 3. Plant biotechnology, including plant tissue culture technologies, genetic transformation and applications for horticultural crop improvement.

HORT 7840 GRADUATE STUDY/TRAVEL IN HORTICULTURE (1-4) LEC. Departmental approval. Programmed activities to enhance national/international awareness and enable students to understand horticultural practices in diverse areas. Course may be repeated for a maximum of 8 credit hours.

HORT 7920 GRADUATE INTERNSHIP (1-4) INT. Departmental approval. Supervised professional experience in horticulture

HORT 7950 SEMINAR (1) SEM. SU. Graduate students are required to attend all seminars. Course may be repeated with change in topics.

HORT 7960 SPECIAL PROBLEMS (1-3) IND. 3. Conferences, problems and assigned readings in horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 7970 SPECIAL TOPICS IN HORTICULTURE (1-3) LEC. Principles, methods and techniques involved in gaining an understanding of different horticultural disciplines. Course may be repeated for a maximum of 3 credit hours.

HORT 7980 NON-THESIS RESEARCH (1-4) RES. 1-4. Research conducted as part of the Master of Agriculture degree. Course may be repeated for a maximum of 4 credit hours.

HORT 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

HORT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Hospitality Management - HOSP

Courses

HOSP 1010 INTRODUCTION TO HOSPITALITY MANAGEMENT (3) LEC. 3. Overview of the hotel, restaurant, club, and travel industries and their interaction.

HOSP 1050 FOOD SAFETY AND SANITATION (1) LEC. 1. HOSP Major, or Departmental approval. Introduction to food sanitation and safety practices in foodservice operations.

HOSP 2000 PRINCIPLES OF SERVICE MANAGEMENT (3) LEC. 3. This course will address the key performance indicators service professionals and their front line personnel in the broad services sector and the hospitality industry in particular, must address in an effort to set themselves apart competitively as well as grow and sustain market share.

HOSP 2300 HOSPITALITY LAW (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010). or Departmental Approval. Legal systems and laws relevant to the management of restaurants, hotels, private clubs and other hospitality operations.

HOSP 2350 CULINARY FUNDAMENTALS (3) LEC. 2. LAB. 4. HOSP Major, WLEM, or Departmental approval. Introduction to fundamental culinary skills, methods and techniques used in the production of a variety of culinary dishes.

HOSP 2400 FOOD PRODUCTION AND SERVICE (2) LEC. 2. Pr. HOSP 1010 and (HOSP 1050) and (HOSP 2350). Coreq. HOSP 2401. Food Production and Service - Lecture Component will introduce students to the theoretical concepts surrounding front- and back-of-the-house across different foodservice establishments. Students will be guided to understand the current challenges and trends in the foodservice industry.

HOSP 2401 FOOD PRODUCTION AND SERVICE LAB (1) LAB. 5.5. Pr. (HOSP 1010) and (HOSP 1050) and (HOSP 2350). Coreq. HOSP 2400. Food Production and Service (Lab Component) will introduce students to the operational experience and skillsets surrounding front- and back-of-the-house across different foodservice establishments. This variety of hands-on learning experiences aims to provide a comprehensive understanding of food production and service in diverse settings.

HOSP 2500 LODGING OPERATIONS (2) LEC. 2. LAB. 0. Coreq. HOSP 2501. Lodging operations management, with emphasis on guest cycle.

HOSP 2501 LODGING OPERATIONS LAB (1) LEC. 0. LAB. 3, LAB. 0. Pr. P/C HOSP 2500. Coreq. HOSP 2500. This course offers students hands-on, practical experience in a real hotel environment. Participants will actively engage in various shifts across key departments, including front office operations, housekeeping, and laundry services.

HOSP 2600 EVENT OPERATIONS (3) LEC. 3. An analysis of each component pertinent to the planning and operations of a hospitality event. Topics such as strategic planning, event design, logistics, staging, marketing, and event evaluation will be discussed.

HOSP 2910 HOSPITALITY PRACTICUM (1) PRA. Pr. HRMT 1010 or HOSP 1010. Hospitality Major Only. Rotational perspective on the management and operation of the Auburn University Hotel and Conference Center.

HOSP 2940 PROFESSIONAL DEVELOPMENT IN HOSPITALITY (2) LEC. 2. Introduces the concepts of career planning and preparation for the hospitality industry. Hospitality Management Major.

HOSP 3200 HOSPITALITY FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (ACCT 2810 or ACCT 2813 or ACCT 2817 or ACCT 2110 or ACCT 2113 or ACCT 2117). Hospitality Management Major only. Financial systems and statements in the hospitality industry.

HOSP 3400 HOSPITALITY MARKETING (3) LEC. 3. Pr. (P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317). Junior standing and Hospitality Major Only or Departmental approval. Service marketing concepts and issues as applied to the global hospitality industry.

HOSP 3450 ADVANCED CULINARY ARTS (3) LEC. 2. LAB. 5. Pr. HOSP 1010 and HOSP 2350. HOSP Major or Departmental Approval. This course is an in-depth study of intermediate and advanced level processes in contemporary culinary arts and food production.

HOSP 3460 MANAGING EVENTS IN THE LIVE ENTERTAINMENT INDUSTRY (3) LEC. Pr. HOSP 2600. Departmental approval. This course is designed to expose students to live entertainment sub-sector of the events industry by focusing on the management, marketing and venue operations of three major business segments, specifically, spectator sports, live concerts, and performing arts. Through a series of lectures, invited speaker seminars, group discussions, and real-world case studies, students will learn a variety of concepts including stakeholder management, financing, logistics, sponsorship, marketing, contract negotiations and rider management among other related topics.

HOSP 3750 BAKING AND PATISSERIE (3) LEC. 2. LAB. 6. Pr. HOSP 2350. HOSP Major or Departmental Approval. This course includes the study of bakery and patisserie methods and principles, emphasizing classical and contemporary plated desserts and baked goods.

HOSP 3800 HOSPITALITY INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HRMT 1010 or HOSP 1010. Hospitality Major only or Departmental Approval. Strategic and operational issues surrounding introduction of technology in hospitality. Must be minimum of Junior standing.

HOSP 4200 HOSPITALITY FACILITIES MANAGEMENT (2) LEC. 2. LAB. 0. Pr. (HOSP 2500 and HOSP 2501). Design and operation of hospitality facilities.

HOSP 4201 HOSPITALITY FACILITIES MANAGEMENT LAB (1) LEC. 0. LAB. 3, LAB. 0. Pr. (HOSP 2500) and HOSP 2501. Laboratory course for HOSP 4200.

HOSP 4300 FOOD AND BEVERAGE MANAGEMENT (2) LEC. 2. Pr. (HOSP 2400 and HOSP 2401). Coreq. HOSP 4301. Food and Beverage Management (Lecture Component) will introduce students to the theoretical concepts surrounding front-and-back-of-the-house in a commercial restaurant operation.

HOSP 4301 FOOD AND BEVERAGE MANAGEMENT LAB (1) LAB. 5.5. Pr. HOSP 2400 and (HOSP 2401). Coreq. HOSP 4300. •Food and Beverage Management (Lab Component) will introduce students to the operational (hands-on experience) concepts surrounding front- and back-of-the-house in a commercial restaurant operation. This course consists of two components: weekly-basis lectures and weekly-basis labs

HOSP 4350 ADVANCED RESTAURANT MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400) and (HRMT 4300 or HOSP 4300). Advanced concepts and managerial issues of restaurant management.

HOSP 4480 GLOBAL GASTRONOMY (3) LEC. 2. LAB. 5. Pr. (HRMT 2400 or HOSP 2400) and HOSP 3450 and HOSP 3750. HOSP Major or Departmental Approval. The study of classical cooking skills associated with the preparation and service of international and ethnic cuisines. Additionally, food will be explored from a historical, cultural, economic and geopolitical perspective in each of the regions/countries studied.

HOSP 4500 STRATEGIC HOSPITALITY MANAGEMENT (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010) and (MNGT 3100 or MNGT 3103 or MNGT 3107 or MNGT 3810). Hospitality Major only or Departmental Approval. Development and implementation of strategic management in hospitality.

HOSP 4510 SPECIAL EVENTS (3) LEC. 3. Pr. HRMT 2600 or HOSP 2600. This course teaches students all the intricacies of special events. Students learn about the different types of special events and how different they are from each other. Students should be able to plan, organize and manage. Hospitality Major Only. Junior and Senior Standing.

HOSP 4570 GLOBAL HOSPITALITY (3) LEC. 3. Contemporary issues confronting the global hospitality industry. Management and marketing operations emphasized. Seniors only, HOSP and GSHS majors only.

HOSP 4600 BEVERAGE APPRECIATION (3) LEC. 3. 21 Years Old. Junior standing. Hospitality Major Only or Departmental Approval. Production, selection, service, and sensory evaluation of alcoholic and non-alcoholic beverages.

HOSP 4700 HOSPITALITY PROPERTY DEVELOPMENT & MANAGEMENT (3) LEC. 3. Pr. HOSP 2500 or HRMT 2500. This course introduces students to the complex world of resort management while also providing an understanding of the hotel/resort product development cycle from development to opening and management. It explores management responsibilities for project development, construction, supervision, pre-opening requirements, and operations. Senior only.

HOSP 4920 INTERNSHIP IN HOSPITALITY (4) INT. 4. Pr. 2.20 GPA. Departmental approval. HOSP major, 2.2 cumulative GPA, senior Standing, and 600 hours (during the collegiate experience) of work experience in hospitality. Application of principles and theories of hospitality in a professional hospitality setting.

HOSP 4930 DIRECTED STUDIES IN HOSPITALITY MANAGEMENT (1-3) LEC. Departmental approval. Directed Studies in Hospitality Management Pr., School Approval. Advanced individual research and study in Hospitality Management under the direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

HOSP 4970 SPECIAL TOPICS IN HOSPITALITY MANAGEMENT (3) LEC. 3. Departmental approval. Special Topics in Hospitality Management Pr., School Approval. A course addressing unique and/or current issues not covered in a regularly scheduled course.

HOSP 4980 UNDERGRADUATE RESEARCH AND STUDY (1-3) IND. Departmental approval. Undergraduate Research and Study Course may be repeated for a maximum of 3 credit hours.

HOSP 5380 STUDY TRAVEL IN HOSPITALITY (1-12) AAB/LLB. Departmental approval. Concentrated study in hospitality management in the US or international locations. Course may be repeated for a maximum of 12 credit hours.

HOSP 5460 THE EVENT EXPERIENCE - STRATEGIC DESIGN AND TECHNICAL PRODUCTION (3) LEC. 2. LAB. 4. Pr. HOSP 4510. This course familiarizes students with key points involved in the process of event design and technical production for a real-world event fundraiser. Students will evaluate a venue's challenges and assets to execute the most fitting, and feasible, event design concept based on client needs and budgetary considerations. Additionally, students will consider the right audiovisual needs from a technical production vantage point to elevate the event attendee experience, award ceremony, and auction. Must be Senior Standing.

HOSP 5461 CATERING AND EVENT MANAGEMENT LABORATORY (2) LAB. 2. Pr. HOSP 5460 or HRMT 5460. Departmental approval. Provides students with a leadership practical experience in the planning, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 5530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Junior standing. Hospitality Major only or departmental approval. Role of quality service in attaining and retaining customers with emphasis on organizational strategic mission. May count HOSP 5530 or 6530.

HOSP 5540 CONFERENCE COORDINATION (3) LEC. 3. Pr. HOSP 1010 or HRMT 1010. Junior standing. Systems for managing conference coordination. May count HOSP 5540 or 6540.

HOSP 5550 CLUB MANAGEMENT (3) LEC. 3. Pr. HOSP 1010 or HRMT 1010. Junior standing. Examination of unique features, opportunities and problems associated with club management. Credit will not be given for HOSP 5550 and HOSP 6550.

HOSP 5590 RECREATIONAL FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. HRMT 2400 or HOSP 2400 or Departmental approval. Methods and systems of managing foodservice operations recreational facilities. Credit is not allowed for both HOSP 5590 and HOSP 6590.

HOSP 6380 STUDY TRAVEL IN HOSPITALITY (1-6) AAB/LLB. Departmental approval. Concentrated study in hospitality management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

HOSP 6460 CATERING AND EVENT MANAGEMENT (1) LEC. 1. Departmental approval. Exploring advanced management topics in catering and event planning including risk, liability, crisis and other challenges faced by the industry.

HOSP 6461 CATERING AND EVENT MANAGEMENT (2) LAB. 4. Pr. HRMT 6460 or HOSP 6460. Departmental approval. Provides students with a leadership practical experience in the planing, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 6530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Departmental approval. This course introduces students to the important role that quality service plays in attaining and retaining customers in the pursuit of an organizations strategic mission. Credit will not be given for HOSP 6530 and HOSP 5530.

HOSP 6540 CONFERENCE COORDINATION (3) LEC. 3. Departmental approval. Systems for the management of the conference coordination segment of the hospitality industry. Credit will not be given for HOSP 6540 and HOSP 5540.

HOSP 6550 CLUB MANAGEMENT (3) LEC. 3. Departmental approval. Unique features, opportunities, and problems associated with resort and club management. Credit will not be given for HOSP 6550 and HOSP 5550.

HOSP 6590 RECREATIONAL FOODSERVICE MANAGEMENT (3) LEC. 3. Departmental approval. Methods and systems of managing foodservice operations in recreational facilities. Credit will not be given for both HOSP 6590 and HOSP 5590.

HOSP 7000 HOSPITALITY ENTERPRISE (3) LEC. 3. Emphasizes aspects of hospitality enterprise including developmental, motivational, financial and human resource issues through contemporary academic literature.

HOSP 7010 ADVANCED TOURISM ANALYSIS (3) LEC. 3. This course acquaints students with selected theories, methods, techniques, current issues, practices, and principles that govern tourism behavior.

HOSP 7050 ADVANCED HOSPITALITY OPERATIONS (3) LEC. 3. This course familiarizes students with theory, research and methodological issues, current issues, practices, and principles in hospitality operations. Students will be exposed to a broad range of academic research and practice-oriented readings such as case studies and book chapters in the area of customer relations management, service quality, sustainable operations and corporate social responsibility, strategic management, human resource management, financial management, etc. Must be in Graduate Standing.

HOSP 7060 HUMAN RESOURCE MANAGEMENT IN HOSPITALITY ORGANIZATIONS (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course is designed to provide students with a deep understanding of HR practices within the hospitality industry. It covers key topics such as recruitment, training, performance management, employee relations, compensation, HR theories, and contemporary HR issues specific to hospitality organizations.

HOSP 7070 FINANCE AND REVENUE MANAGEMENT IN HOSPITALITY INDUSTRY (3) LEC. 3. LAB. 0, DSL/LEC. 0. This course offers a comprehensive understanding of finance and revenue management in the hospitality industry. Key topics include revenue management, financial statement analysis, sustainability in financial performance, risk management, fraud and ethics, and cross-cultural challenges. Students will learn to interpret financial data, address hospitality industry-specific challenges, and make strategic decisions to improve efficiency and profitability in hospitality operations.

HOSP 7090 CONSUMER BEHAVIOR IN HOSPITALITY AND TOURISM (3) LEC. 3. This course aims to explore and critically examine current debates, critical reflections of contemporary ideas, controversies and pertinent queries relating to the rapidly expanding discipline of consumer behavior in hospitality and tourism. Must be a student enrolled in the HOSP graduate program.

HOSP 7100 THE BUSINESS OF BREWING (3) DSL/LEC. 3.

HOSP 7110 BREWING MATERIALS (3) DSL/LEC. 3. This course provides students with an introduction to all types of brewing ingredients including grain, hops, and adjuncts. Baccalaureate degree and 21 years of age.

HOSP 7120 SCIENCE OF BREWING I (3) DSL/LEC. 3. Theoretical and applied brewing science, recipe formulation yeast biology and genetics part I. Baccalaureate degree and 21 years of age.

HOSP 7130 SCIENCE OF BREWING II (3) DSL/LEC. 3. Theoretical and applied brewing science, recipe, formulation, yeast biology and genetics part 2. Baccalaureate Degree, 21 years of age.

HOSP 7140 FACILITIES AND OPERATIONS (3) LEC. 3. This course will focus on the facilities required to produce a high quality, safe and sanitary product. Baccalaureate Degree, 21 years of age.

HOSP 7150 BREWING MICROBIOLOGY (3) LEC. 3. Pr. (HOSP 7116 or HOSP 7110) and (HOSP 7126 or HOSP 7120) and (HOSP 7136 or HOSP 7130). Brewing Microbiology discusses the microbes that are essential to successful beer production and processing, and the ways they can pose hazards in terms of spoilage and sensory quality. The course examines the properties and management of these microorganisms in brewing, along with tactics for reducing spoilage and optimizing beer quality.

HOSP 7160 APPLIED ENGINEERING IN BREWING (3) LEC. 3. This course will be an introduction of basic engineering principles and how they can be applied to the brewing process. These principles will then be applied in the practice of basic engineering scale-up with emphasis on larger scale brewing equipment and processes.

HOSP 7170 BEER DISTRIBUTION SYSTEMS (3) LEC. 3. Brewery supply chain management in the context of suppliers, distributors, retailers, and customers. Focus on components of production/packaging, impact of supply chain disruption, distribution pathways, and the three-tier system.

HOSP 7180 QUALITY MANAGEMENT AND BREWING ANALYTICS (3) LEC. 3. Quality Management and Brewing Analytics examines the establishment of quality management programs in the brewery and the various sensory and analytical approaches to assessing overall beer quality.

HOSP 7500 GLOBAL HOSPITALITY STRATEGY (3) LEC. 3. Departmental approval. The course addresses the strategic issues and unique challenges encountered by international hospitality endeavors.

HOSP 7750 ADVANCED LODGING MANAGEMENT (3) LEC. 3. LAB. 0, LEC. 0. A high-level examination of the main elements involved in the successful management of a lodging business including rooms division, food and beverage, sales and marketing, revenue management, accounting, housekeeping, and engineering maintenance. The course provides students with relevant research addressing the latest trends affecting the operations of the lodging business.

HOSP 7910 PRACTICUM IN BREWING SCIENCE (3) DSL/PRA. SU. Application of principles and theories of brewing in an industry setting.

HOSP 7920 PROFESSIONAL INTERNSHIP IN HOSPITALITY MANAGEMENT (1-3) INT. SU. Departmental approval. Application and analysis of principles and theories of hospitality in a professional hospitality setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 3 credit hours.

HOSP 7960 SPECIAL PROBLEMS (1-3) DSL/IND. An independent research experience under the supervision of a faculty member from the Hospitality Management Program to allow pursuit of specific interests in hospitality and tourism usually not covered in other course offerings. Graduate standing. Course may be repeated for a maximum of 6 credit hours.

HOSP 7980 NON-THESIS RESEARCH (1-4) RES. 1-4. Individual masters research. May be repeated for credit. Course may be repeated with change in topics. No more than six hours may be counted toward meeting degree requirements. Must be a HOSP major. Course may be repeated for a maximum of 6 credit hours.

HOSP 7990 RESEARCH AND THESIS (1-4) RES. 1-4. Individual masters research. May be repeated for credit. Course may be repeated with change in topics. No more than four hours may be counted toward meeting degree requirements. Must be a HOSP major.

HOSP 8020 NEW FACULTY DEVELOPMENT IN HOSPITALITY (2) SEM. 2. SU. The course aims to engage graduate students in a discussion about the normative graduate education experience, faculty expectations on productivity around this experience, career preparation and placement, and navigating the promotion and tenure process. Must be a HOSP Graduate student or have Departmental Approval.

HOSP 8860 CURRENT ISSUES IN HOSPITALITY MANAGEMENT (3) LEC. 3. Analysis of current issues in the hospitality industry with emphasis on management.

HOSP 8870 ADVANCED HOSPITALITY MANAGEMENT RESEARCH AND APPLICATIONS (3) LEC. 3. Comprehensive review of the academic research process in the context of hospitality management.

HOSP 8880 THEORETICAL DEVELOPMENTS FOR HOSPITALITY (3) LEC. 3. The nature of hospitality theory and its development.

HOSP 8910 SUPERVISED TEACHING (1) IND. 1. Individual teaching experience under the supervision of a faculty member in hospitality management. Exploration of a variety of instructional methods and active learning strategies as well as related educational issues, such as grading, classroom management, and student motivation.

HOSP 8970 GRANTSMANSHIP FOR HOSPITALITY AND TOURISM RESEARCH (3) LEC. 3. This course will provide students with the necessary skills to develop a competitive grant proposal. It will also cover information about grants development, including identifying various funding resources, writing a request for funding letter, planning a budget, evaluating the quality of a proposal, developing collaborations, and implementing strategies for research. NDHM graduate students or Departmental Approval.

HOSP 8990 RESEARCH AND DISSERTATION (1-10) DSR. 1-10. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics. Must be HOSP major.

Human Development & Family Science - HDFS

Courses

HDFS 1800 FUNDAMENTALS IN HDFS: BUILDING PROFESSIONAL SKILLS FOR CAREER GROWTH AND EXPLORATION (2) LEC. 2. Introduction to HDFS as a profession, career pathways, ePortfolio development, and foundational professional writing skills.

HDFS 1810 INTRODUCTION TO THE FIELD OF CHILD LIFE (1) LEC. 1. Students will be introduced to the field of child life, including but not limited to the realities of child life, clinical requirements for certification, document preparation, alternative contexts for child life, and general child life skills.

HDFS 2000 MARRIAGE AND FAMILY IN A GLOBAL CONTEXT (3) LEC. 3. Examination of marriage and family systems, including their interface with the broader socio-cultural context.

HDFS 2010 LIFESPAN HUMAN DEVELOPMENT IN FAMILY CONTEXT (3) LEC. 3. This course examines human development from prenatal life through late adulthood, emphasizing biological, cognitive, and psychosocial processes, theory, and research methods.

HDFS 2020 RESEARCH METHODS FOR DEVELOPMENTAL AND FAMILY SCIENCE (3) LEC. 3. The focus of this course is on the methods used to conduct research in human developmental and family sciences.

HDFS 2030 APPLIED PROFESSIONAL SKILLS IN HDFS (2) LEC. 2. Pr. P/C HDFS 1800. Development and application of professional skills essential for careers in Human Development and Family Science (HDFS). Emphasis on communication, ethical decision-making, leadership, teamwork, and professional development. Includes practical experiences, career planning, and strategies for success in various professional settings.

HDFS 2040 ANALYTICS FOR THE SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. (MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617). Introduction to basic data analysis (by Excel) used in social and behavioral science research, including descriptive and inferential techniques and elements of research design.

HDFS 2050 ISSUES AND TRENDS IN EARLY CHILD DEVELOPMENT (3) LEC. 3. This course will examine the history of the field of early care and education, specifically in regard to young children. Theorists such as Montessori, Dewey, Piaget and Vygotsky will be discussed. Modern approaches such as Reggio Emilia, High Scope, Forest Schools and Open Schools will be examined. Students will learn about laws pertaining to young children as well as avenues for advocacy. Emphasis will be placed on the importance of building family and community relationships as well as becoming a professional in the early childhood field.

HDFS 2100 THE SCIENCE OF HUMAN CONNECTIONS (3) LEC. 3. From childhood bonds to lifelong partnerships, this course delves into the science of relationships and family dynamics through a developmental and theoretical lens.

HDFS 2200 MENTAL HEALTH AWARENESS (3) LEC. This course will improve students' mental health literacy, help students be able to better and more quickly respond to their own and their social networks' mental health concerns, and identify resources across local, regional, and national domains. It is designed to provide introductory knowledge of mental health issues and their effects on systems (e.g. family, educational, judicial), learn about the sociocultural history of mental health.

HDFS 3010 CHILD DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA. Social, emotional, cognitive, language, and physical development from conception to adolescence, with a special focus on development within the family and other sociocultural contexts.

HDFS 3030 ADOLESCENT DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA. HDFS 2010 or HDFS 2013. Analysis of adolescent development with emphasis on family context and developmental outcomes employing an ecological framework. Prerequisites: 2.25 GPA. HDFS 2010

HDFS 3040 HUMAN SEXUALITY (3) LEC. 3. Pr. HDFS 2000 or (SOCY 1000 or SOCY 1007) or (PSYC 2010 or PSYC 2017). This course examines the multifaceted dimensions of human sexual development, familial dynamics, and societal influences that shape our understanding of sexuality from infancy to late adulthood.

HDFS 3050 ADULT DEVELOPMENT AND AGING (3) LEC. 3. Exploration of the transformations in physical, cognitive, social and emotional functioning in adulthood, with an emphasis on the second half of this period of life.

HDFS 3060 PATTERNS OF FAMILY INTERACTION (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000 or HDFS 2003. Examination of family process and interaction, emphasizing major conceptual frameworks of family development.

HDFS 3080 DEVELOPMENT OF INTERPERSONAL RELATIONSHIPS (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000 or HDFS 2003. This course will focus on the development of social competence and interpersonal relationships. We will cover models of socialization in the family, peer experiences and relationships from childhood through early adulthood, behaviors associated with social acceptance and rejection, emotional and social-cognitive underpinnings of social competence, and supportive communication through the lifespan.

HDFS 3110 INFANT AND TODDLER DEVELOPMENT (3) LEC. 3. Pr. P/C HDFS 2010 or P/C HDFS 2013. Infant and toddler development from pre-birth through 36 months, with a focus on theory, research, and practice.

HDFS 3130 PEER RELATIONSHIPS IN CHILDHOOD AND SOCIAL SKILLS TRAINING (3) LEC. 2. LAB. 3. Departmental approval. This class will focus on theory and research on peer relationships. Students will be able to use the theory and research to work directly with children to improve their conduct and social skills. Students will discuss assigned, primary source readings and work in teams with a small group of elementary school children to improve the children's social understanding and behavior. This course includes field experience.

HDFS 3460 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN (3) LEC. 3. Pr. P/C HDFS 3010. Coreq. HDFS 3461. This course uses previously gained child development knowledge and applies it to teacher-child relationships and interactions with young children. Students will learn to take their knowledge of child development and apply it in a preschool classroom at the Auburn University Early Learning Center.

HDFS 3461 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN LAB (1) LAB. 3. Pr. P/C HDFS 3010. Coreq. HDFS 3460. Laboratory Class for HDFS 3460

HDFS 3470 LEARNING EXPERIENCES FOR YOUNG CHILDREN (3) LEC. 3, FLD/LEC. 1. Pr. HDFS 3460. Coreq. HDFS 3471. Child development knowledge applied to preschool curriculum planning.

HDFS 3471 LEARNING EXPERIENCES FOR YOUNG CHILDREN LAB (1) LAB. 3. Pr. HDFS 3010 and HDFS 3460 and HDFS 3461. Coreq. HDFS 3470. Laboratory Class for HDFS 3470

HDFS 3500 HOSPITALIZED CHILDREN AND THEIR FAMILIES (3) LEC. 3. Pr. P/C HDFS 3010. Sophomore standing in HDFS major or a major in a related field. Theories and research about children and their families in hospital settings. Course is taught by Certified Child Life Specialist through a child life lens.

HDFS 3510 THERAPEUTIC PLAY (3) LEC. 3. Pr. P/C HDFS 3010. Theories and research on play, play's use in many contexts, and the many therapeutic qualities of play will be discussed. Course is taught by Certified Child Life Specialist through a child life lens.

HDFS 3520 CLINICAL INTRODUCTION FOR CHILD LIFE (3) LEC. 3. LAB. 0, SEM. 0. Application of child life clinical skills and preparation for Association of Child Life Professionals (ACLP) internship. Course is taught by Certified Child Life Specialist through a child life lens. Junior standing in HDFS - Child Life major.

HDFS 3700 FAMILY LIFE EDUCATION (3) LEC. 3. Learning how to help families build knowledge and skills, focusing on their strengths to function at their optimal levels. Exploring how to help create strong, healthy families.

HDFS 3910 PRACTICUM (1-6) PRA. SU. Pr., Departmental approval. Directed experience in a professional setting. A) Human Development; B) Family Studies; C) Marriage and Family Therapy. Course may be repeated for a maximum of 6 credit hours.

HDFS 3930 SERVICE LEARNING IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-6) AAB/LEC. Application of HDFS-relevant knowledge to real-life situations through active participation in a directed community service experience. A.) Auburn University Early Learning Center; B.) Harris Early Learning Center of Birmingham; C.) Other Community Placements. Course may be repeated for a maximum of 6 credit hours.

HDFS 3940 CHILD LIFE PRACTICUM (3) PRA. Pr. P/C HDFS 4500. Directed experience in a healthcare setting under the supervision of a certified child life specialist. Application and Interview process required. Departmental approval required.

HDFS 3980 UNDERGRADUATE RESEARCH AND STUDY (1-5) AAB/LEC. SU. Directed research under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

HDFS 4380 STUDY AND TRAVEL IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (2-12) AAB/FLD. Pr. CADS 2000 or NTRI 2000 or HDFS 2100 or HOSP 2000. Departmental approval. Provide students with opportunities to reach beyond the classroom to study topics relevant to human development and family science abroad. Course may be repeated for a maximum of 12 credit hours.

HDFS 4470 ADVANCED LEARNING EXPERIENCES FOR YOUNG CHILDREN (3) LEC. 3, FLD/LEC. 1. Pr. HDFS 3010 and HDFS 3460 and HDFS 3470 and HDFS 3461 and HDFS 3471. Coreq. HDFS 4471. This course uses previously gained knowledge about child development and teacher-child relationships and interactions with young children to create playful learning environments and activities for young children and their families in a preschool classroom at the Auburn University Early Learning Center and Early Head Start.

HDFS 4471 ADVANCED LEARNING EXPERIENCES FOR YOUNG CHILDREN LAB (1) LAB. 4. Pr. HDFS 3010 and HDFS 3460 and HDFS 3470 and HDFS 3461 and HDFS 3471. Coreq. HDFS 4470. Laboratory course for HDFS 4470. Child development knowledge applied to preschool curriculum planning with 6 hours a week of supervised participation at Auburn University Early Learning Center.

HDFS 4520 DYING, DEATH AND BEREAVEMENT (3) LEC. 3. In this course students will explore the multidimensional aspects of dying, death, and bereavement from various perspectives, encompassing psychological, sociological, cultural, and ethical dimensions. This course is based on the premise that death education helps one to live more fully and serve others in a more meaningful way.

HDFS 4640 SYSTEMS OF CARE FOR INDIVIDUALS WITH DISABILITIES ACROSS THE LIFESPAN (3) LEC. 3. Pr. HDFS 2010 or PSYC 3120. This course examines disability and systems of care across the lifespan, with a focus on the impact of disability and services on individuals and families.

HDFS 4660 RESOURCE MANAGEMENT FOR INDIVIDUALS, COUPLES, AND FAMILIES (3) LEC. 3. An understanding of the decisions individuals and families make about developing and allocating resources.

HDFS 4670 PARENT EDUCATION (3) LEC. 3. Pr. HDFS 3010 or HDFS 3030 or HDFS 3050. The purpose of this course is to prepare you to work with parents and caregivers using theory and research-based knowledge of parent-child relationships. This will be accomplished through a variety of lectures, presentations, individual research papers, and group projects. Although completing this course will not make you a "Parent educator", this course will provide you with a basis for further development of parent education knowledge and skills.

HDFS 4680 FAMILY IN CROSS-CULTURAL PERSPECTIVE (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000 or HDFS 2003. Examination of family function and family systems across diverse cultural groups.

HDFS 4700 GENDER ROLES AND CLOSE RELATIONSHIPS (3) LEC. 3. Pr. HDFS 2000 or SOCY 1000 or SOCY 1007 or PSYC 2010 or PSYC 2017 or COUN 2000. This course explores gender, gender roles, gender identity and the intersections of gender, gender roles, and gender identity with race, ethnicity, privilege, culture, and class.

HDFS 4910 PROFESSIONAL DEVELOPMENT II AND CAPSTONE (2) LEC. 2. Pr. HDFS 1800 and HDFS 2030 and P/C HDFS 2040. Professional Development aimed at student preparation for graduate school and career. The cumulation of the professional development courses requires an in-depth examination and advanced design of the professional, outward-facing ePortfolio.

HDFS 4920 INTERNSHIP IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (12) AAB/INT. Pr. HDFS 4910. HDFS major with current background check, all required coursework for the major complete, a grade of C or better in all HDFS major core classes at the 3000-level or higher, and an overall minimum GPA of 2.25. Internship applications must be submitted 2 semesters in advance. A computer and internet access is required.

HDFS 4930 INTERNSHIP IN CHILD LIFE (12) INT. Pr. HDFS 4910. Departmental approval. HDFS major with current background check, all required coursework for the major complete, a grade of C or better in all child life option core classes at the 3000-level or higher, and an overall minimum GPA of 3.0. Students who enroll in this course must complete their internship under the supervision of a certified child life specialist. Internship applications must be submitted 2 semesters in advance. A computer and internet access are required.

HDFS 4940 INTERNSHIP IN EARLY CHILD DEVELOPMENT TOWARD CERTIFICATION (12) INT. Departmental approval. Pr. HDFS 3460 and HDFS 3470 and HDFS 4470 and HDFS 4910. Intensive capstone teaching experience of at least 450 hours. HDFS major with all required coursework for the major complete, a grade of C or better in all Early Child Development option core classes at the 3000-level or higher, ALSDE background check, and an overall minimum GPA of 2.75. Students who enroll in this course will complete requirements for Ed TPA. Internship applications must be submitted 2 semesters in advance. A computer and internet access are required.

HDFS 4950 ADVANCED SEMINAR (3) LEC. 3. Pr., Departmental approval. Topical seminar in HDFS. A) Advanced Research B) Child Development; C) Family Studies; D) Marriage and Family Therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 4960 SPECIAL PROBLEMS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-3) IND. SU. Supervised readings in one or more topical areas. Course may be repeated for a maximum of 3 credit hours.

HDFS 4980 ADVANCED UNDERGRADUATE RESEARCH IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-5) IND. Pr., Departmental approval. Junior standing. Conduct research under the direction of a human development and family studies faculty member on a topic of mutual interest. Course may be repeated for a maximum of 5 credit hours.

HDFS 4997 HONORS THESIS (2-6) IND. SU. Pr. Honors College. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

HDFS 5200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Junior standing. Application of research to the development and evaluation of programming for children and families.

HDFS 5300 HDFS AND SOCIAL POLICY (3) LEC. 3. Junior standing. Examination and critique of social policies from a family perspective.

HDFS 5400 PROGRAM DESIGN FOR COMMUNITIES, SCHOOLS, AND FAMILIES (3) SEM. 3. Program design for schools, communities, and families is a course designed to help students learn about program design approaches used to improve the lives of people. Students will learn the basics of the program planning process, the complexity of assessing need, evaluation, and program implementation to targeted populations of people.

HDFS 5930 SOCIETY AND HEALTH (3) LEC. 3. This course provides an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HDFS 5930 or HUSC 5930.

HDFS 5950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) SEM. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs.

HDFS 5970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Pr., Junior standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 6200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Graduate standing. Application of research to the development and evaluation of programming for children and families.

HDFS 6300 HDFS AND SOCIAL POLICY (3) LEC. 3. Graduate standing. Examination and critique of social from a family perspective.

HDFS 6400 PROGRAM DESIGN FOR COMMUNITIES, SCHOOLS, AND FAMILIES (3) SEM. 3. Program design for communities, schools, and families is a course designed to teach the basics of the program planning process, the complexity of assessing need, program evaluation, and program delivery to targeted populations of people.

HDFS 6930 SOCIETY AND HEALTH (3) LEC. 3. This course provide an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HDFS 6930 or HUSC 6930.

HDFS 6950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) LEC. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs.

HDFS 6970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Pr., Graduate standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 7010 CHILD AND ADOLESCENT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical examination of research on development from birth through adolescence.

HDFS 7020 ADULT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical evaluation of research on development in the adult and aging periods of the life cycle.

HDFS 7030 LIFESPAN DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical examination of research on human development from infancy through adulthood.

HDFS 7040 FAMILY PROCESSES (3) LEC. 3. An orientation to family theories and their role in contemporary studies of family processes.

HDFS 7050 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Pr., Departmental approval. Survey of principles and methods for studying individuals, dyadic relationships and families.

HDFS 7060 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY SCIENCE II (3) LEC. 3. Pr. HDFS 7050. Pr., Departmental approval. Survey of principles and advanced methods for studying individuals, dyadic relationships, and families.

HDFS 7070 RESEARCH LITERACY IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (3) LEC. 3. Research literacy course informs students' as research consumers to identify, understand, discuss, and evaluate different types of research methods and statistical analyses, to communicate the findings of such research to others, and to use findings of quality research to impact future academic research and professional policy and practice.

HDFS 7100 PSYCHOSOCIAL CARE OF MEDICALLY AND EMOTIONALLY VULNERABLE CHILDREN (3) LEC. 3. Departmental approval. Child development theories, the impact of hospitalization on children and families, the impacts of trauma on development and coping, and common child life interventions are explored.

HDFS 7110 PLAY AND THERAPEUTIC INTERVENTIONS IN CHILD LIFE (3) LEC. 3. Child development theory, play theory, adaptive play, and therapeutic interventions are explored in the context of helping children cope with stressors such as hospitalization, bereavement, and trauma. Undergraduate degree in child life, child development, human development and family studies, or another related field.

HDFS 7120 INTRODUCTION TO CAPSTONE FOR ADVANCED STANDING CHILD LIFE STUDENTS (3) LEC. This course will prepare students to complete their capstone project, which will be completed during their last semester of graduate school. This course will focus on peer-to-peer learning, supervision of undergraduate and graduate learners, and community applications for child life programming. Specifically, clinical conversation among peers will be a core focus of the course.

HDFS 7130 CHILD LIFE PROGRAM DEVELOPMENT AND EVALUATION (3) LEC. 3. Methods of creating and implementing Child Life programs; documenting and assessing program activities; and supervising child life students and professionals will be discussed. Department Approval.

HDFS 7140 DEATH, DYING AND BEREAVEMENT FOR CHILD LIFE SPECIALISTS (3) LEC. 3. LAB. 0. Pr. HDFS 7100. Exploring children's understanding of death, and the child life specialist's role in caring for the bereaved family.

HDFS 7600 MARRIAGE AND FAMILY THERAPY THEORY I (3) LEC. 3. Pr., Departmental approval. Overview of theoretical and historical foundations, classic and contemporary therapy models, and integrative frameworks for marriage and family therapy.

HDFS 7601 MARRIAGE AND FAMILY THERAPY THEORY LABORATORY I (1) LAB. 3. Pr., Departmental approval. Basic clinical skills and self-of-the-therapist issues.

HDFS 7610 MARRIAGE AND FAMILY THERAPY THEORY II (3) LEC. 3. Pr., Departmental approval. Current theory and conceptual issues in the practice of marriage and family therapy.

HDFS 7620 MARRIAGE AND FAMILY THERAPY CLINICAL ISSUES I: FAMILY SYSTEMS (3) LEC. 3. Pr., Departmental approval. Advanced study of conceptual models and clinical approaches utilized in treating family systems.

HDFS 7621 MARRIAGE AND FAMILY THERAPY LABORATORY II (1) LAB. 1. Coreq. HDFS 7620. Pr., Departmental approval. Application of clinical models in a supervised setting.

HDFS 7630 MARRIAGE AND FAMILY THERAPY CLINICAL ISSUES II: INDIVIDUALS (3) LEC. 3. Pr., Departmental approval. Assessment and treatment of children, adolescents, adults, and sexuality issues from a systemic perspective.

HDFS 7631 MARRIAGE AND FAMILY THERAPY LABORATORY III (1) LAB. 3. Coreq. HDFS 7630. Departmental approval. Application of clinical skills with families, couples and individuals.

HDFS 7640 MARRIAGE AND FAMILY THERAPY CLINICAL ISSUES III: COUPLES (3) LEC. 3. Pr., Departmental approval. Conceptual, assessment and clinical approaches utilized in treating couples.

HDFS 7650 MARRIAGE AND FAMILY THERAPY PROFESSIONAL ISSUES (3) LEC. 3. Pr., Departmental approval. Professional, ethical, and legal issues associated with the practice of marriage and family therapy.

HDFS 7660 SYSTEMIC IMPACT OF ILLNESS, MEDFT, & PSYCHOPHARMACOLOGY (3) LEC. 3. Three components related to the practice of marriage and family therapy in healthcare settings: 1.) Systemic Impact and Treatment of Illness, (2) Treatment in Collaborative Health Care teams, and (3) Psychopharmacology.

HDFS 7670 INDIVIDUAL, COUPLE, AND FAMILY DYNAMICS OF ADDICTION, RECOVERY, AND TREATMENT (3) LEC. 3. An overview of the scope of the dynamics of addiction treatment and recovery in individuals, couples, and families. This course focuses on both substance use disorders and process addictions and will deal directly with preferred treatments of these issues in individual and systemic therapy.

HDFS 7680 SYSTEMIC ASSESSMENT, DIAGNOSIS, & TREATMENT OF PSYCHOPATHOLOGY (3) LEC. 3. This course will examine current research, theory, and clinical best practices for assessing and diagnosing psychopathology in the context of individual, couple, and family therapy.

HDFS 7850 GRADUATE CHILD LIFE PRACTICUM (3) PR1. 9. Pr. P/C HDFS 7100. Supervised clinical experience under the supervision of a Certified Child Life Specialist.

HDFS 7900 DIRECTED STUDIES (1-3) AAB/IND. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage & Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7910 PRACTICUM (1-9) AAB/PRA. SU. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy; G) Teaching. Course may be repeated for a maximum of 9 credit hours.

HDFS 7920 MARRIAGE AND FAMILY THERAPY INTERNSHIP (3) INT. Pr., Departmental approval. Clinical practice of marriage and family therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7930 SEMINAR IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-3) SEM. Pr., Departmental approval. A) Infancy/Childhood; B) Adolescence/Young Adulthood; C) Adulthood/Aging; D) Family as a Microsystem; E) Family and Mesosystem; F) Family in the Macrosystem; G) Child and Family Program Planning and Evaluation. Course may be repeated for a maximum of 16 credit hours.

HDFS 7940 DIRECTED FIELD EXPERIENCE (1-9) AAB/FLD. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7950 INTERNSHIP IN CHILD LIFE (12) INT. 3. Pr. HDFS 7010 and HDFS 7040 and HDFS 7070 and HDFS 7100 and HDFS 7110 and HDFS 7130 and HDFS 7140 and HDFS 7850. Supervised on-the-job experiences, along with rigorous evaluations of student's work.

HDFS 7970 SPECIAL TOPICS IN HDFS (1-4) LEC. 1-4. Students will learn about key issues in sleep research, especially with those related to family functioning and social/emotional, behavioral, and physical health. Students will have assigned readings to prepare them for discussions during the lectures. Course may be repeated for a maximum of 18 credit hours.

HDFS 7990 RESEARCH AND THESIS (1-10) AAB/MST.

HDFS 8010 RELATIONSHIP DEVELOPMENT AND PROCESS IN CHILDHOOD AND ADOLESCENCE (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in childhood adolescence.

HDFS 8020 RELATIONSHIP DEVELOPMENT AND PROCESS IN ADULTHOOD (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in adulthood and aging.

HDFS 8040 LONGITUDINAL DATA ANALYSIS (3) LEC. 3. Pr. HDFS 7060. This class addresses many of the ways longitudinal data can be modeled statistically from both multilevel and structural equation modeling frameworks. This class will cover the theoretical and mathematical concepts underlying longitudinal data analysis with a primary focus on application.

HDFS 8050 ADVANCED RESEARCH METHODS: COVARIANCE STRUCTURE ANALYSIS (3) LEC. 3. Pr. HDFS 7060. In-depth examination of research methods, designs, and data analytic strategies commonly used in child and family research.

HDFS 8060 MULTILEVEL MODELING (3) LEC. 3. Pr. HDFS 7060. In depth examination of multilevel modeling as an analytic strategy for research in nested data structures.

HDFS 8070 MEDIATION AND MODERATION ANALYSIS (3) LEC. 3. Pr. HDFS 7060. Methods for evaluating mediation and moderation hypotheses by addressing both study designs and statistical analyses.

HDFS 8080 MIXTURE MODELING (3) SEM. Pr. HDFS 7060. Methodological advances in latent variable analysis have provided promising avenues for researchers interested in answering questions about latent (unobserved) classes and profiles. These two analytic techniques will be the focus of this course.

HDFS 8090 QUALITATIVE METHODS IN THE SOCIAL SCIENCES (3) LEC. 3. This course prepares graduate students to conduct and evaluate qualitative research in social science disciplines.

HDFS 8970 ADVANCED SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY SCIENCE (1-3) LEC. Departmental approval. Study of advanced topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 8990 RESEARCH AND DISSERTATION (1-10) DSR.

Human Resource Management - HRMN

Courses

HRMN 3420 HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Management of human resources dealing with selection, training, placement, appraisal, compensation, and employee representation.

HRMN 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. Departmental approval. Approval by departmental intern program committee and minimum 2.50 GPA. Course may be repeated for a maximum of 6 credit hours.

HRMN 4970 SPECIAL TOPICS IN HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Pr. MNGT 3100. This course covers current and emerging topics related to human resource management. Course may be repeated for a maximum of 6 credit hours.

HRMN 5430 LABOR RELATIONS (3) LEC. 3. General survey of the development of collective bargaining, major provisions of labor law, and bargaining issues of craft and industrial unions.

HRMN 5460 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 5470 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Modern compensation systems, strategic planning, wage and salary management, benefits administration and pay incentive development.

HRMN 5510 HUMAN RESOURCE PLANNING, DEVELOPMENT, AND APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice and design of managerial systems in these functions.

HRMN 5540 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or BUAL 2603 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3600 or STAT 3610). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 5900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 5960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 6460 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 6470 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Study of the theory, procedures, techniques, and practices used to administer modern organization compensation systems.

HRMN 6510 HR PLANNING DEV & APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice, and design of managerial systems and these functions.

HRMN 6540 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 6900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

HRMN 6960 SPECIAL PROBLEMS (3) IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

Human Sciences, General - HUSC

Courses

HUSC 1010 INTRODUCTION TO HUMAN SCIENCES (2) LEC. 2. An introduction course to provide an understanding of the discipline of Human Sciences, history, and career opportunities.

HUSC 1940 STUDY AND TRAVEL IN HUMAN SCIENCES: PRE-DEPARTURE (0) LEC. .5. Department approval. Pre-departure training for College of Human Sciences Study Abroad programs. Course may be repeated for a maximum of 1 credit hours.

HUSC 2000 HUNGER: CAUSES, CONSEQUENCES, AND RESPONSES (3) LEC. 3. Examine hunger as a complex issue of sustainable human development. Topics include causes and consequences of domestic and global hunger and potential solutions. Credit will not be given for both HUSC 2000 and HUSC 2007.

HUSC 2007 HONORS HUNGER: CAUSES, CONSEQUENCES, AND RESPONSES (3) LEC. 3. Pr. Honors College. Examine hunger as a complex issue of sustainable human development. Topics include causes and consequences of domestic and global hunger and potential solutions. Credit will not be given for both HUSC 2000 and HUSC 2007.

HUSC 2500 LIFE DESIGN & DEVELOPMENT (3) LEC. 3. LAB. 0, LEC. 0. Examine how design thinking can help create a life that is both meaningful and fulfilling, regardless of who or where you are. Students will be able to apply design thinking mindsets to themselves, their community, and the world around them.

HUSC 2940 STUDY ABROAD IN HUMAN SCIENCES (1-6) AAB. Departmental approval. This course introduces incoming students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required.

HUSC 3380 CHS AT AU IN ITALY (2) LEC. 2. Pr. HUSC 1940. Orientation, team building and post-program reflection for students participating in the Joseph S. Bruno Auburn Abroad program in Ariccia, Italy. 2.25 GPA, 19 or older and admission to the JSBAII program required. Department approval.

HUSC 3970 SPECIAL TOPICS IN HUMAN SCIENCES (1-3) LEC. 1-3. Special Topics in Human Sciences Course may be repeated for a maximum of 6 credit hours.

HUSC 4000 HUNGER STUDIES CAPSTONE (3) LEC. 3. Pr. HUSC 2000 or HUSC 2003 or HUSC 2007. Examination of global and domestic hunger issues from multidisciplinary perspectives.

HUSC 4010 CHS AT AU IN ITALY: INTEGRATED GLOBAL STUDIES (6) LEC. 6. Pr. HUSC 3380. Departmental approval. Coreq. HUSC 3380 and HUSC 4380 and HUSC 4940. Multi-faceted cultural experience focused on individuals/families in the context of history and Italian culture. 2.25 GPA, 19 or older and admission to the JSBAII program.

HUSC 4017 HONORS CHS AT AU IN ITALY: INTEGRATED GLOBAL STUDIES (6) LEC. 6. Pr. Honors College. HUSC 3380. Departmental approval. Coreq. HUSC 3380 and HUSC 4380 and HUSC 4940. Multi-faceted cultural experience focused on individuals/families in the context of history and Italian culture. 2.25 GPA, 19 or older and admission to the JSBAII program.

HUSC 4380 CHS AT AU IN ITALY: STUDY AND TRAVEL (2) AAB/FLD. 2. Pr. HUSC 3380. Coreq. HUSC 4940 and HUSC 4010 and HUSC 3380. Broaden world views, increase cultural awareness, and demonstrate an ability to function globally or in a global environment through the Auburn Abroad in Italy program. 2.25 GPA required. Students must be 19 or older and accepted into the JSBAII program.

HUSC 4387 HONORS CHS AT AU IN ITALY: STUDY AND TRAVEL (2) AAB/FLD. 2. Pr. Honors College. HUSC 3380. Coreq. HUSC 4010 and HUSC 3380 and HUSC 4940. Broaden world views, increase cultural awareness, and demonstrate an ability to function globally or in a global environment through the Auburn Abroad in Italy program. 2.25 GPA required. Students must be 19 or older and accepted into the JSBAII program.

HUSC 4480 GLOBAL STUDY TRAVEL IN HUMAN SCIENCES (1-12) AAB. Sophomore/Junior/Senior Standing or Departmental approval application required. Student international study travel to study topics relevant to human sciences and quality of life issues. Course may be repeated for a maximum of 12 credit hours.

HUSC 4940 CHS AT AU IN ITALY: DIRECTED FIELD EXPERIENCES (6) AAB/FLD. 6. Pr. HUSC 3380. Coreq. HUSC 4380 and HUSC 3380 and HUSC 4010. Supplemental lectures for HUSC 4010 provided through field trips and participation in Italian culture experiences. 2.25 GPA required. Student must be 19 years old or older and admitted to the JSBAII program.

HUSC 4947 HONORS CHS AT AU IN ITALY: DIRECTED FIELD EXPERIENCES (6) AAB/FLD. 6. Pr. Honors College. HUSC 3380. Coreq. HUSC 4010 and HUSC 3380 and HUSC 4380. Supplemental lectures for HUSC 4010 provided through field trips and participation in Italian culture experiences. 2.25 GPA required. Student must be 19 years old or older and admitted to the JSBAII program.

HUSC 4980 UNDERGRADUATE RESEARCH IN HUMAN SCIENCES (1-3) LAB. 1-3, RES. 1-3. Undergraduate research in the human sciences Course may be repeated for a maximum of 6 credit hours.

HUSC 5930 SOCIETY AND HEALTH (3) LEC. 45. This course provide an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HUSC 5930 or HDFS 5930.

HUSC 5940 STUDY AND TRAVEL IN HUMAN SCIENCES (1-12) AAB/LEC. Pr. 2.25 GPA. Provide students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required; additional requirements may apply. Course may be repeated for a maximum of 12 credit hours.

HUSC 5950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) LEC. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs. May count either HUSC 5950 or HDFS 5950.

HUSC 6930 SOCIETY AND HEALTH (3) LEC. 45. This course provides an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities. May count either HUSC 6930 or HDFS 6930.

HUSC 6940 STUDY AND TRAVEL IN HUMAN SCIENCES (1-6) AAB/LEC. Provide students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required; additional requirements may apply. Course may be repeated for a maximum of 6 credit hours.

HUSC 6950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (3) SEM. 3. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs. May count either HUSC 6950 or HDFS 6950.

HUSC 7910 CHS STUDY ABROAD PROGRAM ADMINISTRATION PRACTICUM (1-6) AAB/PRA. 1-6. SU. Departmental approval. Graduate status and acceptance as a GTA for a CHS Study Abroad Program. Directed practical experience administering an undergraduate study abroad program. 2.25 GPA required. Students must be 19 or older.

Industrial & Systems Engineering - INSY

Courses

INSY 3010 PROGRAMMING AND DATABASE APPLICATIONS FOR ISE (3) LEC. 3. Pr. COMP 1200 or COMP 1220 or COMP 1230. Programming and database applications for ISE students. Focus is on algorithm development as related to optimization, probability, statistics, and data analysis.

INSY 3017 HONORS PROGRAMMING AND DATABASE APPLICATIONS FOR ISE (3) LEC. 3. Pr. COMP 1200 or COMP 1220 or COMP 1230. Programming and database applications for ISE students. Focus is on algorithm development as related to optimization, probability, statistics, and data analysis.

INSY 3020 OCCUPATIONAL SAFETY ERGONOMICS (3) LEC. 3. Basic principles of occupational safety engineering and ergonomics in the evaluation and design of occupation work areas and processes that include human operators.

INSY 3021 METHODS ENGINEERING AND WORK MEASUREMENT (3) LEC. 2. LAB. 2.5. Develops the student's ability to design workplaces and methods while providing an understanding of the work measurements process. Enables students to generate much of the basic methods data utilized in most industrial engineering projects.

INSY 3030 MANUFACTURING PROCESSES AND CAD (3) LEC. 2. LAB. 2.5. Pr. (COMP 1200 or COMP 1210 or COMP 1217 or COMP 1220 or COMP 3000) and (ENGR 1110 or ENGR 1113). Use of computer technology to aid engineering design in industrial applications, e.g. represent and modify mechanical parts, diagrams, schematics, tools, equipment, office and plant layouts, etc. This course aims to provide students with all the necessary understanding of typical part design and fabrication processes.

INSY 3400 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 2660 or MATH 2667) and STAT 3600. with a grade of C or better in STAT 3600. Modeling and analysis of decision-making and operations subject to randomness including decision analysis, stochastic dynamic programming, Markov chains, and queuing theory.

INSY 3410 DETERMINISTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and MATH 2660 and P/C INSY 3010. Formulation, solution, interpretation, and implementation of mathematical models in operations research including linear programming, integer programming and network flows.

INSY 3420 SIMULATION (3) LEC. 2. LAB. 3. Pr. INSY 3400 and (COMP 3010 or COMP 3013 or INSY 3010) and STAT 3610. with a grade of C or better in INSY 3400. Simulation procedures for solving complex systems analysis problems. Emphasis on random processes, model building and construction of computer simulation models.

INSY 3600 ENGINEERING ECONOMY (3) LEC. 3. Pr. ENGR 1110 or ENGR 1113. Principles required in engineering economic studies. Junior or Senior standing.

INSY 3607 HONORS ENGINEERING ECONOMY (3) LEC. 3. Pr. Honors College. ENGR 1110 or ENGR 1113. Principles required in engineering economic studies.

INSY 3700 OPERATIONS PLANNING AND CONTROL (3) LEC. 3. Pr. INSY 3400 and INSY 3410 and STAT 3610. with a grade of C or better in both INSY 3400 and INSY 3410. Analytical methods for operations planning and control, including forecasting systems, production planning, inventory control systems, scheduling systems, and project management.

INSY 3800 MANUFACTURING SYSTEMS I (3) LEC. 2. LAB. 3. Introduction to the design, analysis, and operation of manufacturing systems, the first course in a required two-course sequence including Manufacturing Systems II. Departmental approval required for non-INSY majors.

INSY 4330 STATISTICAL QUALITY DESIGN AND CONTROL (3) LEC. 3. Pr. STAT 3610. Statistical process control and methods for quality improvement. Acceptance sampling for attributes and for variables.

INSY 4500 PROFESSIONAL PRACTICE (1) LEC. 1. Pr. P/C INSY 3700. Discussion and activities in current problems, the global context of, professional practice, professional opportunities and lifelong learning in Industrial and Systems Engineering. Senior standing in INSY.

INSY 4610 INTERNATIONAL ENGINEERING PROJECT (3) LEC. 3. This course provides students with a real-life work experience in solving engineering-business problems through teamwork in an international setting. At the course end, students present their project to faculty and industry sponsors. The course is Auburn University Faculty led in which students work in groups mentored by faculty from Auburn and foreign universities and company sponsors. Students will be involved in projects that expose them to theory and practice of problem solving techniques involving data collection, statistical analysis, computational modeling, and experimental design of problems related to the service and manufacturing industries.

INSY 4700 MANUFACTURING SYSTEMS II (3) LEC. 3. Pr. INSY 3010 and INSY 3400 and INSY 3410 and INSY 3420 and (INSY 3600 or INSY 3607) and INSY 3700 and INSY 3800. Continuation of the design, analysis, and operation of manufacturing systems, the second course in a required two-course sequence including Manufacturing Systems I.

INSY 4800 SENIOR DESIGN (3) LEC. 0. LAB. 3. Pr. INSY 3021 and (INSY 4500 or INSY 4503) and P/C INSY 4700. Capstone course in which undergraduate course-work principles are brought to bear upon a design problem in a cooperating industry or institution.

INSY 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Individual student endeavor under faculty supervision involving special problems in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 4970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-10) AAB. Departmental approval. Special topics in Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 10 credit hours.

INSY 5010 OCCUPATIONAL SAFETY ENGINEERING (3) LEC. 3. Pr. INSY 3020. Departmental approval. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design, and maintenance, and operation of effective safety programs. Credit will not be given for both INSY 5010 and INSY 6010/6016.

INSY 5050 INDUSTRIAL HYGIENE AND ENVIRONMENTAL HAZARDS (3) LEC. 3. Introduction to the basic concepts of industrial hygiene with emphasis on the industrial hygiene/safety interface and on the evaluation and control of chemical exposures, biological hazards, noise and heat stress for undergraduate engineers.

INSY 5080 HUMAN FACTORS ENGINEERING (3) LEC. 3. Human Factors Engineering is the science of designing products and systems for optimal human well-being and system performance. This course will focus on information processing and the cognitive aspects of ergonomics design. Students will gain insight into the effects of various environments (hot, cold, noise, information overload, etc.) on humans and human performance. Physical ergonomics will be addressed somewhat as well. Emphasis is on human information input, output, and control processes with the objective of optimizing the integration of the human into simple and complex systems.

INSY 5100 SYSTEMS ENGINEERING I (3) LEC. Processes and tools for engineering large-scale, complex systems: architecture, requirements, risk management, evaluation, concept exploration, decision-making, tradeoff studies, life cycle models, decomposition, system coupling, test, verification, validation, system modeling, business process re-engineering, sensitivity analysis, teamwork, process maturity, and documentation.

INSY 5110 SYSTEMS ENGINEERING 2: SYSTEM LIFECYCLE REQUIREMENTS (3) LEC. 3. Pr. INSY 5100. The System Lifecycle Requirements course focuses on developing, properly writing, and decomposing requirements for complex systems across the entire system life cycle. Well written requirements are a solid foundation for system design development and this course will identify design considerations at early concept identification, design maturation, implementation, production, operations & sustainment, and disposal phases. Students will exercise stakeholder needs elicitation, requirements writing and decomposition, and will apply life cycle considerations during requirements development and evolution.

INSY 5120 DIGITAL SYSTEMS ENGINEERING DESIGN (3) LEC. 3. The study and practice of digital system engineering design methods include both object-oriented and structured analysis-based techniques. Design description languages, such as SysML, are introduced and used to carry out complete system designs. This process encompasses stakeholder analysis, requirement definition, logical architecture, physical architecture, as well as system evaluation, validation, and verification.

INSY 5130 MODEL-BASED SYSTEMS ENGINEERING (3) LEC. 3. Pr. INSY 5120. Model-Based Systems Engineering (MBSE) offers a structured framework for applying modeling to facilitate the engineering of complex systems. This course is designed to explore and apply prominent methodologies in MBSE, elucidating its approaches in systems engineering and management. Emphasis is placed on advanced object-oriented systems engineering methodologies and model transformation techniques. Throughout the course, students will be introduced to software tools that play a pivotal role in supporting the design phase of systems engineering.

INSY 5240 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Pr. INSY 3700. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240/6246.

INSY 5250 PROJECT MANAGEMENT (3) LEC. 3. Introduction to project management for engineering, business and technology including; project management concepts, project life cycle, planning techniques, scheduling and network analysis, cost estimating and budgeting, risk management, execution and control, and evaluation and closeout.

INSY 5330 SIX SIGMA (3) LEC. 3. This course covers the six sigma engineering techniques. The content emphasizes the DMAIC (Define, Measure, Analyze, Improve, and Control) methodology combined with Lean management practices through analytical and quantitative tools.

INSY 5400 MULTI-PARADIGM MODELING AND SIMULATION (3) LEC. 2. LAB. 1. Pr. INSY 3420. Multi-paradigm simulation modeling procedures for analyzing real-world complex systems. Emphasis on model building, and construction of multi-paradigm computer simulation models using Agent Based Modeling, System Dynamics, and Discrete Event Simulation approaches.

INSY 5450 SIMULATION-BASED PLANNING AND SCHEDULING (3) LEC. 3. Pr. INSY 3420. A graduate/undergraduate course in simulation-based planning and scheduling. Topics include intermediate simulation modeling, dispatching and scheduling methods, and implementation of scheduling systems and supply chain planning systems using a commercial simulation software package.

INSY 5500 MODERN TOOLS FOR DATA ANALYTICS AND MODELING (3) LEC. 3. Pr. INSY 3010. Introduction to modern data science tools with applications in manufacturing and service industries and operations. Focus on the manipulation and use of small and large datasets. Tools include Jupyter, Python, R, and MySQL along with the related packages that support data modeling, visualization, and analysis.

INSY 5550 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Pr. INSY 3010. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550/6556.

INSY 5600 ENGINEERING ECONOMIC SYSTEMS (3) LEC. 3. Pr. INSY 3600. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600/6606.

INSY 5650 HEALTHCARE SYSTEMS, CULTURE, AND POLICY (3) LEC. 3. This course aims to introduce the basic structures and operations of the U.S. Healthcare (HC) delivery system and the resources that comprise it. The course introduces and describes the U.S. healthcare system, the major service components and complexities, and the history and basis of HC. Topics to be covered include professional roles and accreditation, data and data reporting in HC, including performance, quality, and outcome measures.

INSY 5660 HEALTHCARE OPERATIONS (3) LEC. 3. LAB. 0, LEC. 0. Strategies to apply traditional Industrial Engineering skills in a variety of healthcare contexts such as doctors offices, hospitals and pharmacies.

INSY 5670 HUMAN FACTORS IN HEALTHCARE (3) LEC. 3. LAB. 0, LEC. 0. The application of human factors engineering and ergonomics in healthcare.

INSY 5700 DIGITAL DRAWINGS, GEOMETRIC TOLERANCES, AND METROLOGY FOR INDUSTRY 4.0 (4) LEC. 3. LAB. 2.33. Digital manufacturing begins with accurate electronic drawings designed with precision measurement in mind. This course covers the design, dimensioning, tolerancing, and inspection for part and assembly manufacturing from the ASME Y14.5 (2018) Standard. Students will model parts in a CAD program, create manufacturing inspection drawings with applied GD&T concepts, and work with an industry grade Coordinate Measurement Machine (CMM) software to develop inspection plans. Basic Computer Aided Design (CAD) concepts are taught in Fusion 360. Department approval.

INSY 5710 BASIC CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. LAB. 0, LEC. 0. This is the first of a two-semester program detailing all the manufacturing processes available in the 21st Century. There is an emphasis on the interaction of shapes, materials and process in design and economic decision making. Students will review basic fundamentals of acceptance testing, material properties and characteristics as a foundation for all process decisions. Processes introduced in this course will include metal casting, rolling and forging. Departmental approval required.

INSY 5720 ADVANCED CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. LAB. 0, LEC. 0. This is the second of a two-semester program detailing all the manufacturing processes available in the 21st Century. There is emphasis on the interaction of shapes, materials and process in design and economic decision making. This course covers all the classic subtractive machining, modern subtractive methods and all the joining methods. The course concludes with automation of manufacturing processes, computer aided and integrated manufacturing along with the standards of Industry 4.0. Departmental approval required.

INSY 5730 CONCEPTS OF COMPUTER NUMERICAL CONTROLS (4) LEC. 3. LAB. 2.33, LEC/LLB. 0. Pr. INSY 5700. Departmental approval. This course will introduce key concepts involved in the use of Computer Aided Machining. Concepts include the construction of tools within CAM software, determining feeds and speeds from tool manufacturer specifications, basics of G-Code and M-Code, and various tool pathing operations. The course covers model-based CAM, conversational CAM, and basic 3D printing concepts. The model-based CAM portion will cover 3 axis and 5 axis mill work, lathe operations, and mill turn operations.

INSY 5740 CONCEPTS OF INDUSTRY 4.0 (3) LEC. 2. LAB. 2.33, LEC/LLB. 0. Pr. INSY 5700. Departmental approval. Students develop a firm understanding of the fundamentals of Mechatronics and learn how to utilize these new tools in conjunction with the Industrial Internet of Things (IIOT) via the MTConnect Standard. Topics include circuits, sensors, actuators, controls, communication protocols, Industry 4.0, and the MTConnect Standard. Labs will be held at the Interdisciplinary Center for Advanced Manufacturing Systems (ICAMS).

INSY 5800 LEAN SYSTEMS (3) LEC. 2. LAB. 2. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800/6806.

INSY 5830 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830/6836.

INSY 5840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia, and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840/6846.

INSY 5850 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850/6856.

INSY 5860 INNOVATIONS IN MANUFACTURING SYSTEMS (3) LEC. 3. This course reviews the history of manufacturing and discusses the contributions of the automotive manufacturing industry in developing most of the major manufacturing systems improvements over the decades. Issues associated with suppliers are presented related to processes, supply chain, product and process improvement, quality control, and costs. In addition, the issue of globalization and the digitalization of manufacturing is investigated. Finally, a discussion of future manufacturing technologies and impacts will be discussed. Credit will not be given for both INSY 5860 and INSY 6860/6866.

INSY 5870 INTERACTIVE SENSING SYSTEMS (3) LEC. 3. Pr. (INSY 3010). Interactive Sensing Systems is an advanced course designed to provide students with in-depth knowledge and hands-on experience in developing intelligent systems that integrate microcontrollers and sensors. The course emphasizes the practical application of sensor technologies and microcontroller programming to solve real-world problems.

INSY 6010 OCCUPATIONAL SAFETY ENGINEERING (3) LEC. 3. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design and maintenance, and operation of effective safety programs. Credit will not be given for both INSY 5010 and INSY 6010.

INSY 6050 INDUSTRIAL HYGIENE AND ENVIRONMENTAL HAZARDS (3) LEC. 3. Introduction to the basic concepts of industrial hygiene with emphasis on the industrial hygiene/safety interface and on the evaluation and control of chemical exposures, biological hazards, noise and heat stress for graduate engineers.

INSY 6080 HUMAN FACTORS ENGINEERING (3) LEC. 3. Human Factors Engineering is the science of designing products and systems for optimal human well-being and system performance. This course will focus on information processing and the cognitive aspects of ergonomics design. Students will gain insight into the effects of various environments (hot, cold, noise, information overload, etc.) on humans and human performance. Emphasis is on human information input, output, and control processes with the objective of optimizing the integration of the human into simple and complex systems.

INSY 6100 SYSTEMS ENGINEERING I (3) LEC. 3. Processes and tools for engineering large-scale, complex systems: architecture, requirements, risk management, evaluation, concept exploration, decision-making, tradeoff studies, life cycle models, decomposition, system coupling, test, verification, validation, system modeling, business process re-engineering, sensitivity analysis, teamwork, process maturity and documentation. Credit will not be given for both INSY 5100 and INSY 6100.

INSY 6110 SYSTEMS ENGINEERING 2: SYSTEM LIFECYCLE REQUIREMENTS (3) LEC. 3. All man-made systems have a life cycle. A life cycle is the series of stages (or phases) that a system passes through over time. This course is concerned with understanding the life cycle of systems and the development, definition, and management of requirements for systems or products with consideration to the life cycle.

INSY 6120 DIGITAL SYSTEMS ENGINEERING DESIGN (3) LEC. 3. The study and practice of digital system engineering design methods include both object-oriented and structured analysis-based techniques. Design description languages, such as SysML, are introduced and used to carry out complete system designs. This process encompasses stakeholder analysis, requirement definition, logical architecture, physical architecture, as well as system evaluation, validation, and verification.

INSY 6130 MODEL-BASED SYSTEMS ENGINEERING (3) LEC. 3. Model-Based Systems Engineering (MBSE) offers a structured framework for applying modeling to facilitate the engineering of complex systems. This course is designed to explore and apply prominent methodologies in MBSE, elucidating its approaches in systems engineering and management. Emphasis is placed on advanced object-oriented systems engineering methodologies and model transformation techniques. Throughout the course, students will be introduced to software tools that play a pivotal role in supporting the design phase of systems engineering.

INSY 6240 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240.

INSY 6250 PROJECT MANAGEMENT (3) LEC. 3. Introduction to project management for engineering, business and technology including; project management concepts, project life cycle, planning techniques, scheduling and network analysis, cost estimating and budgeting, risk management, execution and control, and evaluation and closeout.

INSY 6330 SIX SIGMA (3) LEC. 3. This course covers the six sigma engineering techniques. The content emphasizes the DMAIC (Define, Measure, Analyze, Improve, and Control) methodology combined with Lean management practices through analytical and quantitative tools.

INSY 6400 MULTI-PARADIGM MODELING AND SIMULATION (3) LLB. Pr. INSY 7400. Multi-paradigm simulation modeling procedures for analyzing real-world complex systems. Emphasis on model building, and construction of multi-paradigm computer simulation models using Agent Based Modeling, System Dynamics, and Discrete Event Simulation approaches. Students must have successfully passed a graduate level course in Probability and Statistics or an equivalent course, INSY 7400, or request instructor approval.

INSY 6450 SIMULATION-BASED PLANNING AND SCHEDULING (3) DSL/LEC. A graduate/undergraduate course in simulation-based planning and scheduling. Topics include intermediate simulation modeling, dispatching and scheduling methods, and implementation of scheduling systems and supply chain planning systems using a commercial simulation software package. Knowledge of simulation and basic understanding of Simio is required to enroll in course.

INSY 6500 MODERN TOOLS FOR DATA ANALYTICS AND MODELING (3) LEC. 3. Introduction to modern data science tools with applications in manufacturing and service industries and operations. Focus on the manipulation and use of small and large datasets. Tools include Jupyter, Python, R, and MySQL along with the related packages that support data modeling, visualization, and analysis.

INSY 6550 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550.

INSY 6600 ENGINEERING ECONOMIC SYSTEMS (3) LEC. 3. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600.

INSY 6650 HEALTHCARE SYSTEMS, CULTURE, AND POLICY (3) LEC. 3. LAB. 0, LEC. 0. This course aims to introduce the basic structures and operations of the U.S. Healthcare (HC) delivery system and the resources that comprise it. The course introduces and describes the U.S. healthcare system, the major service components and complexities, and the history and basis of HC. Topics to be covered include professional roles and accreditation, data and data reporting in HC, including performance, quality, and outcome measures.

INSY 6660 HEALTHCARE OPERATIONS (3) LEC. 3. LAB. 0, LEC. 0. Strategies to apply traditional Industrial Engineering skills in a variety of healthcare contexts such as doctors offices, hospitals and pharmacies.

INSY 6670 HUMAN FACTORS IN HEALTHCARE (3) LEC. 3. LAB. 0, LEC. 0. The application of human factors engineering and ergonomics in healthcare.

INSY 6700 DIGITAL DRAWINGS, GEOMETRIC TOLERANCES, AND METROLOGY FOR INDUSTRY 4.0 (4) LEC. 3. LAB. 2.33. Departmental approval. Digital manufacturing begins with accurate electronic drawings designed with precision measurement in mind. This course covers the design, dimensioning, tolerancing, and inspection for part and assembly manufacturing from the ASME Y14.5 (2018) Standard. Students will model parts in a CAD program, create manufacturing inspection drawings with applied GD&T concepts, and work with an industry grade Coordinate Measurement Machine (CMM) software to develop inspection plans. Basic Computer Aided Design (CAD) concepts are taught in Fusion 360.

INSY 6710 BASIC CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. Departmental approval. This is the first of a two-semester program detailing all the manufacturing concepts and processes available in the 21st Century. There is a heavy emphasis on the interaction of shapes, materials and process in design and economic decision making. Students will review basic fundamentals of acceptance testing, material properties and characteristics as a foundation for all process decisions. Processes introduced in this course will include metal casting, rolling, and extrusion.

INSY 6720 ADVANCED CONCEPTS OF 21ST CENTURY MANUFACTURING PROCESSES (3) LEC. 3. Departmental approval. This is the second of a two-semester program detailing all the manufacturing concepts and processes available in the 21st Century. There is a heavy emphasis on the interaction of shapes, materials and process in design and economic decision making. This course covers all the classic and modern subtractive methods as well as the joining methods. Automation of manufacturing processes, computer aided and computer integrated manufacturing along with industry 4.0 are covered.

INSY 6730 CONCEPTS OF COMPUTER NUMERICAL CONTROLS (4) LEC. 3. LAB. 2.33. Pr. INSY 5700 or INSY 6700. Departmental approval. This course will introduce key concepts involved in the use of Computer Aided Machining. Concepts include the construction of tools within CAM software, determining feeds and speeds from tool manufacturer specifications, basics of G-Code and M-Code, and various tool pathing operations. The course covers model-based CAM, conversational CAM, and basic 3D printing concepts. The model-based CAM portion will cover 3 axis and 5 axis mill work, lathe operations, and mill turn operations.

INSY 6740 CONCEPTS OF INDUSTRY 4.0 (3) LEC. 2. LAB. 2.33. Pr. INSY 5700 or INSY 6700. Departmental approval. Students develop a firm understanding of the fundamentals of Mechatronics and learn how to utilize these new tools in conjunction with the Industrial Internet of Things (IIOT) via the MTConnect Standard. Topics include circuits, sensors, actuators, controls, communication protocols, Industry 4.0, and the MTConnect Standard. Labs will be held at the Interdisciplinary Center for Advanced Manufacturing Systems (ICAMS).

INSY 6800 LEAN SYSTEMS (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800.

INSY 6830 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830.

INSY 6840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840.

INSY 6850 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850.

INSY 6860 INNOVATIONS IN MANUFACTURING SYSTEMS (3) LEC. 3. This course reviews the history of manufacturing and discusses the contributions of the automotive manufacturing industry in developing most of the major manufacturing systems improvements over the decades. Issues associated with suppliers are presented related to processes, supply chain, product and process improvement, quality control, and costs. In addition, the issue of globalization and the digitalization of manufacturing is investigated. Finally, a discussion of future manufacturing technologies and impacts will be discussed. Credit will not be given for both INSY 5860 and INSY 6860.

INSY 6870 INTERACTIVE SENSING SYSTEMS (3) LEC/LLB. Interactive Sensing Systems is an advanced course designed to provide students with in-depth knowledge and hands-on experience in developing intelligent systems that integrate microcontrollers and sensors. The course emphasizes the practical application of sensor technologies and microcontroller programming to solve real-world problems.

INSY 7020 SYSTEM SAFETY ENGINEERING (3) LEC. 3. Systems safety analysis techniques including human error and reliability, fault trees, and cost benefit analysis.

INSY 7040 COGNITIVE ENGINEERING AND SYSTEM DESIGN (3) LEC. 3. Cognitive Engineering and System Design is an introduction into human capabilities and limitations in human-machine interaction, with a focus on human cognition, memory, attention, and error. The course emphasis is on cognitive engineering theory and its application to automated system design.

INSY 7060 FUNDAMENTALS OF ERGONOMICS (3) LEC. 3. Overview of the human body systems and evaluation of the physiological response of the human body to occupational activities with emphasis on task design.

INSY 7070 OCCUPATIONAL BIOMECHANICS (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Use of biomechanics in the evaluation and design of work activities. Emphasis is placed on biomechanical modeling, manual materials handling, tool design, and repetitive motion trauma.

INSY 7081 HUMAN FACTORS LABORATORY (1) LAB. 3. Coreq. INSY 7080. Laboratory experience in testing human factors principles and concepts covered in INSY 7080. Experience in proper writing of laboratory reports.

INSY 7100 ADAPTIVE OPTIMIZATION (3) LEC. 3. Departmental approval. Adaptive search methods inspired by nature for continuous and combinatorial optimization. Methods include simulated annealing, genetic algorithms, evolutionary strategies, tabu search and ant colony systems.

INSY 7120 DATA ANALYTICS FOR OPERATIONS (3) LEC. 3. or equivalent. This course covers the broad topics of predictive analytics, data visualization, and big data in the context of operations analysis. Focus will be on the application of modern computer tools with previously learned statistical and mathematical modeling tools, culminating in a semester project.

INSY 7130 DATA MINING TECHNIQUES AND APPLICATIONS FOR OPERATIONS (3) LEC. 3. or equivalent. This introductory course will cover the most common techniques for extracting useful information and models from numerical or categorical data. Techniques include clustering and classification, regression and spline models, kriging, and artificial neural networks. Also considered are data pre-processing, model building and model validation. Modeling and validation under conditions of sparse data will be addressed as well. Applications include those in finance, manufacturing, health care, and more.

INSY 7190 OCCUPATIONAL SAFETY AND HEALTH FORUM I (1) LEC. 1.

INSY 7290 OCCUPATIONAL SAFETY AND HEALTH PRACTICUM I (1) LEC. 1. Study of contemporary interdisciplinary issues in occupational safety and health. Investigation of real-world interdisciplinary OSH problems. Analysis and presentation of OSH concerns and solutions.

INSY 7300 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Advanced concepts of experimental design including blocked designs, analysis of variance regression approach, and fractional factorials in base-2 designs. Emphasis throughout is on developing and improving industrial products and processes. Credit will not be given for both INSY 7300 and STAT 7300.

INSY 7380 RELIABILITY ENGINEERING (3) LEC. 3. Departmental approval. Reliability Engineering is a sub-discipline of systems engineering that emphasizes the ability of a system or component to function without failure. This course covers concepts and methods to evaluate the reliability of engineering systems. The primary focus is on statistical reliability distributions, analysis of reliability data, prediction of failure and reliability modeling, accelerated life testing, reliability of complex systems, and design for reliability.

INSY 7390 OCCUPATIONAL SAFETY AND HEALTH FORUM II (1) LEC. 1. Pr. INSY 7190. Continuation of OSH Forum I (contemporary interdisciplinary issues in occupational safety and health). Emphasis is placed on leadership and mentoring of other OSH students (INSY 7190).

INSY 7400 APPLIED DISCRETE-EVENT SIMULATION MODELING (3) LEC. 3. Introductory graduate course in discrete event modeling and simulation. Course focus is on the application of modern simulation tools and techniques for solving design and analysis problems in manufacturing, service systems, and general operations.

INSY 7420 LINEAR PROGRAMMING AND NETWORK FLOWS (3) LEC. 3. Linear programming and network flows emphasizing algorithms and theory.

INSY 7430 INTEGER AND NONLINEAR PROGRAMMING (3) LEC. 3. Pr. INSY 7420 or INSY 7426. Departmental approval. Integer and non linear programming, emphasizing algorithms and theory.

INSY 7440 DYNAMIC PROGRAMMING (3) LEC. 3. Departmental approval. Aspects of sequential decision making with emphasis on formulation and solution using the dynamic programming algorithm. Approximation methods for problems involving large state spaces. Solution techniques for problems under uncertainty.

INSY 7450 STOCHASTIC OPTIMIZATION AND RISK (3) LEC. 3. Pr. INSY 7420. Stochastic Optimization and Risk is a course for graduate students in engineering, operations research, management science, etc. The objective of the course is to familiarize students with the challenges that uncertain or randomized data bring into the decision making/design process and introduce the general methods and approaches for dealing with such challenges. We will discuss various approaches to modeling of uncertainties and risk in optimization problems, properties of the resulting stochastic programming formulations, and several common techniques for solving stochastic programs.

INSY 7470 SEARCH METHODS FOR OPTIMIZATION (3) LEC. 3. Single and multivariate search techniques and strategies that are used in finding the optimum of discrete and continuous functions.

INSY 7490 OCCUPATIONAL SAFETY AND HEALTH PRACTICUM II (1) LEC. 1. Pr. INSY 7290. Investigation of real-world interdisciplinary OSH problems. Analysis and presentation of OSH concerns and solutions. Emphasis is placed on leadership and mentoring of other OSH students (INSY 7290).

INSY 7550 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Stochastic operations research models with emphasis on model formation, solution and interpretation of results. Emphasis on stochastic processes, queuing theory and their applications.

INSY 7710 SYSTEM LIFECYCLE REQUIREMENTS (3) LEC. 3. The System Lifecycle Requirements course focuses on developing and writing proper requirements for systems across the entire life cycle. Well written requirements are a solid foundation for system design development and this course will identify design considerations at early concept identification, design maturation, implementation, production, operations & sustainment, and disposal phases. Students will exercise stakeholder needs elicitation, requirements writing, requirements decomposition, and applying life cycle considerations during requirements development process during a semester long project.

INSY 7730 PRODUCT DESIGN, DEVELOPMENT, AND TEST (3) LEC. 3. This class teaches modern tools and methods for product design, development,and test of highly complex and large systems including technical specification, reliability, maintainability, manufacturability, testability, marketing, costs, etc. May count either INSY 7730 or INSY 7736.

INSY 7740 PRODUCT LAUNCH, MANUFACTURING, AND DELIVERY (3) LEC. 3. This course teaches students the issues, strategies, and approaches related to launching, manufacturing, and delivering new products or services including customer focus, marketing, manufacturing and launch strategies, delivery and related tools and techniques.

INSY 7750 INTELLECTUAL PROPERTY, LEGAL, AND VENTURE CAPITAL (3) LEC. 3. This course teaches students the US law of intellectual property with major emphasis on patents. Students also learn venture capital including stages of funding, funding presentations, various requirements of funding, types of partnership, exit plans, etc. May count either INSY 7750 or INSY 7756.

INSY 7760 ENGINEERING & TECHNOLOGY MANAGEMENT (3) LEC. 3. Engineering Management is the branch of management that focuses on leading technical personnel in the management of engineering driven enterprises. This course emphasizes the application of management principles to the engineering of large-scale systems and research efforts. It focuses on the planning, individual & team motivation, strategic /tactical management, change and risk management and decision-making necessary to manage a company's technical portfolio.

INSY 7940 INDUSTRIAL AND SYSTEMS ENGINEERING PROBLEMS (1-5) DSL/IND. Departmental approval. Individual student endeavor under staff supervision involving special problems of an advanced undergraduate or graduate nature in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 7950 SEMINAR (1) LEC. 1. SU. Presentation and discussion of ISE research by graduate students, faculty and guests. Must be taken at least one term and cannot be used in the plan of study to apply towards the minimum number of hours for a degree.

INSY 7970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. 1. LAB. 1. Departmental approval. Special topics of a graduate nature pertinent to Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 7980 MASTER'S IN INDUSTRIAL AND SYSTEMS ENGINEERING PROJECT (1-5) DSL/IND. SU. Non-thesis master's project. Course may be repeated for a maximum of 5 credit hours.

INSY 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Individual masters research. May be repeated for credit. Course may be repeated with change in topics. No more than six hours may be counted toward meeting degree requirements. Must be an INSY major.

INSY 8010 ADVANCED SAFETY ENGINEERING (3) LEC. 3. Pr. INSY 7020 or INSY 7026. Topics of current interest in occupational safety research. Occupational safety research methodology and research priorities.

INSY 8020 RESEARCH METHODS IN OCCUPATIONAL SAFETY, ERGONOMICS, AND INJURY PREVENTION (3) LEC. 3. Pr. INSY 7300 or INSY 7306 or INSY 7060 or INSY 7066 or INSY 6010 or INSY 6016. To introduce students to contemporary and developmental research methods in occupational safety, ergonomics, and injury prevention with emphasis on the public health model as applied to occupational injury prevention and epidemiology. Instructor approval may be required.

INSY 8060 CONTEMPORARY ERGONOMICS (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Topics of current interest in occupational ergonomics and human factors research. Occupational ergonomics and human factors research methodology and research priorities.

INSY 8970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. Departmental approval. Special topics of an advanced graduate nature pertinent to industrial and systems engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Departmental approval. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics. Must be INSY major.

Industrial Design - INDD

Courses

INDD 1120 INDUSTRIAL DESIGN IN MODERN SOCIETY (3) LEC. 3. Survey of design and its impact upon modern society. Review of methods, products, marketing, patents, education, and career opportunities.

INDD 1127 HONORS INDUSTRIAL DESIGN IN MODERN SOCIETY (3) LEC. 3. Survey of design and its impact upon modern society. Review of methods, products, marketing, patents, education, and career opportunities.

INDD 1310 SYNTHESIS OF DRAWING (10) LEC. 3, LST. 12. Developing mechanical and production design drawings, with in-depth study of perspective systems. Product design communication with emphasis on drawing, development, and presentation.

INDD 1320 PROTOTYPE FABRICATION (3) LEC. 2. LAB. 2. Coreq. INDD 1310. Fabrication of three-dimensional models utilizing various materials and machineries. Includes model making, creative modeling, study models, presentation models, mock-ups and prototypes.

INDD 1400 CAREERS IN INDUSTRIAL DESIGN (2) LEC. 2. Survey of careers in the field of industrial design demonstrated through case studies, product examples and biographies.

INDD 2110 TWO DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, LST. 10. Transference of abstract principles of design to fabrication of simple tools. Emphasis on expression of functional objects.

INDD 2120 COMPUTER AND DESIGN COMMUNICATIONS (3) LEC. 2. LAB. 2. Alternative modes of communicating design ideas via computer. Executing design ideas for two-dimensional design fundamentals and mechanical design drawings.

INDD 2130 PRESENTATION RENDERING (3) LEC. 2. LAB. 2. Concept development using drawing and rendering skills with different media for ideas communication and presentation.

INDD 2210 THREE DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, AAB/LST. 10. Pr. INDD 2110. Analysis of design fundamentals through three dimensional form. Analyzing function, utility, convenience, safety, maintenance and sustainable design.

INDD 2220 ANTHROPOMETRY (3) LEC. 3. Pr. INDD 2110. Body measurements, movements and human capacity in relation to design with introduction to ergonomy and human physiology as it relates to design. School approval.

INDD 2230 HISTORY OF INDUSTRIAL DESIGN (3) LEC. 3. Pr. INDD 2110. Survey humankind's production of artifacts, from prehistory to present. Emphasis on ideas that mass produced artifacts mirror history and everyday culture.

INDD 3110 EXHIBIT AND PACKAGING (6) LEC. 1, LST. 8. Pr. INDD 2210. Display systems using models, concepts development, rendering, packaging, identity programs and professional presentations.

INDD 3120 INDUSTRIAL DESIGN METHODS (3) LEC. 3. Pr. INDD 2210. Introduction to design management. Design methods and organizational procedures in analysis and solutions of design problems. Surveying philosophies and theories of design.

INDD 3130 BASIC PHOTOGRAPHY FOR INDUSTRIAL DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2210. Photography in design and art environments. Techniques of developing, printing and enlarging. Lighting techniques for portfolio photography, including lighting, studio photography, composition.

INDD 3150 DESIGN THINKING: INTRODUCTION TO PRODUCT SOLUTIONS (3) LEC. 2. LAB. 1. Application of design thinking (focus on experience of the user) in the context of product design. Students will deconstruct a design of an existing product and create a design concept for a new product. Introduces innovation in physical products and services through collaborative and creative approaches to critical and strategic thinking with focus on the user. Course may be repeated for a maximum of 6 credit hours.

INDD 3157 HONORS DESIGN THINKING: INTRODUCTION TO PRODUCT SOLUTIONS (3) LST. Application of design thinking (focus on experience of the user) in the context of product design. Students will deconstruct a design of an existing product and create a design concept for a new product. Introduces innovation in physical products and services through collaborative and creative approaches to critical and strategic thinking with focus on the user. Course may be repeated for a maximum of 6 credit hours.

INDD 3210 PRODUCT DESIGN (6) LEC. 2, AAB/LST. 10. Pr. INDD 3110. Product design utilizing design methodology from proposal to working pre-prototype, including planning, research, development, model-making, manufacturing and documentation.

INDD 3220 MATERIALS AND TECHNOLOGY (3) LEC. 3. Pr. INDD 3120. Characteristics and utility of materials such as plastic, metal, and ceramics in manufacture and the study of machine/tool processes used by industry.

INDD 3230 ADVANCED COMPUTER AIDED DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2120. Introduction to CAD software emphasizing three-dimensional modeling. Students will learn drawing functions. Concepts of three-dimensional relationship of objects discussed.

INDD 4110 ADVANCED PRODUCT DESIGN (6) LEC. 2, AAB/LST. 10. Pr. INDD 3120 and INDD 3210. Design or redesign of products and systems of advanced complexity.

INDD 4210 INDUSTRIAL DESIGN THESIS (6) LEC. 2, AAB/LST. 10. Pr. INDD 4110. Product design projects involving all design phases; including planning, research, development, finalization, specification, and documentation.

INDD 4220 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Business aspects of industrial design, including property, design contract, letters of agreement, business planning and design marketing.

INDD 4907 HONORS READING (1-3) LEC. Course may be repeated for a maximum of 3 credit hours.

INDD 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

INDD 5120 PROFESSIONAL PORTFOLIO (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Design and development of a portfolio and promotional material presenting the student's work to entry-level professional standards.

INDD 5960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 6010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3. A survey of humankind's production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 6030 CASE STUDIES IN DESIGN (3) LEC. 3. Design projects undertaken by industry studied by examination of artifacts and records, and by class discussions. Focus on the socio-cultural relevancy of the artifacts.

INDD 6120 PORTFOLIO (3) LEC. 3. Preparation of professional portfolio for graduation and employment.

INDD 6960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 7010 DESIGN ORIENTATION (3) LEC. 3. Introduction to the Industrial Design graduate program: degree options, study directions, research methods, and areas. Students are required to develop a research/project proposal.

INDD 7020 COMPUTER/INDUSTRIAL DESIGN (3) LEC. 3. Synthesizing studies in research, analysis, and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7610 PRINCIPLES OF INDUSTRIAL DESIGN (3) LEC. 3. Detailed study of the communication principles of form qualities with emphasis of these aesthetic principles to the technical and human factors of artifacts.

INDD 7620 DESIGN MANAGEMENT (3) LEC. 3. Detailed study of the industrial design project management and development with emphasis on the interrelational management concepts of research, product planning, production and marketing.

INDD 7630 HUMAN FACTORS IN DESIGN (3) LEC. 3. Theoretical and empirical examination of human factors (Anthropometrics, Biotechnology, Engineering Psychology, Behavioral Cybermetics, Ergonomics) as applied to man-machine environmental systems.

INDD 7640 AESTHETICS IN DESIGN (3) LEC. 3. Aesthetics in the context of the designed environment encompassing: non-verbal communication; object language semiotics; gestalt and perception systems; information aesthetics, and consumer product safety.

INDD 7650 DESIGN THEORIES (3) LEC. 3. Examination of design theories and philosophies related to technical artifacts in man-machine systems. Comparative studies of unifying theories in art, science, design, technology and the humanities.

INDD 7660 INDUSTRIAL DESIGN METHODOLOGY (3) LEC. 3. Industrial design methodologies and specific methods employed in research, analysis, synthesis, and evaluation in comprehensive design problems.

INDD 7670 SYSTEMS DESIGN (3) LEC. 3. Systems approach and interdisciplinary team work to design problems inquires into details of sub-systems, components and parts, with emphasis on the relation of the performance of technical systems to optional human factor effects.

INDD 7910 INDUSTRY PRACTICUM (5) AAB/STU. 5. This course will demand the application of acquired skill to the resolution of product design based issues within an industry collaboration studio over the period of one semester.

INDD 7980 NON-THESIS DESIGN (3) STU. 3. Synthesizing studies in research, analysis and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7990 DESIGN THESIS (1-5) AAB/RES. Credit to be arranged. Course may be repeated with a change in topic.

Information Systems Management - ISMN

Courses

ISMN 2140 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2. The fundamental principles of the structure and management of information systems. Credit will not be given for both ISMN 2140/2143 and ISMN 3140/3143.

ISMN 3010 PROFESSIONAL DEVELOPMENT IN INFORMATION SYSTEMS (1) LEC. 1. SU. Pr. P/C ISMN 2140. Career planning and preparation for employment as an information systems management professional.

ISMN 3040 BUSINESS TELECOM MANAGEMENT (3) LEC. 3. Pr. ISMN 3140 or ISMN 3143. Voice communications and technology and data communications (LAN, WAN, internet broadband), networks, protocols, standards, legislation and project development and management.

ISMN 3070 BUSINESS SYSTEM LOGIC AND MODELING (3) LEC. 3. Concepts, techniques, and tools for discovering, specifying, and modeling business logic are introduced, explored, and applied.

ISMN 3080 PROGRAMMING AND COMPUTER APPLICATIONS (3) LEC. 3. Visual and object-oriented business programming languages are introduced and explored.

ISMN 3140 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2. The fundamental principles of the structure and management of information systems. Credit will not be given for both ISMN 2140/2143 and ISMN 3140/3143.

ISMN 3830 DATABASE MANAGEMENT SYSTEMS (3) LEC. 3. Business applications software in a database environment, complex data, and file structures, systems design consideration of global and distributed databases.

ISMN 3840 ANALYSIS OF BUSINESS SYSTEMS (3) LEC. 3. The study and application of tools, techniques, and methodologies to analyze, understand, and model business systems.

ISMN 4090 DIGITAL BUSINESS DESIGN (3) LEC. 3. Pr. ISMN 3830 or MNGT 3830 or MNGT 3833. Students bring together knowledge of digital technologies and their skills in business design and development to create innovative, leading-edge processes, products, and services for today's modern organizations.

ISMN 4850 COMPETITIVE STRATEGIES THROUGH INFORMATION (3) LEC. 3. Emphasizes how competitive strategies for companies are formulated and implemented using a combination of information technologies.

ISMN 4920 INTERNSHIP (1-3) AAB/INT. SU. Pr. ISMN 3010. Approval by departmental internship program committee. Course may be repeated for a maximum of 3 credit hours.

ISMN 5040 TELECOMMUNICATIONS MANAGEMENT (3) LEC. 3. Pr. (ISMN 3140 or ISMN 3143) or ISMN 2140. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management.

ISMN 5290 BUSINESS PROGRAMMING FOR ANALYTICS (3) LEC. 3. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290/5293 and ISMN 6290/6296.

ISMN 5360 APPLICATION OF GEOSPATIAL INFORMATION SYSTEMS FOR BUSINESS (3) LEC. 3. GIS involves the use of GIS and desktop mapping technology to aid in processes such as disaster recovery, facility planning and management, market segmentation, and community growth. The student will learn how to strategically use GIS to facilitate organizational performance. Credit will not be given for both ISMN 5360/5363 and ISMN 6360/6366.

ISMN 5370 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6373.

ISMN 5620 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Overview of business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 5630 CLOUD SERVICES (3) LEC. 3. This course is a comprehensive introduction to the world of cloud computing, covering its fundamental concepts, various service models, and practical applications. This course delves into key cloud services such as computing, storage, networking, databases, and security while also addressing topics like cloud architecture, management, and cost optimization. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 5640 SERVERSIDE INTERNET PGM (3) DSL/LEC. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML.

ISMN 5650 ADVANCED BUSINESS APPLICATION DEVELOPMENT (3) LEC. 3. Pr. ISMN 3080 and P/C ISMN 3830. Fundamentals of developing comprehensive, component-based local and Internet business applications. Grade of C or better in prerequisite course. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 5680 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 5730 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality, and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 5740 INFORMATION RISK ANALYSIS (3) LEC. 3. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 5750 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. Pr. (ISMN 5730 or ISMN 5670). This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. Credit will not be given for both ISMN 5750/5753 and ISMN 6750/6756.

ISMN 5880 ADVANCED PRACTICAL EXPERIENCE (3) LEC. 3. Pr. ISMN 4090 and ISMN 5650. This course synthesizes theory and principles of management information systems (MIS) using real-life, hands-on projects through experiential learning. It's the capstone course for the major.

ISMN 5900 DIRECTED STUDIES (1-3) AAB/IND. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 5960 SPECIAL PROBLEMS (3) AAB/IND. 3. Independent study investigating current literature in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 6040 TELECOMMUNICATIONS MANAGEMENT (3) LEC. 3. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management. Credit will not be given for both ISMN 5040 and ISMN 6040/6046.

ISMN 6270 CURRENT ISSUES IN INFORMATION SYSTEMS FOR ORGANIZATIONS (3) LEC. 3. This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Course is designed to enable students to take it twice with subject change. Course may be repeated for a maximum of 6 credit hours.

ISMN 6290 BUSINESS PROGRAMMING FOR ANALYTICS (3) LEC. 3. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290 and ISMN 6290.

ISMN 6370 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6376.

ISMN 6380 SOCIAL MEDIA AS A TOOL FOR BUSINESS STRATEGY (3) LEC. 3. Learn how to use social media as a tool to integrate business processes and enhance business performance. Credit will not be given for both ISMN 5380/5383 and ISMN 6380/6386.

ISMN 6620 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Evaluates business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 6630 CLOUD SERVICES (3) LEC. 3. This course is a comprehensive introduction to the world of cloud computing, covering its fundamental concepts, various service models, and practical applications. This course delves into key cloud services such as computing, storage, networking, databases, and security while also addressing topics like cloud architecture, management, and cost optimization. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 6640 SERVERSIDE INTERNET PGM (3) LEC. 3. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. Credit will not be given for both ISMN 5640 and ISMN 6640/6646.

ISMN 6650 ADVANCED BUSINESS APPLICATION DEVELOPMENT (3) LEC. 3. Fundamentals of developing comprehensive, component-based local and Internet business applications. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 6670 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Organizational issues of security and methodologies for information assurance will be discussed from a managerial perspective.

ISMN 6680 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830 or ISMN 7830 or ISMN 7836. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 6690 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3. Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Credit will not be given for both ISMN 5690 and ISMN 6690/6696.

ISMN 6710 INFORMATION RISK ANALYSIS (3) LEC. 3. Departmental approval. In-depth instruction on the range of skills required of persons engaged in the performance of risk analysis functions.

ISMN 6730 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 6740 INFORMATION RISK ANALYSIS (3) LEC. 3. In-depth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 6750 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. May count either ISMN 5750 or ISMN 6750.

ISMN 6870 BUSINESS INTELLIGENCE APPLICATIONS (3) LEC. 3. Pr. ISMN 3830 or BUAL 5650. Key tasks, tools, techniques and methodologies supporting the application of Business Intelligence Systems in organizations, and related management issues. Credit will not be given for both ISMN 5870 and ISMN 6870/6876.

ISMN 6880 MANAGEMENT INFORMATION SYSTEMS PROJECTS (3) DSL/LEC. Synthesizes theory and principles of management information systems (MIS) using real-life, hands-on-projects.

ISMN 6900 DIRECTED STUDIES (3) DSL/IND. 3. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 9 credit hours.

ISMN 6960 SPECIAL PROBLEMS (3) DSL/IND. 3. General information systems management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 9 credit hours.

ISMN 7020 BUSINESS TELECOMMUNICATIONS AND NETWORKS (3) LEC. 3. Provides an understanding of voice and data communications, e.g., networks (LAN, internet), protocols standards, legislation and project development, so that managers, might utilize telecommunications effectively.

ISMN 7140 MANAGING END USER COMPUTING (3) LEC. 3. Studies MIS from user's perspective, and compares it with the roles of the professional department. Course covers support of desktop applications, data usage, and communications.

ISMN 7360 INTEGRATING THEORY AND PRACTICE FOR TECHNOLOGY MANAGERS (3) LEC. 3. A study of the technical and non-technical forces that influence the decision-making process in companies by the use of innovative instructional material.

ISMN 7380 INTEGRATING INFORMATION TECHNOLOGIES TO PROVIDE COMPETITIVE ADVANTAGE (3) LEC. 3. How to integrate effectively information technologies in formulating and implementing competitive strategies for companies.

ISMN 7660 INFORMATION SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. General systems theory, information systems logical and physical analysis, structured and object-oriented methodologies and prototyping, system documentation, general design and use of CASE tools.

ISMN 7730 MANAGEMENT OF INNOVATION (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. The process of product and service innovation on two levels: managing product design and general strategies for managing multiple innovation streams.

ISMN 7760 QUANT METHODS IN OPS MNGT (3) LEC. 3.

ISMN 7830 DATABASE DEVELOPMENT AND DESIGN (3) LEC. 3. Database management systems using database methodologies to support business applications, including requirements for distributed databases.

ISMN 7870 EXPERT SYSTEMS IN BUSINESS (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Study of expert systems and other knowledge-based systems in the organization, including relevant concepts, methodologies, architectures, strategies, and issues.

ISMN 7880 ADV MNGT OF INFO SYS (3) LEC. 3. In-depth inquiry and analysis of advanced information technologies in organizations.

ISMN 7890 INFORMATION RESOURCE MANAGEMENT (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Management of information systems resources, unique management problems in a computer information systems environment. Strategic and competitive analysis of information technology.

ISMN 7970 SPECIAL TOPICS IN INFORMATION SYSTEMS MANAGEMENT (1-3) LEC. 1-3. Specialized topics in information systems management not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

ISMN 7980 MSIS PROJECT (1-10) DSL/IND. 1-10. SU. Departmental approval. Independent exploration of an approved topic/problem that allows the student to demonstrate the application of knowledge and capabilities gained during the program. Approval of the project and assessment of its deliverables by the student's advisory committee is required. Course may be repeated for a maximum of 10 credit hours.

ISMN 8010 IS MANAGEMENT RESEARCH SEM. I (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation MIS research.

ISMN 8020 IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation of applied and case studies research in MIS.

ISMN 8030 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH I (3) SEM. 3. Research methodologies used in conducting research with emphasis on empirical research methods.

ISMN 8040 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH II (3) SEM. 3. Research methodologies used in conducting research with emphasis on conceptual and empirical research methods.

ISMN 8500 ADVANCED IS MANAGEMENT RESEARCH SEMINAR I (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the management of technology and technological innovation, with the primary focus on information technology and research.

ISMN 8660 ADVANCED IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the alignment of information technology strategy to business objectives and goals.

ISMN 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Must be degree seeking PhD student in the Business with concentration in IS program.

Interdepartmental Education - EDUC

Courses

EDUC 1010 ORIENTATION TO TEACHER EDUCATION (0) LEC. 0. SU. Orientation to the teaching profession.

EDUC 5970 SPECIAL TOPICS (1-9) LEC. Opportunity for study of current topics related to the field of education in general. Course may be repeated for a maximum of 9 credit hours.

EDUC 6970 SPECIAL TOPICS (1-9) LEC. Opportunity for study of current topics related to the field of education in general. Course may be repeated for a maximum of 9 credit hours.

Interdepartmental Pharmacy - PYDI

Courses

PYDI 4980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN PHARMACY (1-3) IND. SU. Departmental approval. Individual problems course. Students will work under the direction of a faculty member on some problem of mutual interest. Course may be repeated for a maximum of 6 credit hours.

PYDI 9030 MENTAL ILLNESS I: SERIOUS MENTAL ILLNESS (1) LEC. 2. To expose pharmacy students to psychiatry and to develop a working knowledge of both basic and advanced issues related to psychiatric illnesses. Must be enrolled in Doctor of Pharmacy program.

PYDI 9040 MENTAL ILLNESS II: ANXIETY, ALZHEIMERS AND AUTISM (1) LEC. 2. To expose pharmacy students to psychiatry and to develop a working knowledge of both basic and advanced issues related to psychiatric illnesses. Continuation of PYDI 9030. Must be enrolled in Doctor of Pharmacy program.

PYDI 9050 AMBULATORY CARE PHARMACY PRACTICE (1) LEC. 2. The Ambulatory Care Pharmacy elective will expose the students to this practice setting and the unique patient and practice issues associated with developing an ambulatory care practice. Must be enrolled in Doctor of Pharmacy program.

PYDI 9060 CURRENT ISSUES IN PHARMACY (1) LAB. 4. The Current Issues in Pharmacy elective will expose the students to current topics affecting pharmacy in multiple practice settings and provide students the chance to explore the issues and consider the opportunities presented to the profession by these topics. Students will engage in discussion and application with each other. Must be enrolled in Doctor of Pharmacy program.

PYDI 9070 THE ART OF WELLBEING (1) LEC. 2. This course will explore the following aspects of wellbeing: career, social, financial, physical and community. Additionally, students will gain insight into their own well-being through identifying areas they are thriving in, and areas they can improve. Ultimately, strategies to improve wellbeing in a particular area will be created and implemented. Must be enrolled in Doctor of Pharmacy program.

PYDI 9150 PROVIDING PHARMACY CARE FOR THE LGBTQ COMMUNITY (1) LEC. 2. This course focuses on addressing the health disparities and discrimination members of the LGBTQ community face. The course will discuss healthcare policy, societal barriers to care, and health conditions and disease states which affect the LGBTQ community, including HIV/AIDS, STIs, mental health, and hormone therapy for transgendered patients. Must be enrolled in the Doctor of Pharmacy Program.

PYDI 9160 DEVELOPMENT AND IMPLEMENTATION OF MTM SERVICES (1) LEC. 2. The course focuses on the development and implementation of Medication Therapy Management (MTM) services. Topics discussed include a review of the MTM process, development of MTM services, billing opportunities, case-based approaches to performing MTM, and different technology platforms to assist with the delivery and documentation of MTM services. Must be enrolled in Doctor of Pharmacy Program.

PYDI 9170 MENTAL HEALTH FIRST AID (1) LEC. 1. Pr. PYPD 9230. This course will provide health professional students the skills they need to reach out and provide the initial help and support to someone who may be developing a mental health or substance use problem, or experiencing a crisis.

PYDI 9180 IMMERSIVE TECHNOLOGIES IN HEALTHCARE (1) LEC. 1. Pr. PYPD 9230. Immersive technologies are defined as those that blur the lines between the real world and a virtual world, creating a sense of immersion. This course will introduce HCOP students to these technologies and review examples of both patient-facing and learner-facing applications. HCOP students will also learn the basics of health behavior theories that inform the use of these technologies and the process of development of immersive applications, in very basic, accessible terms.

PYDI 9800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING FOR PHARM.D. (2) LEC. 2. State-of-the-art survey of molecular imaging techniques and clinical imaging modalities that are available and their use to monitor the progression of various human diseases.

PYDI 9960 SPECIAL PROBLEMS IN PHARMACY (1-3) IND. Independent study of problems related to pharmacy under the direction of a faculty member. Departmental approval. Fall. Spring. Course may be repeated for a maximum of 6 credit hours.

PYDI 9970 SPECIAL TOPICS IN PHARMACY (1-3) LEC. 1-3. Instruction and discussion in a selected current topic in Pharmacy. Fall, Spring. Course may be repeated for a maximum of 3 credit hours.

Interdisciplinary Studies - IDSC

Courses

IDSC 1010 LIFE, CAREER, AND EVERYTHING (3) LEC. 3. This course provides an in-depth exploration of each student's strengths and interests, and includes a series of exercises and experiences designed to guide the student in the selection of a degree path.

IDSC 2000 CONTEMPORARY KOREA (3) LEC. 3. Overview of the human, physical, and technological context of the Republic of South Korea through a combination of lectures, readings, presentations, and discussions, utilizing the expertise of Auburn colleagues across the disciplines.

IDSC 2190 FOUNDATIONS OF INTERDISCIPLINARY UNIVERSITY STUDIES (3) LEC. 3. Provides students with an introduction to (1) the major approaches and applications of interdisciplinary studies, (2) an examination of disciplinary and interdisciplinary thinking; and (3) an introduction to concepts and methods of interdisciplinary study.

IDSC 3210 ADVANCED INTERDISCIPLINARY PROBLEM SOLVING (3) LEC. 2. LAB. 2. Pr. IDSC 1010 and (IDSC 2190 or IDSC 2193). This is a synthesis course designed to provide students with practice in applying interdisciplinary methods to the solution of real-world problems and to prepare them to communicate those solutions to a diverse audience.

IDSC 4920 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) INT. 3. Pr. IDSC 1010 and (IDSC 2190 or IDSC 2193) and (IDSC 3210 or IDSC 3213). Capstone course designed to apply Interdisciplinary Degree Coursework to an internship project. Course may be repeated for a maximum of 6 credit hours.

IDSC 4930 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) LEC. 2. LAB. 2. Pr. IDSC 1010 and (IDSC 2190 or IDSC 2193) and (IDSC 3210 or IDSC 3213). Capstone course designed to apply Interdisciplinary Degree Coursework to a senior thesis project. Course may be repeated for a maximum of 6 credit hours.

IDSC 5950 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

IDSC 6950 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

Interior Architecture - ARIA

Courses

ARIA 2150 ELEMENTS OF INTERIOR ARCH I (3) LEC. 3. The theory of design principles, aesthetics and concepts. Graphic drawings and models of interior spaces explored. Projects outside of class.

ARIA 2160 ELEMENTS OF INTERIOR ARCHITECTURE II (3) LEC. 3. The theory of design principles, aesthetics and concepts. Graphic drawings and models of interior spaces explored. Projects outside of class.

ARIA 3020 STUDIO 4A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10. Pr. ARCH 2020. Parallels Architecture Studio 4, but with an emphasis on interior architecture with exploration of detail and accommodation.

ARIA 4020 STUDIO 6A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10. Pr. ARCH 3020 and ARCH 3320 and (ARCH 2110 or ARCH 2117) and BSCI 3440. Parallels Architecture Studio 6, with emphasis on the development of interior architecture and spaces within an urban context. Consideration will be given to adaptive reuse.

ARIA 4030 INTERIOR ARCHITECTURE THESIS (6) LEC. 3, LST. 10. Pr. ARIA 4020. Coreq. ARIA 4080. Interior design project of the student's choice, under the direction of a faculty member.

ARIA 4080 INTERIOR ARCHITECTURE THESIS RESEARCH (2) LEC. 2. Pr. ARIA 4020. Research and writing of thesis documents, to include programming, site, and case studies.

ARIA 4450 INTERIOR ARCHITECTURE PROFESSIONAL PRACTICE (2) LEC. 2. Pr. ARIA 4020. Prepares student to enter professional office with an understanding of the skills, concepts and technical knowledge expected.

ARIA 4680 HISTORY AND THEORY OF INTERIOR ARCHITECTURE (3) LEC. 3. Pr. ARIA 4020. The theory and history of interior spaces, their social, material, and aesthetic development and their artifacts.

International Programs-Special Topics - INTL

Courses

INTL 1500 DEVELOPING A GLOBAL MINDSET IN AN INTERCONNECTED WORLD (1) LEC/SEM. This interdisciplinary course introduces students to the knowledge and skills needed to become globally competent in the 21st century. It also provides an orientation to the university's international resources, offices, majors, minors, curricula, and co-curricular opportunities. An assessment is also made of the students' initial intercultural intelligence.

INTL 1800 ORAL PROFICIENCY IN ENGLISH FOR INTERNATIONAL STUDENTS (3) LEC. 3. SU. Departmental approval. International students develop lecture note-taking skills, classroom oral presentation skills on general and specific subjects, and debating skills. None for degree-enrolled students; for transient students.

INTL 1820 CLASSROOM COMMUNICATION SKILLS FOR INTERNATIONAL TEACHING ASSISTANTS (3) LEC. 3. SU. Oral language skills required for effective classroom communication.

INTL 1830 WRITING PROFICIENCY IN ENGLISH FOR INTERNATIONAL STUDENTS (3) LEC. 3. SU. Skills that international students need to undertake successful research writing in English.

INTL 1840 READING SKILLS FOR ESL (3) LEC. 3. SU. Comprehend extensive university-level readings, identify author's audience, purpose, viewpoint and tone, read 250 words per minute. None for degree-enrolled student; for transient students, one of the following: pBT TOEFL of 500, iBT TOEFL of 61, IELTS of 6.

INTL 3930 DIRECTED INTERNATIONAL STUDY (2-8) AAB. Directed study-abroad or 'internationalization at home' experiences for upper-division or non-degree students to provide students with field learningand campus or distance experiences that build upon allied coursework and co-curricular activities. Course can be offered on-campus or with one or more weeks abroad. Course may also be used for internationalization instruction on campus or by distance for off-campus students. Course may be repeated for a maximum of 8 credit hours.

INTL 3937 HONORS DIRECTED INTERNATIONAL STUDY (2-8) AAB. Pr. Honors College. Directed study-abroad or 'internationalization at home' experiences for upper-division or non-degreestudents to provide students with field learning and campus or distance experiences that build upon allied coursework and co-curricular activities. Course can be offered on-campus or with one or more weeks abroad. Course may also be used for internationalization instruction on campus or by distance for off-campus students. Course may be repeated for a maximum of 8 credit hours.

INTL 3980 GLOBAL MINDSET CAPSTONE COURSE (2) LEC/SEM. Departmental approval. This course assists students in internationalizing their careers by expanding their capacities to work collaboratively within a multi-disciplinary group setting in an international and intercultural context. Through course content, assignments and reflections, students will learn to effectively communicate their global experiences and how these academic and life experiences enhance their ability to succeed in a globally connected world.

INTL 4400 INTERNATIONAL INTERNSHIP (0-12) AAB/INT. SU. Internship abroad or in the US for 0-12 hours, as approved by faculty supervisor per the plan for internship. Can be used for major, minor or certificate as designated in descriptions of these programs. Can be used for internships abroad as well as for international students on CPT/AT that are undertaking an internship in the US. Prerequisites will depend on the faculty supervisor overseeing individual student's internship. Course may be repeated for a maximum of 12 credit hours.

INTL 4407 HONORS INTERNATIONAL INTERNSHIP (1-12) AAB/INT. 20-40. SU. Pr. Honors College. Internship abroad or in the US for 1-12 hours, as approved by faculty supervisor per the plan for internship. Can be used for major, minor or certificate as designated in descriptions of these programs. Can be used for internships abroad as well as for international students on CPT/AT that are undertaking an internship in the US. Prerequisites will depend on the faculty supervisor overseeing individual student's internship. Course may be repeated for a maximum of 12 credit hours.

INTL 4420 INTERNATIONAL INTERNSHIP - FULL TIME ENROLLMENT (0) INT. 20-40. SU. Mirrors INTL 4400 but offered for zero (0) credit hours. This course is meant to track international students participating in internships for 0 credit hours. This course ensures designation as full-time students for immigration needs when approved by a faculty supervisor per the plan for internship. Can be used for major, minor or certificate as designated in descriptions of these programs. Prerequisites will depend on the faculty supervisor overseeing individual student's internship. Course may be repeated for a maximum of 1 credit hours.

INTL 4427 HONORS INTERNATIONAL INTERNSHIP - FULL TIME ENROLLMENT (0) INT. 20-40. SU. Mirrors INTL 4407 but offered for zero (0) credit hours to reflect full-time enrollment for international Honors students. Internship abroad or in the US for 0 credit hours, approved by faculty supervisor per the plan for internship. Can be used for major, minor or certificate as designated in descriptions of these programs. Can be used for internships abroad as well as for international students on CPT/AT that are undertaking an internship in the US. Course may be repeated for a maximum of 1 credit hours.

INTL 6400 INTERNATIONAL INTERNSHIP (1-9) AAB/INT. SU. Internship abroad for graduate level for 1-9 hours, as approved by faculty supervisor per the plan for internship. The plan will need to specify work required by faculty supervisor, hours of work, credits to be earned upon successful completion of course. Faculty supervisor will be responsible for oversight and grading. This course will assist students where an international internship will aid in their studies and career prospects. Can be used for major, minor or certificate as designated in descriptions of these programs. It will be the responsibility of the supervising faculty to supply accessible syllabus, textbook, videos, and other materials. It is the student's responsibility to their internship with the aid of their faculty supervisor. Prerequisite courses will depend on the faculty supervisor overseeing individual student's internship. Course may be repeated for a maximum of 9 credit hours.

INTL 6620 INTERNATIONAL GRADUATE INTERNSHIP IN THE USA - FT ENROLLMENT (0) INT. 20-40. SU. Mirrors INTL 6670 but offered for zero (0) credit hours to reflect full-time enrollment for international students. Domestic internship for international graduate students and for domestic graduate students wishing to work with international companies in the USA. This course can be utilized by students where no such course exists in their college. International graduate students must meet immigration internship requirements; students must check in with International Students and Scholars Services. Course may be repeated for a maximum of 1 credit hours.

INTL 6670 INTERNATIONAL GRADUATE INTERNSHIP IN THE USA (1-9) INT. 20-40. SU. Domestic internship for international graduate students and for domestic graduate students wishing to work with international companies in the USA. This course can be utilized by students where no such course exists in their college. International graduate students must meet immigration internship requirements; students must check in with International Students and Scholars Services within the Office of International Programs. Domestic graduate students must get approval from faculty internship supervisor. Course may be repeated for a maximum of 9 credit hours.

Journalism - JRNL

Courses

JRNL 1000 FOUNDATIONS OF JOURNALISM (3) LEC. 3. An introduction to the field of journalism; including its role in democracy and society, history, and ethics, with an emphasis on media literacy and professional writing skills. This course replaces JRNL 1100. Credit will not be given for both (JRNL 1AA0/1100/1103) and JRNL 1000.

JRNL 1100 JOURNALISM FUNDAMENTALS (3) LEC. 3. Emphasis on Associated Press Stylebook, word usage, and punctuation for students interested in print, broadcast, public relations, and web-based writing.

JRNL 1AA0 JOURNALISM FUNDAMENTALS ENTRANCE EXAM (0) LAB. 1.5. SU. JRNL 1AA0 is an exam option for students who are required to take JRNL 1100. The course will test students on punctuation, grammar, Associated Press Style and word usage to mirror content covered in the in-person course.

JRNL 2210 NEWSWRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 or JRNL 1000 or PRCM 1000. Introduction to newswriting techniques, with emphasis on learning news values, recognizing parts of a story, and writing stories that meet standards of accuracy, grammar, style, spelling, law, and ethics.

JRNL 2310 REPORTING (3) LEC. 3. Pr. JRNL 2210 or JRNL 2213. Preparation for careers in gathering and telling the news. Course emphasizes the writing of accurate, clear, and meaningful news stories for print and digital formats.

JRNL 3010 BROADCAST & DIGITAL NEWS PRODUCTION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or JRNL 1000 or PRCM 1000). Introduction to the basics of digital video production. Emphasis on techniques used in producing newscasts for broadcast, web and mobile devices.

JRNL 3020 BROADCAST & DIGITAL NEWS REPORTING (3) LEC. 3. Pr. JRNL 2210 and JRNL 3010. Writing and reporting digital news stories on deadline for broadcast, online, social media, and mobile outlets.

JRNL 3100 GLOBAL JOURNALISM AND MEDIA SYSTEMS (3) LEC. 3. The Internet and social media have created a world more connected than ever. Examines the economic, political, technological, and cultural changes that impact media and journalism globally.

JRNL 3110 INTRODUCTION TO APPLIED JOURNALISM (3) LEC. 3. Pr. (JRNL 2310 or JRNL 2313) and (CMJN 2100 or CMJN 2103). Introduction to how a media organization operates; provides an opportunity for students to gain practical, hands-on journalism experience.

JRNL 3220 MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Introduction to writing colorful, human-interest non-fiction pieces that illustrate drama and impact. Students will learn how to pitch their ideas to editors in print and digital markets.

JRNL 3410 PHOTOJOURNALISM (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Uses, techniques, and processes of digital photography for the newspaper, magazine, and web-based industries. Operations of digital SLRs and Photoshop and techniques for variety of assignments are addressed.

JRNL 3470 EDITING AND DESIGN (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Introduction to the basics of design, layout, headline writing, typography, use of color, and selection of images for visual impact. Students will learn how to design news, sports, and magazine layouts, using Adobe InDesign and Photoshop.

JRNL 3510 MULTIMEDIA JOURNALISM (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213). Introduction to multimedia journalistic storytelling. Reporting and production course where students use various technologies to produce journalism stories for digital platforms.

JRNL 3530 SPORTS REPORTING (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Sports reporting for print, broadcast, and online media, with emphasis on interviewing athletes, covering sporting events, and learning about issues surrounding sports.

JRNL 4230 ADVANCED REPORTING (3) LEC. 3. Pr. (JRNL 2313 or JRNL 2310) and (JRNL 3220 or JRNL 3510 or JRNL 3530 or JRNL 3020). Developing and writing news stories under deadline pressure; investigative and interpretative reporting.

JRNL 4320 ENTREPRENEURIAL JOURNALISM (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or PRCM 1000 or JRNL 1000) and (CMJN 2100 or CMJN 2103). Emphasis on content, advertising, audience, and marketing in news organizations and applying entrepreneurial principles to journalism start-ups.

JRNL 4410 JOURNALISM HISTORY (3) LEC. 3. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues.

JRNL 4470 ADVANCED MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (JRNL 2310 or JRNL 2313) and (JRNL 3220 or JRNL 3223) and (JRNL 3020 or JRNL 3023 or JRNL 3530 or JRNL 3533 or JRNL 3510 or JRNL 3513). Emphasis on creating long-form, non-fiction articles for print and digital publications through graceful and innovative writing techniques and skillful reporting.

JRNL 4490 LITERARY JOURNALISM (3) LEC. 3. Survey course on the best non-fiction produced by journalists.

JRNL 4530 ADVANCED SPORTS REPORTING (3) LEC. 3. Pr. (JRNL 3530 or JRNL 3533). JRNL 4530 provides the capstone course experience for students in the sports journalism emphasis. Students will build skills in areas such as writing long form articles, personality features, enterprise reporting, oral history projects, and comprehensive game coverage, and working with tight deadlines.

JRNL 4850 REPORTING ISSUES OF SOCIAL CHANGE (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or JRNL 1AA0 or PRCM 1000 or JRNL 1000). Engagement with solutions-based journalism wherein story narratives about people, communities, and societal issues give voice and weight to problems and solutions.

JRNL 4870 COMMUNITY JOURNALISM (3) LEC. 3. Pr. (JRNL 2210 or JRNL 2213) and (CMJN 2100 or CMJN 2103). Civic role of community journalists.

JRNL 4920 JOURNALISM INTERNSHIP (3) INT. Pr. JRNL 2310 and (JRNL 3020 or JRNL 3220 or JRNL 3510 or JRNL 3530) and (JRNL 3010 or JRNL 3110 or JRNL 3410 or JRNL 3470). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in JRNL. Requires admission to internship program.

JRNL 4930 DIRECTED STUDIES (1-4) IND. Research and analysis of specific areas of journalism. Course may be repeated for a maximum of 6 credit hours.

JRNL 4970 SPECIAL TOPICS IN JOURNALISM (3) AAB. 3. Pr. JRNL 2210. Study of narrowly defined journalism topics not already covered in the current JRNL curriculum. Course may be repeated for a maximum of 6 credit hours.

Journalism - Sports Production - JRSP

Courses

JRSP 3110 SPORTS MEDIA RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Focuses on the major concepts and theories of the management of sports media relations. Will include discussion of issues, philosophies and cases. May count CMJN 3110 or CMJN 3113 or JRSP 3110.

JRSP 3210 NEWS AND SPORTS ANNOUNCING (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. This class focuses on the theory and practical technique of studio and field announcing. Primary emphasis will be placed on announcing for news and sports. Additional attention will be given to voice over announcing. May count either CMJN 3210 or JRSP 3210.

JRSP 3410 INTRODUCTION TO SPORTS VIDEO PRODUCTION (3) LEC. 2, DSL/LST. 1. Introduction to multi-camera live sports production, video and audio editing techniques, how to operate equipment, create basic animated graphics, learn work crew positions and understand a script. Students will complete work for the SEC Network and War Eagle Productions. May count CMJN 3410 or JRSP 3410.

JRSP 3510 CONTROL ROOM OPERATIONS (3) LEC. 3. Pr. JRSP 3410 or CMJN 3410 or CMJN 3413. Introduction to various control room positions and equipment associated with a live broadcast. Students will learn the skills needed to set up, adjust and operate production equipment before and during broadcasts. May count CMJN 3510 or JRSP 3510.

JRSP 4320 SPORTS MEDIA MANAGEMENT (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Addresses principles and practices of managing sports media properties across multiple platforms. May count JRSP 4320 or CMJN 4320.

JRSP 4410 ADVANCED SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Pr. (CMJN 2100 or CMJN 2103) and (CMJN 3410 or CMJN 3413 or JRSP 3410). This course is designed to give students in-depth training that covers advanced video editing techniques and effects. In addition, students will gain experience with advanced camera operation and techniques, focusing on high-quality production throughout the process. May count CMJN 4410 or JRSP 4410.

JRSP 4510 SPORTS STORYTELLING & VIDEO PROFILES (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (CMJN 3410 or JRSP 3410 or CMJN 3413) and (JRNL 2210 or JRNL 2213). Technology has changed the landscape of how sports stories are seen and ingested today. Students will explore the art of sports storytelling and learn the foundational skills needed to effectively use cameras, lighting, editing equipment and other industry-standard tools to tell a visual story. May count CMJN 4510 or JRSP 4510.

JRSP 4610 LIVE SPORTS PRODUCING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 2210 or JRNL 2213) and (CMJN 3510 or JRSP 3510). Students will learn how to produce live events for broadcast and in-venue video boards. Students will gain the necessary knowledge and skills for producing a high-quality live event. This includes preparation, decision making skills and industry-standard terminology. May count CMJN 4610 or JRSP 4610.

JRSP 4920 JOURNALISM SPORTS PRODUCTION INTERNSHIP (3) INT. Pr. JRSP 3410 and JRSP 3510. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in JRSP. Requires admission to internship program.

JRSP 4970 SPECIAL TOPICS IN JOURNALISM: SPORTS PRODUCTION (3) LEC. 3. Specialized topics related to the study and practice of sports media production. Course may be repeated for a maximum of 6 credit hours.

Kinesiology - KINE

Courses

KINE 1100 WELLNESS & PUBLIC HEALTH (3) LEC. 3. Review content and theory associated with basic health information, critical health issues, economic, political, and cultural influences on health and wellness; concepts related to improving and maintaining optimal health and wellness, and basic concepts and principles of wellness for the self-appraisal of health-related physical fitness. May count either KINE 1100 or KINE 1103.

KINE 2000 PILLARS OF HEALTH: A JOURNEY TO OPTIMAL HEALTH & WELLBEING (3) LAB. 4. Students will learn and apply Mindfulness-Based Stress Reduction (MBSR) techniques and practices that have been shown, scientifically, to reduce stress and act as an aid to many health conditions that arise or are exacerbated by stress. On-campus labs are required.

KINE 2250 MOTOR DEVELOPMENT ACROSS THE LIFESPAN (2) LEC. 2. Develops understanding and skills concerning the broad concept of motor development across the lifespan. May count either KINE 2250 or KINE 2253.

KINE 2251 MOTOR DEVELOPMENT ACROSS THE LIFESPAN LABORATORY (1) LAB. 1. SU. Pr. (P/C KINE 2250 or P/C KINE 2257 or P/C KINE 2253). Develops understanding and skills concerning the broad concept of motor development across the lifespan.

KINE 2257 HONORS MOTOR DEVELOPMENT ACROSS THE LIFESPAN (2) LEC. 2. Pr. Honors College. Develops understanding and skills concerning the broad concept of motor development across the lifespan. May count either KINE 2250 or KINE 2253.

KINE 2500 SPORT OPTIMIZATION I (3) LEC. 2. LAB. 2. Basic concepts associated with the assessment of sport performance for the purpose of optimization.

KINE 2510 SPORT OPTIMIZATION II (3) LEC. 2. LAB. 2. Pr. KINE 2500 or KINE 2503 or HLHP 2500 or HLHP 2503. Concepts associated with the assessment and interpretation of sport performance for the purpose of optimization.

KINE 2800 INTRODUCTION TO KINESIOLOGY (3) LEC. 3. People, history and programs that have led to the current status of physical education, exercise science and health promotion.

KINE 3000 MEDICAL TERMINOLOGY FOR ALLIED HEALTH PROFESSIONS (3) LEC. 3. Focus on medical terminology/ abbreviations used in allied health care and application to health care documentation. Web-based delivery.

KINE 3010 INSTRUCTION AND TECHNOLOGY IN KINESIOLOGY (2) LEC. 1. LAB. 2. Communication skills, instructional strategies and technological competencies related to conveying information in the Kinesiology disciplines. May count either KINE 3010 or KINE 3013.

KINE 3030 INTRODUCTION TO PERSONAL TRAINING (3) LEC. 3. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3031 INTRODUCTION TO PERSONAL TRAINING LABORATORY (3) LAB. 3. Pr. P/C KINE 3030. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3040 HISTORY OF AMERICAN PHYSICAL CULTURE (3) LEC. 3. Appreciation of the historical and cultural aspects of health, exercise, fitness and sports activities in modern American society.

KINE 3050 CARE AND PREVENTION OF INJURIES (3) LEC. 3. Students will understand how to implement proper procedures in sports medicine care, create/lead emergency action plans, prevent injury/illness occurrence, care for basic injuries/illnesses, and analyze environmental conditions for safety, and provide important information to sports medicine health professionals. May count either KINE 3050 or KINE 3053.

KINE 3100 ADAPTIVE SPORTS (3) LEC. 3. An introduction to various competitive and recreational activities for persons with disabilities. May count either KINE 3100 or KINE 3103.

KINE 3110 PARALYMPIC SPORT (3) LEC. 3. An introduction to the Paralympic Games including the Games development, rules, and current issues related to media, marketing, and social rights.

KINE 3200 SKILLS AND CONCEPTS OF RHYTHMIC ACTIVITIES (3) LEC. 2. LAB. 2. Skillful performance in gymnastics and other rhythmic activities and an understanding of the basic movement concepts in those activities.

KINE 3210 SKILLS AND CONCEPTS OF SPORT (3) LEC. 2. LAB. 2. Skillful performance in games and sports and an understanding of the tactics in those activities. Admission to Teacher Education.

KINE 3230 TEACHING MOTOR SKILLS (3) LEC. 2. LAB. 2. Introduction to motor skills that students learn during their elementary school years in physical education.

KINE 3260 PHYSICAL EDUCATION FOR INDIVIDUALS WITH DISABILITIES (3) LEC. 2. LAB. 2. Pr. (KINE 2250 and KINE 2251 or KINE 2253) or (HLHP 2250 or HLHP 2251 or HLHP 2253). Program needs of individuals with disabilities in physical education and physical activity settings.

KINE 3300 INSTRUCTIONAL STRATEGIES IN PHYSICAL EDUCATION (3) LEC. 2. LAB. 2. Instructional and class management strategies appropriate to teach quality elementary and secondary physical education Admission to Teacher Education.

KINE 3400 HEALTH PROMOTION IN THE WORKPLACE (3) LEC. 3. Planning, implementation, evaluation and marketing of health promotion programs.

KINE 3410 REGISTERED YOGA TEACHER LEVEL I (3) LEC. 2. LAB. 2. Basic principles of teaching yoga. Concepts include the poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3410 & KINE 3420 completes a Yoga Teacher Certification.

KINE 3420 REGISTERED YOGA TEACHER LEVEL II (3) LEC. 2. LAB. 2. Pr. KINE 3413 or KINE 3410 or HLHP 3410 or HLHP 3413. Advanced principles of teaching yoga. Focus on poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3410 and KINE 3420 completes a Yoga Teacher Certification.

KINE 3620 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Coreq. KINE 3621. Understanding of anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis, will enable the student to evaluate human movement in greater detail. Departmental approval is needed for non-majors to enroll.

KINE 3621 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT LABORATORY (1) LAB. 1. Pr. P/C KINE 3620 or P/C KINE 3623 or P/C KINE 3627. Laboratory experience focuses on application of knowledge of anatomical, neuromuscular, and biomechanical principles of human movement. Content emphasizes understanding the science of exercise, how to apply and interpret common mechanical measures, and writing about findings using basic scientific writing techniques.

KINE 3627 HONORS BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Pr. Honors College. Coreq. KINE 3621. Understanding of anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis, will enable the student to evaluate human movement in greater detail. Departmental approval is needed for non-majors to enroll.

KINE 3650 MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Understanding of the basic psychological and physiological involved in the learning and control of skillful human movement.

KINE 3651 MOTOR LEARNING AND PERFORMANCE LABORATORY (1) LAB. 2. Pr. P/C KINE 3650 or P/C KINE 3653 or P/C KINE 3657. Lab experience will allow students to gain first-hand experience with modern experimental methods, data collection, and basic analysis tools in motor learning research and develop an understanding of the experience of human research participants in kinesiology research.

KINE 3657 HONORS MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Pr. Honors College. Understanding of the basic psychological and physiological involved in the learning and control of skillful human movement.

KINE 3680 PHYSIOLOGY OF EXERCISE (3) LEC. 3. Energetics of exercise and physiological responses and adaptions of various organ systems (muscular, circulatory, respiratory, etc.) to acute and chronic exercise in different environments.

KINE 3681 PHYSIOLOGY OF EXERCISE LAB (1) LAB. 2. Coreq. KINE 3680. Applying knowledge of basic energy, musculoskeletal, nervous, and cardiovascular systems using various testing procedures. Focus on understanding the science of exercise, interpreting common physiological fitness tests, and how to write about findings using basic scientific writing techniques.

KINE 3687 HONORS PHYSIOLOGY OF EXERCISE (3) LEC. 3. Pr. Honors College. Energetics of exercise and physiological responses and adaptions of various organ systems (muscular, circulatory, respiratory, etc.) to acute and chronic exercise in different environments.

KINE 3820 PRINCIPLES OF SPORT COACHING (3) LEC. 3. Basic principles of sport pedagogy and the conduct of sport training programs. Departmental approval. May count either KINE 3820 or KINE 3823.

KINE 3830 THEORY AND PRACTICE OF SPORTS OFFICIATING (3) LEC. 3. Instruction and practice of officiating a variety of sport activities.

KINE 3840 COACHING THE MENTAL SIDE OF SPORTS (3) LEC. 3. Understand athletes' psychology and how to provide them wit mental skills to enhance their performance in athletics, academics, and life.

KINE 3870 LEGAL AND ILLEGAL SPORTS SUPPLEMENTS (3) LEC. 3. Introductory approach to the safety, efficacy, and legality of popular legal and illegal sports supplements.

KINE 4130 THE NEUROBIOLOGY OF PLAY (3) LEC. 3. This course is an introduction to psychological and neuroscientific research on play and games. We will focus on play behavior in human beings, but will incorporate comparative evidence from play in other animals. Using an interdisciplinary approach, we will draw.

KINE 4200 PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. HLHP 3300. Understanding of the skill theme approach based on skill themes, movement concepts and levels of skill proficiency. Credit will not be given for both KINE 4200 and KINE 4360. Admission to Teacher Education.

KINE 4300 PHYSICAL EDUCATION IN SECONDARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. (KINE 3300 or HLHP 3300). Constructing and implementing appropriate lifetime sports and fitness programs for middle and secondary school students. Admission to Teacher Education.

KINE 4360 HEALTH EDUCATION AND PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (2) LEC. 1. LAB. 2. Critical topics in health education and physical education for prospective elementary education teachers. Credit will not be given for both KINE 4360 and KINE 4200.

KINE 4400 APPLIED ANATOMY FOR THE ALLIED HEALTH PROFESSIONAL (3) LEC. 3. Study of skeletal anatomy with an applied approach. May count either KINE 4400 or KINE 4403.

KINE 4450 PHYSICAL ACTIVITY AND PUBLIC HEALTH (3) LEC. 3. Departmental approval. Basic principles of epidemiology; health benefits of physical activity; strategies to promote physical activity at the individual and community levels.

KINE 4500 INDIVIDUAL AND GROUP FITNESS INSTRUCTION (3) LEC. 3. Principles of exercise prescription and field assessment techniques to develop, implement and evaluate individual and group exercise programs.

KINE 4560 SPORT TECHNIQUE AND MOVEMENT ANALYSIS (3) LEC. 3. Skills and knowledge for observing, evaluating, and correcting movement patterns. May count either KINE 4560 or KINE 4563.

KINE 4600 STRENGTH AND CONDITIONING DEVELOPMENT (3) LEC. 3. Basic concepts and principles of strength, endurance and speed development.

KINE 4620 EXERCISE AND SPORT PSYCHOLOGY (3) LEC. 3. Role of psychological factors in sport, exercise and physical activity.

KINE 4627 HONORS EXERCISE AND SPORT PSYCHOLOGY (3) LEC. 3. Pr. Honors College. Role of psychological factors in sport, exercise and physical activity.

KINE 4630 STRENGTH AND CONDITIONING PREPARATION (3) LEC. 3. Pr. (KINE 4600 or KINE 4603) and (KINE 3680 or KINE 3683 or KINE 3687). Preparation as a Certified Strength and Conditioning Specialist.

KINE 4640 PHYSICAL CONDITIONING AND SPEED (3) LEC. 3. Basic concepts and principles of physical conditioning and speed.

KINE 4690 CORRECTIVE EXERCISE SPECIALIST PREPARATION (3) LEC. 3. Pr. KINE 3620 and P/C KINE 3621 or P/C KINE 3627. Preparation for the National Academy of Sports Medicine corrective exercise specialist examination. May count either KINE 4690 or KINE 4693.

KINE 4760 INTRODUCTION TO EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. (KINE 3620 or KINE 3627) and (KINE 3650 or KINE 3657) and (KINE 3680 or KINE 3687). Research literature, experimental design and research interpretation in exercise science.

KINE 4767 HONORS INTRO TO EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. Honors College. Research literature, experimental design and research interpretation in exercise science.

KINE 4780 EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. (KINE 4760 or KINE 4763 or KINE 4767) and (KINE 3620 or KINE 3623 or KINE 3627) and (KINE 3650 or KINE 3653 or KINE 3657) and (KINE 3680 or KINE 3683 or KINE 3687). Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4787 HONORS EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. Honors College. KINE 3620 or KINE 3623 and KINE 3650 or KINE 3653. and KINE 4760 or KINE 4763. and KINE 3680 or KINE 3683. Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4860 EXERCISE PROGRAMMING FOR SPECIAL POPULATIONS (3) LEC. 3. Principles of exercise prescription, programming and field assessment techniques to develop, implement and evaluate exercise programs for special populations. May count either KINE 4860 or KINE 4863.

KINE 4880 TRAINING AND CONDITIONING PROGRAMMING (3) LEC. 3. Pr. (KINE 4600 or HLHP 4600 or HLHP 4640) and KINE 4640. Skills and knowledge related to sport specific annual training regimens.

KINE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 6 credit hours.

KINE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Application of basic concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 4920 CLINICAL RESIDENCY (12) LEC. 12. SU. Pr. KINE 4200 and KINE 4300. Culminating supervised work experience in school settings for K-12 Physical Education. Students must be cleared and approved for Clinical Residency by College of Education criteria.

KINE 4930 PHYSICAL ACTIVITY AND HEALTH INTERNSHIP (1-12) LEC. 1-12. SU. Pr. KINE 5400 or KINE 5403. Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. May count either KINE 4930 or KINE 4933. Course may be repeated for a maximum of 12 credit hours.

KINE 4940 FITNESS, CONDITIONING AND PERFORMANCE INTERNSHIP (1-12) DSL/INT. SU. Pr. (KINE 4690 or KINE 4693) and (KINE 4880 or KINE 4883). Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. Site must be approved by internship coordinator. May count either KINE 4940 or KINE 4943. Course may be repeated for a maximum of 12 credit hours.

KINE 4970 SPECIAL TOPICS (1-3) AAB. Advanced presentation of critical issues in physical education, health promotion or exercise science. Course may be repeated with change in topic. Course may be repeated for a maximum of 12 credit hours.

KINE 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental Approval. Directed research within the area of specialty within the School. Course may be repeated for a maximum of 6 credit hours.

KINE 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

KINE 5400 EXERCISE ASSESSMENT, PRESCRIPTION, & PROGRAMMING (3) LEC. 3. Pr. (KINE 3620 or KINE 3623 or KINE 3627) and (KINE 3680 or KINE 3683 or KINE 3687). This course is designed to develop the knowledge, skills, and abilities necessary to work with clients, performing exercise testing for health and fitness and developing exercise programs following American College of Sports Medicine (ACSM) and National Strength and Conditioning Association (NSCA) guidelines. The course will focus on the principles and guidelines for exercise testing and programming.

KINE 5500 EXERCISE ASSESSMENT AND TESTING (3) LEC. 1. LAB. 4. Pr. (KINE 3620 or KINE 3627) and (KINE 3680 or KINE 3687) and KINE 3681. Familiarization with exercise testing, exercise testing instrumentation, and application of concepts in physiological testing, test selection, and interpretation of assessments in normal populations. May count KINE 6500.

KINE 5501 CLINICAL EXERCISE TESTING LABORATORY (2) LAB. 2. Pr. KINE 3680 and (KINE 3681 or KINE 3687) and (KINE 5500 or KINE 5503). Application of concepts in physiological testing, test selection and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction.

KINE 5820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 5920 INTERNSHIP (1-12) INT. SU. Pr. (KINE 4630 or KINE 4633) and (KINE 5400 or KINE 5403). Supervised work experiences in schools, fitness or rehabilitation settings. Two hours of work experience per week for each hour course credit. Course may be repeated for a maximum of 12 credit hours.

KINE 6200 RESEARCH PROJECT IN PHYSICAL EDUCATION (3) LEC. 3. Focus on action research in teaching and learning in physical education in schools. May count either KINE 5200 or KINE 6200.

KINE 6250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2. Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress. May count either KINE 5250 or KINE 6250.

KINE 6300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2. Strategies for development of advocacy programs in physical education. May count either KINE 5300 or KINE 6300.

KINE 6350 ASSESSMENT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. P/C KINE 7920 or P/C HLHP 7920 or P/C HLHP 7926.

KINE 6400 EXERCISE ASSESSMENT, PRESCRIPTION, & PROGRAMMING (3) LEC. 3. Pr. KINE 3680 or KINE 3687. This course is designed to develop the knowledge, skills, and abilities necessary to work with clients, performing exercise testing for health and fitness and developing exercise programs following American College of Sports Medicine (ACSM) and National Strength and Conditioning Association (NSCA) guidelines. The course will focus on the principles and guidelines for exercise testing and programming.

KINE 6500 EXERCISE ASSESSMENT AND TESTING (3) LEC. 1. LAB. 4. Pr. KINE 3680 or KINE 3687. Familiarization with concepts in exercise testing, testing instrumentation, test selection & application, and interpretation of assessments in normal populations for the purpose of exercise prescription. May count either KINE 5500 or KINE 6500.

KINE 6501 CLINICAL EXERCISE TESTING LABORATORY (2) LAB. 2. Pr. KINE 3680 or KINE 3687. Coreq. KINE 6500. Learn and practice the skills to perform clinical exercise testing for health and fitness in accordance with American College of Sports Medicine (ACSM).

KINE 6600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2. LAB. 2. Pr. KINE 3680 or KINE 3687. Physiological adaptations to training and conditioning for sport performance. May count either KINE 5600 or KINE 6600.

KINE 6820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 6920 INTERNSHIP (1-12) INT. SU. Pr. (KINE 7630 and KINE 6400) or KINE 6406. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 12 credit hours.

KINE 7010 RESEARCH METHODS IN PHYSICAL ACTIVITY (3) LEC. 3. Study of research methods and analysis of current research in physical education, health promotion, and exercise science.

KINE 7180 APPLIED SOCIOLOGICAL ASPECTS OF SPORT AND EXERCISE (3) LEC. 3. Critical examination and application of sociological aspects of sport and exercise in a variety of settings. May count either KINE 7180 or KINE 7186.

KINE 7200 CURRICULUM AND TEACHING IN PHYSICAL EDUCATION (3) LEC. 3. Issues in developing and critiquing curricula in physical education.

KINE 7250 EVALUATION OF PROGRAMS IN PHYSICAL EDUCATION (3) LEC. 3. Development of tools for assessment of student learning and evaluation of physical education programs.

KINE 7260 INDIVIDUALS WITH DISABILITIES IN PHYSICAL EDUCATION (3) LEC. 3. Developing inclusive physical activity programs for children and adolescents with disabilities in physical education.

KINE 7280 NATURALISTIC INQUIRY IN PHYSICAL ACTIVITY SETTINGS (3) LEC. 3. Exploration of naturalistic inquiry in physical activity and educational settings.

KINE 7300 CONTENT AND PEDAGOGY IN PHYSICAL EDUCATION (3) LEC. 3. Instructional strategies and content for elementary and secondary physical education.

KINE 7350 ORGANIZATION AND ANALYSIS OF INSTRUCTION IN PHYSICAL EDUCATION (3) LEC. 3. Focus on the teaching-learning process in physical education.

KINE 7380 INTEGRATING CLASSROOM CONCEPTS (3) LEC. 3. Relationship of developmental foundations of young children and programming of physical activities.

KINE 7400 ADVANCED ANATOMICAL PRINCIPLES (3) LEC. 3. Clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact and utilize anatomical knowledge. May count either KINE 7400 or KINE 7406.

KINE 7420 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH I (3) LEC. 3. Introductory approach to skill analysis as well as the use of the software program Dartifish. May count either KINE 7420 or KINE 7426.

KINE 7430 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH II (3) LEC. 3. Pr. KINE 7420 or HLHP 7420 or HLHP 7426 or KINE 7426. Advanced approach to skill analysis as well as the use of the software program Dartifish. May count either KINE 7430 or KINE 7436.

KINE 7550 EFFICIENT MOVEMENT STRATEGIES (3) DSL. 3. A review of the material and tools necessary to become a National Academy of Sports Medicine Corrective Exercise Specialist.

KINE 7570 EXERCISE ELECTROCARDIOGRAPHY (3) LEC. 3. Pr. KINE 3680 or KINE 3687. Electrocardiography from a exercise scientist's perspective; recognition of normal and abnormal electrocardiographic patterns at rest and during exercise.

KINE 7620 PRINCIPLES OF BIOMECHANICS IN HUMAN MOVEMENT (3) LEC. 3. Pr. KINE 3620 or KINE 3627. Biomechanical principles and laws with applications to human movement in sport, exercise and daily activities. Departmental approval. May count either KINE 7620 or KINE 7626.

KINE 7630 STRENGTH & CONDITIONING PREPARATION (3) LEC. Preparation as a Certified Strength and Conditioning Specialist.

KINE 7650 ADVANCED MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Pr. KINE 3650 or KINE 3657. Departmental approval. Theories, experimental studies, and current issues in the acquisition, performance, and retention of motor skills.

KINE 7660 BIOMECHANICS OF SPORT INJURY AND REHABILITATION (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or HLHP 7626). Biomechanical properties of the human body as related to injuries and rehabilitation in sport and daily activities.

KINE 7670 LAB TECHNIQUES IN BIOMECHANICS (3) LEC. 1. LAB. 2. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or KINE 7626). Study of equipment and standing practices utilized by a biomechanist in measuring and analyzing motion.

KINE 7680 ADVANCED PHYSIOLOGY OF EXERCISE I (3) LEC. 3. Pr. KINE 3680 or KINE 3687. Departmental approval. Physiological responses to exercise and control of metabolism, the cardiovascular system, and the respiratory system during acute exercise and training.

KINE 7700 ADVANCED PHYSIOLOGY OF EXERCISE II (3) LEC. 3. Pr. KINE 3680 or KINE 3687. Temperature regulation and endocrine response to exercise; physiological responses and adaptations to aerobic training, strength training, and environmental extremes; limiting factors and fatigue in exercise.

KINE 7710 LAB TECHNIQUES IN EXERCISE PHYSIOLOGY (3) LEC. 1. LAB. 4. Pr. (HLHP 7680 or HLHP 7686 or KINE 7680). Techniques for measuring and evaluating physical performance.

KINE 7730 NEUROMOTOR CONTROL (3) LEC. 3. Pr. KINE 3650 or KINE 3657. Departmental approval. Structure and function of the central and peripheral systems underlying human motor control.

KINE 7740 ADVANCED MOTOR DEVELOPMENT (3) LEC. 3. Departmental approval. Examination of theoretical and empirical issues in motor development across the life span.

KINE 7750 ADVANCED SPORT PSYCHOLOGY (3) LEC. 3. Pr. KINE 4620 or KINE 4627 or departmental approval. Examination of psychological factors that influence althletic performance. Or equivalent,

KINE 7780 EXERCISE MOTIVATION AND ADHERENCE (3) LEC. 3. Pr. KINE 4620 or KINE 4627. Theoretical foundations and recent research in exercise motivation and adherence. Or equivalent.

KINE 7790 MOTOR BEHAVIOR OF INDIVIDUALS WITH DISABILITIES (3) LEC. 3. Pr. (HLHP 7650 or HLHP 7656 or KINE 7650). Examination of motor behavior characteristics of individuals with disabilities.

KINE 7820 CLINICAL/NON-CLINICAL INTERNSHIP IN KINESIOLOGY (1-10) DSL/INT. SU. Supervised work experience in physical activity, health, fitness, conditioning, performance and rehabilitation settings. This course is for non-teacher education students. May count either KINE 7820 or KINE 7826. Course may be repeated for a maximum of 10 credit hours.

KINE 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 7910 PRACTICUM (1-3) PRA. Departmental approval. Application of concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 7920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 7930 NON-THESIS RESEARCH PROJECT (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Continuation/completion of a scientific research project that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

KINE 7970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course may be repeated with change in topic.

KINE 7980 RESEARCH PROJECT IN KINESIOLOGY (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Completion of a scientific research project in Kinesiology that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7990 RESEARCH AND THESIS (1-10) IND. Course may be repeated with change in topics.

KINE 8270 EXERCISE GENETICS (3) LEC. 3. This course will describe advanced concepts related to exercise genetics. Examples include how skeletal muscle responds to exercise at the epigenetic, transcriptomic, and proteomic level. Additionally, cutting-edge research topics (e.g., miRNA and retrotransposons) will be discussed in the context of exercise science.

KINE 8300 RESEARCH IN KINESIOLOGY (3) LEC. 3. Examination and evaluation of current research trends within the field of kinesiology.

KINE 8310 SUPERVISION/ADMINISTRATION OF LABS IN KINESIOLOGY (3) LEC. 3. Skills and techniques of the daily management of kinesiology labs. Topics include budgeting, outreach, entrepreneurship, grants, and personnel management.

KINE 8320 RESEARCH MENTORSHIP (3) LEC. 3. Skills and experience in the mentorship of novice researches in the field of Kinesiology.

KINE 8710 SCIENTIFIC COMMUNICATION IN EXERCISE SCIENCE (3) LEC. 3. In-depth analysis of the major formats for scientific communication and the peer-review process in exercise science. Or equivalent.

KINE 8730 NUTRIENT TIMING FOR PERFORMANCE OPTIMIZATION (3) LEC. 3. This course will discuss how Nutrient Timing is important for optimizing endurance- or resistance training adaptations in athletes.

KINE 8750 THREE-DIMENSIONAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7620) or KINE 7620 or KINE 7620. Three-dimensional nature of body segments in human movement, with emphasis on data processing and modeling techniques.

KINE 8770 NEUROMUSCULAR ASPECTS OF EXERCISE AND TRAINING (3) LEC. 3. Pr. KINE 7680 or HLHP 7680 or HLHP 7686 or departmental approval. Examination of neuromuscular mechanisms that allow humans to perform work, including energy output, neural integration, energy metabolism and adaptations to training.

KINE 8780 BIOCHEMISTRY OF EXERCISE (3) LEC. 3. Pr. (HLHP 7680 or KINE 7680) or HLHP 7686 or departmental approval. Regulation of the metabolic pathways of energy metabolism with emphasis on the energetic response to acute exercise and exercise training.

KINE 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 8910 PRACTICUM (1-3) PRA. SU. Departmental approval. Application of basic concepts to specific work environments. Course may be repeated for a maximum of 9 credit hours.

KINE 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness and rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 8930 DIRECTED FIELD EXPERIENCES (1-10) FLD. SU. Departmental approval. Field studies away from campus. Course may be repeated for a maximum of 10 credit hours.

KINE 8950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8960 SPECIAL PROBLEMS (1-3) IND. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education. health promotion, or exercise science. Course be repeated with change in topic. Course may be repeated with change in topics.

KINE 8980 FIELD PROJECT (1-6) FLD.

KINE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Field project away from campus. Course may be repeated for a maximum of 9 credit hours. Course may be repeated with change in topics.

Laboratory Science - LBSC

Courses

LBSC 2010 BASICS IN LABORATORY SCIENCE (2) LEC. 1. LAB. 1. Basic laboratory skills, quality control and assurance, standard precautions for biohazard testing; requirements for careers in medical and laboratory science.

LBSC 4010 HEMATOLOGY (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Origin, maturation, morphology, and function of normal blood cells and abnormalities in diseased blood with clinical correlation to disease processes.

LBSC 4011 HEMATOLOGY LAB (2) LAB. 6. Pr. (CHEM 2070 or CHEM 2077) and P/C LBSC 4010 and P/C LBSC 2010. Lab portion of course covering origin, maturation, morphology, and function of normal blood cells and abnormalities in disease blood with clinical correlation to disease processes.

LBSC 4050 CLINICAL IMMUNOHEMATOLOGY/PARASITOLOGY (5) LEC. 3. LAB. 6. Pr. (CHEM 2070 or CHEM 2077) and (BIOL 1020 or BIOL 1027). Immunogenetics, clinical significance of blood group antigens and antibodies, theory and techniques of serological study of human blood groups. Human parasites, life cycles and disease processes.

LBSC 4250 CLINICAL BIOCHEMISTRY/INSTRUMENTATION (4) LEC. 3. LAB. 3. Pr. P/C BCHE 5180 or P/C BCHE 3200. Biochemistry/physiology of systems in the body of elements in body fluids during the normal and abnormal processes. Theoretical and practical application of Lab techniques, atomic absorption, gaschromatograph-FID, HPLC, spectroscopy, spectrophotometry, ion selective electrodes and RIA used in analysis of body fluids.

LBSC 4910 CLINICAL PRACTICUM (0) PRA.

LBSC 4920 CLINICAL INTERNSHIP (0) INT/PRA.

Landscape Architecture - LAND

Courses

LAND 1110 STUDIO I (4) LEC. 3. LAB. 1. Foundation course introduces studio culture, principles and processes of visual design, and the tools and techniques of landscape architectural design.

LAND 1160 GRAPHIC STUDIES I (2) LEC. 1. LAB. 1. Coreq. LAND 1110. Focuses on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage.

LAND 1210 STUDIO II (4) LEC. 3. LAB. 1. Pr. LAND 1110. Foundation course builds fundamental design process skills by exploring terrain and ecology through design exercises on small sites.

LAND 1260 GRAPHIC STUDIES II (2) LEC. 1. LAB. 1. Pr. LAND 1160. Introduces integrated analog-digital workflows. Focus on digital methods and tools: photomontage, diagramming, and presentation assembly; digital modeling, analysis, and rendering.

LAND 2110 PLANTS AND CONSTRUCTION WORKSHOP I (5) LEC. 4. LAB. 1. Pr. LAND 1210. Uses a field- and project- based approach to engage the medium of landscape architecture (plants, land, soils, and materials).

LAND 2120 FIELDWORK I (1) FLD. 1. Pr. LAND 1210. Coreq. LAND 2110. Advances program focus on landscape experience. Introduces techniques and tools for site reconnaissance: direct measurement, observation, evaluation, and synthesis.

LAND 2140 HISTORY, THEORY, AND PRACTICE I (3) LEC. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 2210 PLANTS AND CONSTRUCTION WORKSHOP II (5) LEC. 4. LAB. 1. Pr. LAND 2110. Focuses on landscape expression, experience, and cycles, including plant ephemerality, material assemblies, maintenance, performance, and choreography of landscape experience.

LAND 2220 FIELDWORK II (1) FLD. 1. Coreq. LAND 2210. Considers phenological and environmental cycles, expression of plants, materials, and atmospheres to strengthen relationships between design intention and physical expression.

LAND 2240 HISTORY, THEORY, AND PRACTICE II (3) LEC. 3. Pr. LAND 2140. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 3110 STUDIO III (5) LEC. 4. LAB. 1. Pr. LAND 2210. Advanced studio introduces design research processes to investigate eco-cultural relationships between regional and urban scales with emphasis on landscape networks.

LAND 3120 FIELDWORK III (1) FLD. 1. Pr. LAND 2220. Coreq. LAND 3110. Expand techniques and tools for site reconnaissance: multiple site visits to develop skills, deepen inventories, and contextualize design projects.

LAND 3160 DYNAMIC SYSTEMS I (3) LEC. 3. Pr. LAND 2240. Establishes ecological theories as a framework for analysis of urban conditions and as a tool for decision-making and design.

LAND 3210 STUDIO IV (5) LEC. 4. LAB. 1. Pr. LAND 3110. Junior studio focused on processes to support design at multiple scales for resilient landscapes that integrate aesthetics, program, and performance.

LAND 3220 FIELDWORK IV (1) FLD. 1. Pr. LAND 3120. Coreq. LAND 3210. Expand techniques and tools for mapping large scale landscape systems. Develop documentation skills using aerial photogrammetry and advanced site visualization.

LAND 4110 STUDIO V (5) LEC. 4, LST. 1. Pr. LAND 3210. Comprehensive studio synthesizes skills toward landscape activism and engagement in cultural contexts of urban, ex-urban, or rural sites and systems.

LAND 4120 FIELDWORK V (1) FLD. 1. Pr. LAND 3220. Coreq. LAND 4110. Apply comprehensive site reconnaissance skills to gather landscape intelligence. Engage community representatives to contextualize studio work.

LAND 4210 STUDIO VI (5) LEC. 4, LST. 1. Pr. LAND 4110. Comprehensive studio helps students develop sophisticated design research. Students create new work and critically evaluate its theoretical context.

LAND 4220 FIELDWORK VI (1) FLD. 1. Coreq. LAND 4210. Use broad skills, techniques, and thinking about site reconnaissance to frame design projects. Gather and synthesize comprehensive landscape intelligence.

LAND 4240 PROFESSIONAL PRACTICE (3) SEM. 3. Surveys development and ethics of the landscape architecture profession, businesses, and practices, to help students plot their futures.

LAND 4410 SEMINAR ON LANDSCAPE MATTER (3) SEM. Departmental approval. Seminar which explores material considerations in landscape, such as material selection and performance, material assemblies, landform and grading, or designing with plants and ecological communities, as they relate to the discipline of landscape architecture and are not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4420 SEMINAR ON LANDSCAPE ADVOCACY (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of landscape advocacy, such as public interest design, community outreach, and public engagement, as they relate to the discipline of landscape architecture and are not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4430 SEMINAR ON LANDSCAPE THOUGHT (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of landscape history, landscape theory, critique, or associated discourse as it relates to the discipline of Landscape Architecture and is not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4440 SEMINAR ON LANDSCAPE REPRESENTATION (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of Landscape Representation, Graphic Communication, and/or Drawing as it relates to the discipline of Landscape Architecture and is not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4450 SEMINAR ON LANDSCAPE RESEARCH (3) SEM. Departmental approval. Seminar which explores a focused, advanced component of Landscape Research as it relates to the discipline of Landscape Architecture and is not covered in the current curriculum. Course may be repeated for a maximum of 9 credit hours.

LAND 4900 DIRECTED STUDIES (1-3) IND. Departmental approval. Opportunity for students to work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours.

LAND 4920 PROFESSIONAL INTERNSHIP (1-3) INT. SU. Departmental approval. Opportunity for students to develop expertise in professional practice under the guidance of professionals. This includes but is not limited to site design, construction documentation, client/community presentations, and project management. Course may be repeated for a maximum of 3 credit hours.

LAND 4970 SPECIAL TOPICS IN LANDSCAPE ARCHITECTURE (3) LEC/SEM. Departmental approval. Study of a topic of special interest in landscape architecture beyond current program course offerings. Course may be repeated for a maximum of 9 credit hours.

LAND 5030 LANDSCAPE DESIGN METHODS (3) LEC. 9. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 5040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 9. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 5130 STUDIO I: FOUNDATION STUDIO (5) STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 5131 FIELDWORK I (1) FLD. 1. Field studies and travel related to studio. May count either LAND 5131 or LAND 6131.

LAND 5140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) SEM. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 5147 HONORS HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) SEM. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 5150 CONSTRUCTION I: LANDFORM & HYDROLOGY (3) LEC. 3. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management.

LAND 5160 GRAPHIC STUDIES I (2-3) LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 5230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May count either LAND 5230 or 6230.

LAND 5231 FIELDWORK II (1) FLD. 1. Field studies and travel related to studio. Departmental approval. May count either LAND 5231 or LAND 6231.

LAND 5240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 5250 CONSTRUCTION II: MATERIALS & DETAILING (3) LEC. 3. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 5260 GRAPHIC STUDIES III (3) SEM. 3. Pr. LAND 5150. Departmental approval. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 5270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 5290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 5330 STUDIO III (5) LEC. 5. Pr. (LAND 5230 or LAND 6230) or (P/C LAND 5331 or P/C LAND 6331). Departmental approval. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 5331 FIELDWORK III (1) FLD. 1. SU. Pr. (LAND 6230 or LAND 5230) or (P/C LAND 5330 or P/C LAND 6330). Departmental approval. Field studies and travel related to studio.

LAND 5340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 5240. Departmental approval. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture.

LAND 5350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 5360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 5367 HONORS DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 5370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 5380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, starts, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 5410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 5940 FIELDWORK ABROAD (3-6) AAB. Landscape architectural fieldwork conducted in locations outside the United States. Course may be repeated for a maximum of 9 credit hours.

LAND 6030 LANDSCAPE DESIGN METHODS (3) LEC. 3. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 6040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 3. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 6130 STUDIO I: FOUNDATION STUDIO (5) AAB/STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 6131 FIELDWORK I (1) AAB/FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) AAB/SEM. 3. Pr. LAND 5230 or LAND 6230. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 6150 CONSTRUCTION I: LANDFORM & HYDROLOGY (3) LEC. 3. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management.

LAND 6160 GRAPHIC STUDIES I (2-3) AAB/LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 6170 GRAPHIC STUDIES II (3) LEC. 3. Departmental approval. Graphic and communication theories and skills in a variety of media. Photoshop, Illustrator, Indesign and AutoCAD.

LAND 6230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May either LAND 5230 or 6230.

LAND 6231 FIELDWORK II (1) FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 6250 CONSTRUCTION II: MATERIALS & DETAILING (3) LEC. 3. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 6270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 6290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 6330 STUDIO III (5) LEC. 5. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 5331 and LAND 6331. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 6331 FIELD STUDIES III (1) FLD. 1. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 5330 and LAND 6330. Field studies and travel related to studio.

LAND 6340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 6240. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture. Departmental approval

LAND 6350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 6360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 6370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 6380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, strata, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 6410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 6940 FIELDWORK ABROAD (3-6) AAB. Landscape architectural fieldwork conducted in locations outside the United States. Course may be repeated for a maximum of 9 credit hours.

LAND 7130 STUDIO IV (5) AAB/STU. 5. Departmental approval. Investigates design strategies and techniques for generating new resilient cultural and environmental practices within complex dynamic conditions.

LAND 7131 FIELDWORK IV (1) AAB/FLD. 1. Pr. P/C LAND 5230. Departmental approval. Coreq. LAND 7130. Field studies and travel related to studio.

LAND 7140 URBAN STUDIES II: GLOBAL URBANISM (3) LEC. 3. Departmental approval. Examines the major global drivers of urban change, contemporary theories of international urban design, geography and cultural theory.

LAND 7170 PLANTS II (2-3) AAB/LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant ephemerality, functionality, and phenology. Course may be repeated for a maximum of 3 credit hours.

LAND 7190 RESEARCH BY DESIGN: FRAMEWORKS, METHODS, AND STRATEGIES (3) SEM. 3. Design is not just about solving problems, but figuring out which questions to ask in the first place. This course guides students through the iterative process of situating, identifying, framing, and testing a student-chosen trend, topic, or question.

LAND 7230 STUDIO V: COMPREHENSIVE STUDIO (5) STU. 5. Pr. LAND 5230. The first part of a two-semester research studio which involves creating a new body of work within a theoretical context and then critically appraising this work and its theoretical framework.

LAND 7231 FIELDWORK V (1) FLD. 1. Coreq. LAND 7230. Course is directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Emphasizes first-hand experiences of the landscape where careful observation and analysis occur; and introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7240 THEORIES AND PRACTICES (3) SEM. 3. Departmental approval. This is a reading, writing, and discussion seminar that examines the idea that the development of a democratic, civic, diverse social ecology can create more resilient and sustainable communities.

LAND 7250 CONTEMPORARY ISSUES IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Pr. LAND 5230. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7270 CONSTRUCTION III: REGENERATIVE TECHNOLOGIES (2-3) LEC. Introduces issues of land contamination and explores remediative and regenerative technologies as design strategies towards new productive futures. Course may be repeated for a maximum of 3 credit hours.

LAND 7280 DYNAMIC SYSTEMS II: REGIONAL ECOLOGIES (3) LEC. 3. This lecture/field laboratory course examines conditions of regional ecologies at multiple scales and explores possible public and private responses to these issues.

LAND 7290 GRAPHIC STUDIES III (3) SEM. 3. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 7330 STUDIO VI: COMPREHENSIVE STUDIO (5) STU. 12. Pr. LAND 5230 or LAND 6230. A culmination of a design research project that ends in a public review and exhibition.

LAND 7331 FIELDWORK VI (1) FLD. 15. Coreq. LAND 7330. Directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Gets students out of the classroom and emphasizes first-hand experiences of the landscape where careful observation and analysis occur. Introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7340 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course surveys the development and ethics of the profession of landscape architecture and presents an overview of the business and practice of the profession.

LAND 7410 SEMINAR ON HISTORY AND THEORY (3) LEC. 3. Departmental approval. Opportunity for students to further develop expertise expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7420 SEMINAR ON COMMUNITY OUTREACH (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7430 SEMINAR ON HYDROLOGY (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7440 SEMINAR ON LANDSCAPE COMMUNICATION (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7450 SEMINAR ON LANDSCAPE RESEARCH (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7470 LANDSCAPE ARCHITECTURE INTERNSHIP (3) PRA. 3. By approval of Chair of Landscape Architecture. A practical, professional, full-time, curriculum-related work experience in the industry of landscape architecture. Under joint supervision of employer and university. Course may be repeated for a maximum of 9 credit hours.

LAND 7900 DIRECTED STUDIES (1-3) AAB. An individual student can pursue an area of research beyond the required curriculum. Departmental approval; MLA II standing. Course may be repeated for a maximum of 9 credit hours.

LAND 7960 SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7970 SPECIAL TOPICS (1-6) AAB. Groups of student work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours. ADDITIONAL PREREQUISITES: Departmental approval; MLA I standing.

LAND 7992 RESEARCH SUMMARY (1) LEC. 1.

Leadership - LEAD

Courses

LEAD 2000 FOUNDATIONS OF LEADERSHIP (3) LEC. 2. LAB. 1. Introductory course for students pursing the Leadership Minor.

LEAD 2100 WOMEN AND LEADERSHIP (3) LEC. 3. An interactive exploration of the social, political, economic, and cultural implications of women's current and historic leadership roles.

LEAD 2200 INTRODUCTION TO COMMUNITY AND CIVIC ENGAGEMENT (3) LEC. 3. Introduction to Community and Civic Engagement introduces students to the context, issues, skills, and experience of citizenship and civic leadership in a democratic society.

LEAD 3200 LEADERSHIP FOR A GLOBAL SOCIETY (3) LEC. 3. This heavily discussion- and project-based seminar, coupled with reading list and plethora of guests, activities, and online resources, offers participants the tools required or effective leadership in an increasingly global society.

LEAD 4000 LEADERSHIP IN PRACTICE (3) LEC. 3. Pr. LEAD 2000. Capstone course in interdisciplinary leadership minor.

Liberal Arts, General - LBAR

Courses

LBAR 1210 THINKING THROUGH THE ARTS (3) LEC. 3. In this course, students will attend and critically engage with a broad range of the semester’s local art exhibitions and performances. Students will reflect on their experiences as arts participants and put those responses into dialogue with secondary readings, guest lectures, and workshops with visiting artists.

LBAR 2010 LIBERAL ARTS CAREERS PREPARATION (2) LEC. 2. This course helps Liberal Arts majors to identify their strengths and talents as liberal arts students, to seek appropriate educational and extracurricular experiences, and to plan for a successful transition from college to career. May cont either LBAR 2010 or LBAR 2013.

LBAR 2020 LIBERAL ARTS ORIENTATION AND CAREERS PREPARATION (2) LEC. 2. Designed for transfer students. An introduction to the College of Liberal Arts, campus resources and involvement, and career preparation strategies to facilitate a successful transition to the college, university, and beyond.

LBAR 3910 PRACTICUM IN LIBERAL ARTS (1-3) AAB. Focused civic engagement or study abroad experiences designed to develop leadership, social responsibility, and cross-cultural awareness. Course may be repeated for a maximum of 6 credit hours.

LBAR 4010 LIBERAL ARTS CAREER PLANNING (1) DSL/PR1. 1. SU. Pr. LBAR 2010. This course aids Liberal Arts students in obtaining positions consistent with their career goals. It is a hybrid course with class meetings, career coach meetings, online lessons, career-related assignments, and experiential learning events. Must be a junior or senior student in CLA.

LBAR 4800 INTERNATIONAL STUDIES SENIOR CAPSTONE (3) LEC. 3. Pr. (LBAR 2010 or LBAR 2020) and POLI 1050 and POLI 3090 and COMM 3450 and FLGC 1150. Capstone research project involving multidisciplinary research, writing, and presentation by a student completing the International Studies major.

LBAR 4920 INTERNATIONAL STUDIES INTERNSHIP (3) LEC. 3. The International Studies internship is an opportunity for students to gain practical experience in an international organization, to expand their professional networks, identify personal learning goals that will enhance their career prospects. The applied experience will enable students to integrate academic coursework with work experience, career development goals, and personal values. They will see the practical way in which cross cultural issues and second language usage are manifested in a work environment.

Management - MNGT

Courses

MNGT 3010 PROFESSIONAL DEVELOPMENT IN MANAGEMENT (1) LEC. 1. SU. Pr. (P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107) and P/C BUSI 2010. Career planning and preparation for employment in a management position.

MNGT 3100 PRINCIPLES OF MANAGEMENT (3) LEC. 3. Management functions and the applications of management principles in organization. Junior standing. May count either MNGT 3100 or MNGT 3810.

MNGT 3107 HONORS PRINCIPLES OF MANAGEMENT (3) LEC. 3. Pr. Honors College. Management functions and the applications of management principles in organization. Fall, Spring. Junior standing.

MNGT 3460 ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Study, analysis and application of theories and techniques for understanding, predicting and managing human behavior in the organizational context.

MNGT 3810 MANAGEMENT FOUNDATIONS (3) LEC. 3. Management Foundations is a broad based introductory course that will focus on management functions and applications of management principles. This course is not open to undergraduates majoring in business. Junior standing. May count either MNGT 3100 or MNGT 3810.

MNGT 3970 GLOBAL PERSPECTIVES IN BUSINESS IN SPAIN (6) LEC. 6. The objective of the course is to learn about business in Spain by immersing the student totally into the Spain language and culture. Course may be repeated for a maximum of 12 credit hours.

MNGT 4100 MANAGEMENT IN GLOBAL BUSINESS ENVIRONMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Issues unique to managing operations in the global business environment.

MNGT 4400 ORGANIZATIONAL CHANGE (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. The complexities involved in implementing change in organizations.

MNGT 4610 INTERNATIONAL FIELD ANALYSIS PROJECT COURSE (3) LEC. 3. Field analysis team projects with local or multinational organizations in a foreign county. Course will be taught in conjunction with COB International Studies Programs.

MNGT 4690 ETHICAL ISSUES IN MANAGEMENT (3) LEC. 3. Pr. (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). The course is designed to help students gain a better understanding of how ethical dilemmas can impact managerial decisions.

MNGT 4800 STRATEGIC MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization. College of Business Information Technology requirement.

MNGT 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. MNGT 3100 or MNGT 3103 or MNGT 3107. Departmental approval. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

MNGT 4950 SEMINAR IN MANAGEMENT (1-10) AAB/SEM. Departmental approval. Course may be repeated for a maximum of 10 credit hours.

MNGT 4970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. Pr. MNGT 3100. This course covers current topics related to managing people and organizations. or Departmental Approval. Course may be repeated for a maximum of 6 credit hours.

MNGT 5560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 5900 DIRECTED STUDIES (1-3) AAB/IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 5960 SPECIAL PROBLEMS IN MANAGEMENT (1-3) AAB/IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 6560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 6900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

MNGT 6960 SPECIAL PROBLEMS (1-3) AAB/IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

MNGT 6970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. This course covers emerging and current topics related to managing people and organizations that are not otherwise covered in existing courses.

MNGT 7970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. Departmental approval. Current topics in management.

MNGT 8030 RESEARCH METHODS IN MANAGEMENT I (3) LEC. 3. Pr. MNGT 8400. Research methodologies used in conducting research with emphasis on empirical organizational behavior research methods. A graduate-level course taken in major field, and working knowledge of SPSS or SAS.

MNGT 8310 SEMINAR IN ADVANCED ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Departmental approval. Advanced study of theories and research in organizational behavior. Overarching organizational behavior paradigms and theoretical perspectives and research findings at the individual and group levels of analysis.

MNGT 8320 SEMINAR IN STRATEGY IMPLEMENTATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy implementation.

MNGT 8330 SEMINAR IN STRATEGY FORMULATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy formulation.

MNGT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (4) LEC. 3. LAB. 1. Pr. STAT 7000. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models. STAT 7000 or approved equivalent.

MNGT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Marketing - MKTG

Courses

MKTG 3010 PROFESSIONAL DEVELOPMENT IN MARKETING (1) LEC. 1. SU. Pr. (P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317) and P/C BUSI 2010. Career planning and preparation for employment in the marketing industry.

MKTG 3310 PRINCIPLES OF MARKETING (3) LEC. 3. Study of functions, institutions, and basic problems in marketing of goods and services in a global economy. Credit will not be given for both MKTG 3310 and MKTG 3810. Junior standing.

MKTG 3317 HONORS PRINCIPLES OF MARKETING (3) LEC. 3. Pr. Honors College. Study of functions, institutions, and basic problems of marketing goods and services in a global economy. Junior standing.

MKTG 3810 FOUNDATIONS OF BUSINESS MARKETING (3) LEC. 3. Broad-based course for non-business majors that focuses on marketing functions and applications of marketing principles. Students enrolled in a business major or the Marketing minor may not enroll in this course. May count either MKTG 3310 or MKTG 3810; credit will not be awarded for both MKTG 3310 and MKTG 3810. Junior standing.

MKTG 4310 SPORTS AND ENTERTAINMENT MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Application of marketing theory and practice to the sports and entertainment business.

MKTG 4330 RETAIL MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Principles of retail operation: facility location, layout, purchasing, pricing and merchandise control.

MKTG 4340 MARKETING AND NEW PRODUCT DEVELOPMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Marketing-based analysis of profitable new products and brand extensions involving the invention, development, and product launch plus sustaining market success.

MKTG 4390 PERSONAL SELLING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Selling strategy as an interdisciplinary business activity.

MKTG 4400 INTERNATIONAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Strategy, policy, and the variables affecting international marketing decisions.

MKTG 4410 CONSUMER BEHAVIOR (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Critical review and analysis of possible pragmatic applications of consumer behavior theories used for marketing decision making.

MKTG 4420 ADVANCED PERSONAL SELLING (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810) and (MKTG 4390 or MKTG 4393). Grade of C or better in prerequisite courses. Advanced personal selling skills, practices and programs are covered. Emphasis is placed on sales presentations, demonstrations, negotiations and relationship building skills.

MKTG 4430 BUSINESS TO BUSINESS MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Marketing strategy and applications for business-to-business companies and markets.

MKTG 4440 MARKETING ETHICS AND CORPORATE SOCIAL RESPONSIBILITY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Explores marketing ethics and social responsibility from an organizational perspective.

MKTG 4450 CUSTOMER RELATIONSHIP MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3810 or MKTG 3317. This course is designed to compare and contrast the basic concepts of customer relationship management (CRM) as related to sales strategy. Grade of C or better in prerequisite course.

MKTG 4460 ADVERTISING STRATEGY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. The course applies research in psychology and the behavioral sciences to advertising strategy, including the methodology for planning, execution, and evaluation of advertising campaigns.

MKTG 4470 PHARMACEUTICAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. This course will examine the current pharmaceutical marketing environment from a practical perspective. Grade of C or better in prerequisite course.

MKTG 4480 PRICING STRATEGY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. The examination of pricing objectives, strategy, and tactics in marketing. Grade of C or better in prerequisite course.

MKTG 4490 NEGOTIATING AND CONFLICT RESOLUTION (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. The course integrates conceptual understanding with practical application of negotiation, with a particular emphasis on sales negotiations.

MKTG 4800 MARKETING STRATEGY (3) LEC. 3. Pr. MKTG 4360 or MKTG 5360 and Completed courses from MKTG 4050-5500 or BUSI 3250 or MKTG 4050-5500. and MKTG 3310 or MKTG 3313 or MKTG 3317. Strategic perspectives of market dynamics in different competitive environments across organizational levels. Pr MKTG 3310/3317 and Pr/Cr MKTG 4360/5360 and Pr 9 hours of Marketing electives between MKTG 4050 - 5500 or BUSI 3250. All Pr and Cr courses require a C or better. Credit will not be given for both MKTG 4800 and MKTG 4980.

MKTG 4900 DIRECTED STUDIES (1-3) AAB/IND. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Advanced research, reading and study in marketing. Department approval. Course may be repeated for a maximum of 6 credit hours.

MKTG 4920 MARKETING STUDENT INTERNSHIP PROGRAM (3) AAB/INT. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Grade of C or better. Provides a relevant and meaningful work experience in a marketing or marketing-related business, industry or organization.

MKTG 4970 SPECIAL TOPICS IN MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of current marketing topics. Course may be repeated for a maximum of 9 credit hours.

MKTG 5350 SERVICES MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Examination of marketing in service industries and implementation of service marketing strategies. Credit will not be given for both MKTG 4350 and MKTG 5350.

MKTG 5360 MARKETING RESEARCH AND ANALYTICS (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810) and (BUAL 2650 or BUAL 2653). Grade of C or better in prerequisite courses. Research methods in marketing and their application to marketing problems. Credit will not be given for both MKTG 4360 and MKTG 5360.

MKTG 5370 SALES MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810) and (P/C MKTG 4390 or P/C MKTG 4393). Grade of C or better in prerequisite courses. Principles and practices of organization and administration of sales organizations. Credit will not be given for both MKTG 4370 and MKTG 5370.

MKTG 5500 DIGITAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Use of electronic media and the Internet for marketing strategy. Credit will not be given for both MKTG 4500 and MKTG 5500.

MKTG 5507 HONORS DIGITAL MARKETING (3) LEC. 3. Pr. Honors College. MKTG 3310 or MKTG 3313 or MKTG 3317 or MKTG 3810. Grade of C or better in prerequisite course. Use of electronic media and the Internet for marketing strategy. Credit will not be given for both MKTG 4500 and MKTG 5500 (5507).

MKTG 6350 SERVICES MARKETING (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Examination of marketing in service industries and implementation of service marketing strategies.

MKTG 6360 MARKETING RESEARCH AND ANALYTICS (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Research methods in marketing and their application to marketing problems.

MKTG 6370 SALES MANAGEMENT (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Principles and practices of organization and administration of sales organizations.

MKTG 6380 CUSTOMER INSIGHTS AND MARKETING SOLUTIONS (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Study of tools and strategies that businesses use to gather deep understanding about their customers' needs, behaviors, and preferences, then leverage that information to create targeted and effective marketing campaigns, ultimately leading to improved customer engagement and sales.

MKTG 6500 DIGITAL MARKETING (3) LEC. 3. Pr. BUSI 7210. Grade of C or better in prerequisite course. Use of electronic media and the Internet for marketing strategy.

MKTG 7970 SPECIAL STUDIES IN MARKETING (3) LEC. 3. Pr. BUSI 7210. Departmental approval. Grade of C or better in prerequisite course. Variable content in the marketing area. Course may be repeated for a maximum of 6 credit hours.

Materials Engineering - MATL

Courses

MATL 2100 INTRODUCTION TO MATERIALS SCIENCE (3) LEC. 3. The science of solid materials and the relationship between this science and material properties.

MATL 2150 MATERIALS STRUCTURE, PROPERTIES, PROCESSING, AND PERFORMANCE (3) LEC. 2. LAB. 2, LLB. 0. Pr. (MATL 2100). Fundamental principles governing materials are explored, including how atomic structure, crystallography, and phase transformations impact material properties and performance. The structural origins of mechanical, electrical, thermal, and magnetic properties are reviewed. Material characterization and analysis techniques are explored.

MATL 2210 MATERIALS FOR SUSTAINABLE ENERGY PRODUCTION AND STORAGE (1) LEC. 1. Technologies for sustainable energy production and storage, renewable energy conversion, associated materials challenges.

MATL 2220 MATERIALS AND THE ENVIRONMENT (1) LEC. 1. Environmental impact of the production, use and disposal of materials.

MATL 2230 MINERAL RESOURCES: PROCESSING AND AVAILABILITY (1) LEC. 1. Mineral resources for engineering materials; processing and availability of mineral resources.

MATL 3100 ENGINEERING MATERIALS - METALS (3) LEC. 3. Pr. MATL 2100. The relationship among processing, microstructure, properties and engineering applications of metallic materials.

MATL 3101 METALLOGRAPHY LABORATORY (1) LAB. 3. Coreq. MATL 3100. The use of microstructural characterization to understand the relationship between microstructure and properties of metallic materials.

MATL 3200 ENGINEERING MATERIALS POLYMERS (3) LEC. 3. Pr. CHEM 1040. The synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3201 POLYMER AND COMPOSITES LABORATORY (1) LAB. 3. Coreq. MATL 3200. A hands-on lab course on the synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3300 ENGINEERING MATERIALS - CERAMICS (3) LEC. 3. Pr. MATL 2100. The engineering of ceramic materials. Structural property relationships of crystalline and glassy ceramics will be included.

MATL 4100 THERMODYNAMICS AND KINETICS OF MATERIALS (3) LEC. 3. Pr. CHEM 1040 and ENGR 2200. Laws of thermodynamics to describe phase equilibria and phase transformations in one-component and multi-component systems, mechanisms of diffusion, the interplay of thermodynamic driving forces and kinetics of mass transfer in materials systems

MATL 4500 MATERIALS PROPERTIES AND SELECTION (4) LEC. 3. LAB. 3. Pr. ENGR 2070 and MATL 3100 and MATL 3200. Methods for microstructure control. Design of processing sequences, statistical and economical analysis.

MATL 4930 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Areas of interest within Materials Engineering. Course may be repeated for a maximum of 6 credit hours.

MATL 4980 SENIOR DESIGN PROJECT (3) LEC. 1. LAB. 6. Students select, design, schedule, fabricate and perform an engineering design project related to Materials Engineering.

MATL 5100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Pr. CHEM 1040 and ENGR 2200. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface, and interface energy and transformations.

MATL 5200 MATERIALS CHARACTERIZATION (2) LEC. 2. Pr. PHYS 1610 or PHYS 1617. Principles of materials characterization including x-ray diffraction, optical and electron microscopy, and other advanced analytical methods for materials design.

MATL 5201 MATERIALS CHARACTERIZATION LABORATORY (1) LAB. 3. Coreq. MATL 5200. Laboratory on the use of x-ray diffraction, metallography, and optical/electron microscopy for materials characterization.

MATL 5300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Pr. MATH 2650 and ENGR 2200. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure and morphology.

MATL 5400 PHYSICS OF SOLIDS (3) LEC. 3. Pr. PHYS 1610 or PHYS 1617. Departmental approval. The physics of solid-state materials, including the electronic, optical and magnetic properties of materials.

MATL 5420 PLASMONICS AND NANOPHOTONICS (3) LEC. 3. Pr. PHYS 1600 or PHYS 1610. This course will cover both fundamental and application aspects, with an emphasis on basic principles in nanophotonics, nanophotonic devices for light manipulation, plasmonic energy transfer, biomedical treatment, plasmonics in emerging materials, etc.

MATL 5500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Pr. MATL 5100 and P/C MATL 5300. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.

MATL 5600 CORROSION (3) LEC. 3. Pr. CHEM 1040. Fundamentals of chemical degradation of materials. Types and methods for prevention and minimization of corrosion.

MATL 5700 BIOMATERIALS (3) LEC. 3. Departmental approval. Interactions between materials and proteins, cells, and tissue as related to medicine and biotechnology including tissue culture, cardiovascular, drug delivery, tissue engineering and other applications. Thermodynamics of protein adsorption. Cell biology of adhesion. Analytical methods, sterilization, and regulations.

MATL 5720 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Pr. P/C BIOL 1030 or P/C CHEM 2070. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 5750 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3. Pr. MATL 2100 and (ENGR 2070 or MECH 3130). Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 5970 INTERMEDIATE SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 6100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface and interface energy and transformations.

MATL 6200 MATERIALS CHARACTERIZATION (2) LEC. 2. Principles of materials characterization including x-ray diffraction, optical and electron microscopy, and other advanced analytical methods for materials design.

MATL 6201 MATERIALS CHARACTERIZATION LABORATORY (1) LAB. 3. Coreq. MATL 6200. Laboratory on the use of x-ray diffraction, metallography, and optical/electron microscopy for materials characterization.

MATL 6300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure, and morphology.

MATL 6400 PHYSICS OF SOLIDS (3) LEC. 3. Departmental approval. The physics of solid-state materials, including the electronic, optical, and magnetic properties of materials.

MATL 6420 PLASMONICS AND NANOPHOTONICS (3) LEC. 3. This course will cover both fundamental and application aspects, with an emphasis on basic principles in nanophotonics, nanophotonic devices for light manipulation, plasmonic energy transfer, biomedical treatment, plasmonics in emerging materials, etc.

MATL 6500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.

MATL 6600 CORROSION (3) LEC. 3. Pr. CHEM 1040. Fundamentals of chemical degradation of materials. Types and methods for prevention and minimization of corrosion.

MATL 6700 BIOMATERIALS (3) LEC. 3. Departmental approval. Interactions between materials and proteins, cells, and tissue as related to medicine and biotechnology including tissue culture, cardiovascular, drug delivery, tissue engineering and other applications. Thermodynamics of protein adsorption. Cell biology of adhesion. Analytical methods, sterilization and regulations.

MATL 6720 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 6970 INTERMEDIATE SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. 3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7050 DEFORMATION AND FAILURE OF ENGINEERING MATERIALS (3) LEC. 3. Departmental approval. Theoretical presentation of the fundamental principles of deformation and failure in materials systems.

MATL 7120 ADVANCED CERAMIC MATERIALS (3) LEC. 3. Departmental approval. Processing, structure-property relationships and applications of advanced ceramics. Structural and functional applications of ceramics.

MATL 7130 ADVANCED POLYMER SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Recent developments in both functional and structural polymers including approaches to synthesis, processing techniques, high-strength materials, electronic polymers, optic polymers, and medical polymers.

MATL 7320 THIN FILM SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Structure, properties, characterization, processing and application of thin films.

MATL 7330 MATERIALS FOR ENERGY STORAGE (3) LEC. 3. Introduction of various electrochemical energy storage devices (Batteries, Supercapacitor, etc) and discussion of advancement in development of materials for these devices. Instructor's consent required for prerequisites.

MATL 7420 SMART MATERIALS AND STRUCTURES (3) LEC. 3. Departmental approval. An introduction to the principles and applications of various sensor, actuator and functionality smart material systems and structures.

MATL 7430 DIELECTRIC MATERIALS AND DEVICES (3) LEC. 3. Pr. (MATL 6100 or MATL 6106) and (MATL 6400 or MATL 6406). Departmental approval. Processing, structure, properties, and application of dielectrics, including physics of dielectrics, material/ device design/fabrication processes, and application of dielectric materials in high-technological industry.

MATL 7610 ENGINEERING ASPECTS OF BIOLOGICAL AND CHEMICAL DETECTION (3) LEC. 3. Departmental approval. Biological and chemical scientific concepts related to biological and chemical threat agents. Existing and developing detection technologies, trends and needs for the future detection systems. Physical principles behind the detection technologies. Evaluation of detection device or system performance.

MATL 7630 NANOMATERIALS FOR BIOTECHNOLOGY (3) LEC. 3. Departmental approval. Basic understanding of nanobiotechnology and practical applications in the interdisciplinary fields of Materials Science and Engineering and biotechnology/ medicine including nanostructured biomolecules and bioarrays as well as biomolecular nanoelectronics.

MATL 7950 MATERIALS ENGINEERING SEMINAR (0) SEM. SU. Required during each semester of residency, but cannot be used toward minimum requirements for graduate degree in Materials Engineering. Content changes each semester and consists of off-campus speakers and presentations by graduate students and faculty.

MATL 7960 DIRECTED READINGS IN MATERIALS ENGINEERING (1-6) DSL/IND. SU. Departmental approval. May be taken more than one semester. Up to 6 hours may count toward the minimum degree requirements. Course may be repeated with change in topics.

MATL 7970 SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) DSL. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7980 MASTER MATERIALS ENGINEERING PROJECT (1-3) LEC. 3. SU. Special design project report directed by major faculty. Topics to be determined by the student's graduate committee. Course may be repeated for a maximum of 3 credit hours.

MATL 7990 RESEARCH AND THESIS (1-15) MST. Individual mater's thesis research. Course may be repeated with change in topics.

MATL 8990 RESEARCH AND DISSERTATION (1-15) DSL/DSR. Individual doctoral dissertation research. Course may be repeated with change in topics.

Mathematics - MATH

Courses

MATH 1000 COLLEGE ALGEBRA (3) LEC. 3. Pr. ALEK score of 1. Fundamental concepts of algebra, equations and inequalities, functions and graphs, polynomial and rational functions. Does not satisfy the core requirement in mathematics. Students who have previous credit in any higher-numbered math course may not also receive credit for this course.

MATH 1100 FINITE MATH AND APPLICATIONS (3) LEC. 3. Pr. ALEK score of 50 or MATH 1000 or MATH 1003. ALEKS Math Placement Assessment score of at least a 50 or MATH 1000. Mathematics Core. Overview of finite mathematics and its applications. Graph theory, matrices, finite and conditional probability; descriptive and inferential statistics, voting methods, game theory.

MATH 1120 PRE-CALCULUS ALGEBRA (3) LEC. 3. Pr. ALEK score of 50 or MATH 1000 or MATH 1003. ALEKS Math Placement Assessment score of at least a 50 or MATH 1000. Mathematics Core. Preparatory course for calculus. This course emphasizes the algebra of functions – including polynomial, rational, exponential, and logarithmic functions. In addition, the course covers non-linear inequalities as well as systems of linear and non-linear equations and inequalities. The course also includes an introduction to sequences and series. No credit is given to students with higher-numbered math course.

MATH 1121 PRE-CALCULUS ALGEBRA WORKSHOP (1) LAB. 2. SU. Pr. P/C MATH 1000 or P/C MATH 1003 or P/C MATH 1120 or P/C MATH 1123. Workshop for College Algebra and Pre-Calculus Algebra.

MATH 1130 PRE-CALCULUS TRIGONOMETRY (3) LEC. 3. Pr. ALEK score of 64 or MATH 1120 or MATH 1123. ALEKS Math Placement Assessment score of at least a 64 or MATH 1120. Mathematics Core. Preparatory course for the calculus sequence. Basic analytic and geometric properties of the trigonometric functions. Complex numbers, De Moivre' Theorem, polar coordinates. Students who have previous credit in any higher-numbered math course may not also receive credit for this course.

MATH 1150 PRE-CALCULUS ALGEBRA AND TRIGONOMETRY (4) LEC. 4. Pr. ALEK score of 64 or MATH 1000 or MATH 1003. ALEKS Math Placement Assessment score of at least a 64 or "C" or better in MATH 1000. Mathematics Core. Algebraic functions, Exponential Logarithmic functions. Analytic and geometric properties of trigonometric functions.

MATH 1151 MATHEXCEL PRECALCULUS WORKSHOP (2) LEC. 2. SU. Coreq. MATH 1150. Appropriate score on the mathematics placement exam or grade of "C" or better in MATH 1000. Workshop for MATH 1150. Two 2-hour sessions per week.

MATH 1610 CALCULUS I (4) LEC. 4. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or ALEK score of 78. ALEKS Math Placement Assessment score of at least a 78 or "C" or better in MATH 1130 or in MATH 1150. Mathematics Core. Limits, the derivative of algebraic, trigonometric, exponential, logarithmic functions. Applications of the derivative, antiderivatives, the definite integral and applications to area problems, the fundamental theorem of calculus. Students may receive credit for only one of MATH 1610/1617.

MATH 1617 HONORS CALCULUS I (4) LEC. 4. Pr. Honors College. MATH 1130 or MATH 1150 or ALEK minimum score of 78 or MATH 1133 or MATH 1153. ALEKS Math Placement Assessment score of at least a 78 or "C" or better in MATH 1130 or in MATH 1150. Mathematics Core. Honors version of MATH 1610. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: Applied Math-Actuarial Sci (ACTU), Applied Math-Discrete (APDM), Applied Mathematics (AMTH), and Mathematics (MATH). This course covers the same material as MATH 1610 but in a greater depth appropriate for Honors students and Mathematics majors. Students may receive credit for only one of MATH 1610, MATH 1617 or MATH 1680.

MATH 1620 CALCULUS II (4) LEC. 4. Pr. MATH 1610 or MATH 1613 or MATH 1617. "C" or better in MATH 1610 or in MATH 1617. Techniques of integration, applications of the integral, parametric equations, polar coordinates. Vectors, lines and planes in space. Infinite sequences and series. Students may receive credit for only one of MATH 1620 or MATH 1627.

MATH 1627 HONORS CALCULUS II (4) LEC. 4. Pr. Honors College. MATH 1610 or MATH 1613 or MATH 1617. "C" or better in MATH 1610 or in MATH 1617. Honors version of MATH 1620. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: Applied Math-Actuarial Sci (ACTU), Applied Math-Discrete (APDM), Applied Mathematics (AMTH), and Mathematics (MATH). The same material as MATH 1620, but in greater depth appropriate for honors students and Mathematics majors. Students may receive credit for only one of MATH 1620 or MATH 1627.

MATH 1680 CALCULUS WITH BUSINESS APPLICATIONS I (4) LEC. 4. Pr. MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or ALEK score of 68. ALEKS Math Placement Assessment score of at least a 68 or MATH 1120 or MATH 1130 or MATH 1150. Students in College of Business. Mathematics Core. Differentiation and integration of exponential and logarithmic functions, applications to business. Functions of several variables, partial derivatives, multiple integrals.

MATH 1690 CALCULUS WITH BUSINESS APPS II (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or MATH 1610 or MATH 1617 or MATH 1613. Probability, random variables, probability distributions. Further topics in calculus: integration, functions of several variables, applications to probability. Applications to business and related areas. Credit will not be given to majors in Engineering or Math or Physics.

MATH 1950 FIRST YEAR MATHEMATICS SEMINAR (1) SEM. 1. This seminar will provide a shared intellectual experience for incoming freshmen mathematics majors. It will serve as a focused and interactive forum to provide a glimpse into the world of mathematics that lies beyond elementary calculus. Each semester's symposium will be devoted to a specific mathematical topic. Writing about mathematics and explaining mathematical ideas to both “math people” and “non-math people” will be emphasized. Only offered to incoming first-year students (though transfer students and higher rank students may be allowed to enroll on an approval basis). May not be repeated for credit. High School Math will be required.

MATH 2630 CALCULUS III (4) LEC. 4. Pr. MATH 1620 or MATH 1623 or MATH 1627. "C" or better in MATH 1620, MATH 1623 or MATH 1627. Multivariate calculus: vector-valued functions, partial derivatives, multiple integration, vector calculus. Credit will be given for only MATH 2630 or MATH 2637.

MATH 2637 HONORS CALCULUS III (4) LEC. 4. Pr. MATH 1620 or MATH 1623 or MATH 1627. Must have earned a "C" or better in MATH 1620, MATH 1623 or MATH 1627. Honors version of MATH 2630. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: Applied Math-Actuarial Sci(ACTU), Applied Math-Discrete(DISC), Applied Mathematics(AMTH), and Mathematics(MATH). The same material as MATH 2630, but in greater depth appropriate for honors students and Mathematics majors. Credit will be given for only one of MATH 2630 or MATH 2633 or MATH 2637.

MATH 2650 LINEAR DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. P/C MATH 2630 or P/C MATH 2633 or P/C MATH 2637. Introduction to ordinary differential equations, specifically linear equations of first and second order, and applications.

MATH 2660 TOPICS IN LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Matrices, row-reduction, systems of linear equations, (finite-dimensional) vector spaces, subspaces, bases, dimension, change of basis, linear transformations, kernels, orthogonality, Gram-Schmidt.

MATH 2667 HONORS TOPICS IN LINEAR ALGEBRA (3) LEC. 3. Pr. Honors College. MATH 1620 or MATH 1623 or MATH 1627. Must have earned a "C" or better in MATH 1620 or MATH 1623 or MATH 1627. Honors version of MATH 2660. Membership in the Honors College or Departmental approval required. Recommended for all Mathematics majors: (Applied Math-Actuarial Sci(ACTU), Applied Math-Discrete(DISC), Applied Mathematics(AMTH), and Mathematics(MATH). Topics include: matrices, row-reduction, systems of linear equations, (finite-dimensional) vector spaces, subspaces, bases, dimension, change of basis, linear transformations, kernels, orthogonality, Gram-Schmidt. The same material as MATH 2660, but in greater depth appropriate for honors students and Mathematics majors, with possible additional topics as determined by the instructor. Credit will be given for only one of MATH 2660 or MATH 2667.

MATH 2670 INTRODUCTION TO DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. MATH 1620. Rigorous introduction to ordinary differential equations with emphasis on mathematical justification of solution methods and qualitative analysis of equations and low dimensional systems. The existence and uniqueness theorems. Separable equations, exact equations and integrating factors. Second order linear equations, the Wronskian, method of undetermined coefficients, variation of parameters. Laplace transform. Higher order equations. Systems of first order equations, fundamental matrix.

MATH 2790 MATHEMATICS OF INTEREST THEORY (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Mathematical foundations of the theory of interest necessary as preparation for the Society of Actuaries examination on the theory of interest.

MATH 2850 MATHEMATICS FOR ELEMENTARY EDUCATION I (3) LEC. 3. For Elementary Education major or departmental approval. Mathematical insights for elementary school teachers. Sets, the structure of the number system (integers, fraction, decimals).

MATH 2860 MATHEMATICS FOR ELEMENTARY EDUCATION II (3) LEC. 3. Pr. MATH 2850. For Elementary Education majors or departmental approval. Mathematical insights into measurement and geometry for elementary school teachers. Shapes in two and three dimensions. Similarities, congruences and transformations.

MATH 2870 MATHEMATICS FOR ELEMENTARY EDUCATION III (3) LEC. 3. For Elementary Education majors or departmental approval. Mathematical insights into probability, data analysis and functions for elementary school teachers. Uncertainty, probability spaces and an introduction to statistics. Relationships, functions and change.

MATH 3010 HISTORY OF MATHEMATICS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. The evolution of modern mathematics from its motivational roots in the physical sciences; the lives and contributions of outstanding mathematicians; the parallel development of mathematics and western culture.

MATH 3100 INTRODUCTION TO ADVANCED MATHEMATICS (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Teaching of the fundamental abilities necessary for the pursuance of mathematical studies. Logic and set theory, mathematical induction, basic number theory, basic analysis. Credit will not be given for both MATH 3100 and Math 3710.

MATH 3710 DISCRETE MATHEMATICS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Methods of proof, induction, counting, inclusion-exclusion, discrete probability, relations, partial orders, graphs, trees, languages, grammars, finite state machines, automata. Credit will not be given for both MATH 3710 and Math 3100.

MATH 4110 ADVANCED LOGIC (3) LEC. 3. Pr. MATH 3100 or PHIL 3110. Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics. May count either MATH 4110 or PHIL 4110.

MATH 4790 ACTUARIAL SEMINAR IN THE MATHEMATICS OF FINANCE (3) LEC. 3. Pr. MATH 2790. Intensive seminar in the mathematical aspects of finance, and the theory of interest primarily intended as preparation for the Society of Actuaries Course 2 examination.

MATH 4800 INTRODUCTION TO ACTUARIAL MATHEMATICS (3) LEC. 3. Pr. STAT 3600 and MATH 2790. An introduction to important actuarial methods in modeling and foundational principles of ratemaking and reserving for short-term coverages primarily intended as preparation for part of the Society of Actuaries Exam FAM.

MATH 4820 ACTUARIAL SEMINAR IN PROBABILITY (3) LEC. 3. Pr. STAT 3600. or equivalent. Intensive seminar in calculus, probability, and risk theory primarily intended as preparation for the Society of Actuaries Course 1 examination.

MATH 4930 DIRECTED STUDIES (1-3) IND. Study of individual problems or topics of interest to students. Course may be repeated for a maximum of 3 credit hours.

MATH 4970 SPECIAL TOPICS (1-4) IND. Departmental approval. An individual problems course. Each student will work under the direction of a staff member on a problem of mutual interest. Course may be repeated for a maximum of 4 credit hours.

MATH 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental approval. Directed research in the area of specialty under faculty supervison. Course may be repeated for a maximum of 3 credit hours.

MATH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours. Membership in Honors College.

MATH 5000 MATH MODELING (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667). Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term project. Programming ability.

MATH 5010 VECTOR CALCULUS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and (MATH 2660 or MATH 2667). Departmental approval. Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green's Theorem, Stoke's Theorem, Gauss' Theorem. Tensors and differential forms. Applications.

MATH 5030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3. Pr. MATH 5030. Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 5060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. MATH 2650 or MATH 2670. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 5110 NUMBER THEORY (3) LEC. 3. Pr. MATH 3100. Greatest common divisor, unique factorization, linear Diophantine equations. Modular arithmetic, Chinese remainder theorem, polynomial congruences. Quadratic residues, Legendre/Jacoby symbols, quadratic reciprocity. Primes. Moebius inversion. Sums of squares. Units and the integers mod n.

MATH 5120 INFORMATION THEORY (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 5130 CALCULUS OF VARIATION (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Fundamental concepts of extrema of functions and functionals; first and second variations; generalizations; sufficient conditions; constrained functionals; the general Lagrange Problem; optimal control.

MATH 5140 DATA COMPRESSION (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 5150 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.

MATH 5170 FINITE EXTREMAL SET THEORY (3) LEC. 3. Pr. (MATH 2660 or MATH 2667) and (MATH 3100 or MATH 3710). Finite posets and their Hasse diagrams. Sequences and the Erdos-Szekeres Theorem. Chains and antichains, Dilworth's Theorem. Set systems in the hypercube, Sperner's Lemma and the LYM inequality. Intersecting families, the Erdos-Ko-Rado Theorem. Isoperimetric inequalities in the hypercube. Additional topics related to recent research. Includes paper reading and presentation component.

MATH 5180 CRYPTOGRAPHY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 5200 ANALYSIS I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, Cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity. Emphasis on proofs.

MATH 5210 ANALYSIS II (3) LEC. 3. Pr. MATH 5200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; R^n and abstract spaces, functions of several variables. Emphasis on proofs.

MATH 5280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667). Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

MATH 5300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Linear difference equations, initial value problems, Green's functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

MATH 5310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 5320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 5310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, Galois Theory.

MATH 5330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 5310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic/robotics problems, symbolic manipulation software.

MATH 5350 INTRODUCTION TO ALGEBRAIC GEOMETRY (3) LEC. 3. Pr. MATH 5320. LEC. 3. Pr. "C" or better in Math 5320. Affine varieties, Hilbert's Nullstellensatz, the Ideal-Variety Correspondence, irreducibility, polynomial and rational functions, projective varieties, Bezout's Theorem, dimension theory.

MATH 5370 LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Introduction to the theoretical foundations of Linear Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces, matrix representations, eigenvalues, eigenspaces.

MATH 5380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 5390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 5380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, advanced theorems on the circle.

MATH 5460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods.

MATH 5500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Pr. MATH 3100. C or better in MATH 3100. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 5630 INTRODUCTION TO NUMERICAL ANALYSIS I (3) LEC. 3. Pr. MATH 2650 or MATH 2670. Programming ability. Numerical solution of equations, polynomial approximation, numerical differentiation and integration, numerical solutions of ordinary differential equations, error analysis. Written programs using algorithms. Programming ability.

MATH 5640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Programming ability. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigen vectors, error analysis. Written programs using the algorithms.

MATH 5650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667). Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 5670 and STAT 5670.

MATH 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 5670 or STAT 5670. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 5680 and STAT 5680.

MATH 5710 LINEAR OPTIMIZATION (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 5730 ENUMERATION (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.

MATH 5740 SOCIAL NETWORK ANALYSIS (3) LEC. 3. Pr. (MATH 3100 or COMP 2240) and (P/C COMP 1220 or P/C COMP 1230). Introduction to Social Network Analysis and Python, graph properties and network visualization, Network Metrics, Cascading Behavior in Networks, 2-Mode network, Large-scale structure of networks and corresponding Algorithms, Clustering, Ego analysis and Bipartite networks, Exponential random graph modeling, and Network evolution.

MATH 5750 INTRODUCTION TO GRAPH THEORY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Algorithmic and theoretical aspects of graph theory: matchings, colorings, scheduling problems, Hamilton cycles. Euler tours, spanning trees, network reliability, connectivity, extremal graphs, planar graphs, disjoint paths.

MATH 5770 COMBINATORIAL DESIGNS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.

MATH 5800 ACTUARIAL MATHEMATICS I (3) LEC. 3. Pr. MATH 2790 and STAT 3600. A development of theoretical basis of survival models, life table, life insurance benefits, annuities, premium calculation and policy values primarily intended as preparation for part of the Society of Actuaries Exam FAM.

MATH 5810 ACTUARIAL MATHEMATICS II (4) LEC. 4. Pr. MATH 5800. This course develops the knowledge of theoretical basis to traditional and modern contingent payment models and the application of those models to insurance and other financial risks. It is primarily intended as preparation for the Society of Actuaries Exam ALTAM.

MATH 5840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Divisibility, Diophantine equations, congruencies.

MATH 5850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Computer familiarity.

MATH 5860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 5870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1617) and (MATH 1620 or MATH 1627) and (MATH 2650 or MATH 2670) and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 5970 SPECIAL TOPICS (1-3) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.

MATH 6000 MATHEMATICAL MODELING: CONTINUOUS (3) LEC. 3. Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term-project. Programming ability.

MATH 6010 VECTOR CALCULUS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (MATH 2660 or MATH 2667). Departmental approval. Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green's Theorem, Stoke's Theorem, Gauss' Theorem. Tensors and differential forms. Applications.

MATH 6030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 6060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 6110 NUMBER THEORY (3) LEC. 3. Greatest common divisor, unique factorization, linear Diophantine equations. Modular arithmetic, Chinese remainder theorem, polynomial congruences. Quadratic residues, Legendre/Jacoby symbols, quadratic reciprocity. Primes. Moebius inversion. Sums of squares. Units and the integers mod n.

MATH 6120 INFORMATION THEORY (3) LEC. 3. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 6140 DATA COMPRESSION (3) LEC. 3. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 6150 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.

MATH 6170 FINITE EXTREMAL SET THEORY (3) LEC. 3. Pr. (MATH 2660 or MATH 2667) and (MATH 3100 or MATH 3710). Finite posets and their Hasse diagrams. Sequences and the Erdos-Szekeres Theorem. Chains and antichains, Dilworth's Theorem. Set systems in the hypercube, Sperner's Lemma and the LYM inequality. Intersecting families, the Erdos-Ko-Rado Theorem. Isoperimetric inequalities in the hypercube. Additional topics related to recent research. Includes paper reading and presentation component. Graduate version of MATH 5170.

MATH 6180 CRYPTOGRAPHY (3) LEC. 3. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 6200 ANALYSIS I (3) LEC. 3. or equivalent course, subject to departmental approval. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, Cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity; intermediate#value and extreme-value theorems. Emphasis on proofs.

MATH 6210 ANALYSIS II (3) LEC. 3. Pr. MATH 6200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; R^n and abstract spaces, functions of several variables. Emphasis on proofs.

MATH 6310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 6320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 6310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, and Galois Theory.

MATH 6330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 6310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic/robotics problems, and symbolic manipulation software.

MATH 6350 INTRODUCTION TO ALGEBRAIC GEOMETRY (3) LEC. 3. Pr. MATH 5320. LEC. 3. Pr. "C" or better in Math 5320. Affine varieties, Hilbert's Nullstellensatz, the Ideal-Variety Correspondence, irreducibility, polynomial and rational functions, projective varieties, Bezout's Theorem, dimension theory.

MATH 6370 LINEAR ALGEBRA (3) LEC. 3. Introduction to the theoretical foundations of Linear Algebra Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces matrix representations, eigenvalues, eigenspaces.

MATH 6380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 6390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 6380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, and advanced theorems on the circle.

MATH 6460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660 or MATH 2667. Departmental approval. Analytical solutions of nonlinear problems, ODES, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

MATH 6500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Departmental approval. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 6630 INTRODUCTION TO NUMERICAL ANALYSIS I (3) LEC. 3. Numerical solution of equations, polynomial approximation, numerical differentiation and integration, numerical solutions of ordinary differential equations, error analysis. Written programs using algorithms. Programming ability.

MATH 6640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms. Programming ability.

MATH 6650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 6670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 6670 and STAT 6670.

MATH 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi- regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 6680 and STAT 6680.

MATH 6710 LINEAR OPTIMIZATION (3) LEC. 3. Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 6730 ENUMERATION (3) LEC. 3. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.

MATH 6740 SOCIAL NETWORK ANALYSIS (3) LEC. 3. Introduction to Social Network Analysis and Python, graph properties and network visualization, Network Metrics, Cascading Behavior in Networks, 2-Mode network, Large-scale structure of networks and corresponding Algorithms, Clustering, Ego analysis and Bipartite networks, Exponential random graph modeling, and Network evolution.

MATH 6750 INTRODUCTION TO GRAPH THEORY (3) LEC. 3. Algorithmic and theoretical aspects of graph theory: matchings, colorings, scheduling problems, Hamilton cycles. Euler tours, spanning trees, network reliability, connectivity, extremal graphs, planar graphs, disjoint paths.

MATH 6770 COMBINATORIAL DESIGNS (3) LEC. 3. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.

MATH 6800 ACTUARIAL MATHEMATICS I (3) LEC. 3. Departmental approval. A development of theoretical basis of survival models, life table, life insurance benefits, annuities, premium calculation and policy values primarily intended as preparation for part of the Society of Actuaries Exam FAM.

MATH 6810 ACTUARIAL MATHEMATICS II (4) LEC. 4. Pr. MATH 6800. This course develops the knowledge of theoretical basis to traditional and modern contingent payment models and the application of those models to insurance and other financial risks. It is primarily intended as preparation for the Society of Actuaries Exam ALTAM.

MATH 6840 NUMBER SYSTEMS AND ALGEBRA FOR TEACHERS (3) LEC. 3. Pr. MATH 3100. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on number systems, algebra, and functions, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving. Admission to a program in Secondary Mathematics Education or department approval required.

MATH 6850 FUNCTIONS AND MATHEMATICAL MODELING FOR TEACHERS (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) or MATH 2660 or MATH 2667. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on functions and mathematical modeling, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving. Admission to a program in Secondary Mathematics Education or department approval required.

MATH 6860 GEOMETRY FOR TEACHERS (3) LEC. 3. Pr. MATH 2660 or MATH 2667 or MATH 3100. Connect advanced college-level mathematics with the secondary mathematics curriculum, focusing on geometry, to develop mathematical knowledge relevant to teaching. The contents include axiomatic systems of geometry, transformational geometry, and similarity. Appropriate technology and mathematics problem solving skills will be introduced. Admission to a program in Secondary Mathematics Education or department approval required.

MATH 6870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1617) and (MATH 1620 or MATH 1627) and (MATH 2650 or MATH 2670) and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 6970 SPECIAL TOPICS (1-3) DSL. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.

MATH 7000 APPLIED MATHEMATICS I (3) LEC. 3. Departmental approval. Linear spaces, matrices, eigenvalues, least squares solutions to linear systems, Hilbert spaces, orthogonal expansions, integral equations, compact operators, Green's functions for boundary value problems, eigenfunction expansions.

MATH 7010 APPLIED MATHEMATICS II (3) LEC. 3. Pr. MATH 7000 or MATH 7006. Calculus of variations, asymptotic expansions, Spectral theory, Fourier transform, Partial differential equations, transform methods and eigenfunction expansions, vibrations, diffusion processes, equilibrium states, Green's functions, boundary layer problems.

MATH 7110 DISCRETE GEOMETRY AND CONVEXITY I (3) LEC. 3. Departmental approval. Geometric objects and configurations with discrete symmetry groups. Regular polygons and polyhedra. Regular arrangements. Plane tilings and patterns.

MATH 7120 DISCRETE GEOMETRY AND CONVEXITY II (3) LEC. 3. Pr. MATH 7110. Convexity and related geometric extremum problems. Packing and covering. Arrangements of extreme density.

MATH 7140 INTRODUCTION TO MODEL THEORY (3) LEC. 3. Departmental approval. First-order languages, Satisfaction. Consequences. The completeness and compactness theorems, models constructed from constants. Elementary substructures and embeddings, Lowenheim-Skolem-Tarskj theorems. Ultraproducts and ultrapowers.

MATH 7150 AXIOMATIC SET THEORY I (3) LEC. 3. Departmental approval. Introduction to modern set theory. The axioms of ZFC, ordinals and cardinals, closed unbounded sets, the constructible universe L, Martin's Axiom.

MATH 7160 AXIOMATIC SET THEORY II (3) LEC. 3. Pr. MATH 7150. Introduction to forcing, independence results, iterated forcing, consistency of Martin's Axiom.

MATH 7180 ALGORITHMIC ALGEBRA I (3) LEC. 3. Departmental approval. Fundamental aspects of algorithmic algebra. Noetherian rings. Theory of Groebner bases. Hilbert Nullstellensatz. Elimination theory. Applications to graph theory and algebraic geometry.

MATH 7190 ALGORITHMIC ALGEBRA II (3) LEC. 3. Pr. MATH 7180. Modules. Groebner bases for modules and syzygy computations. Improved Buchberger's algorithm. Computation of Ext. Groebner bases over rings. Primary decomposition of ideals. Dimension theory.

MATH 7200 REAL ANALYSIS I (3) LEC. 3. Departmental approval. Sigma algebras, measures, measurable functions, integratability, properties of Lebesgue measure, density, Lusin's theorem, Egeroff's theorem, product measures, Fubini's theorem. Limit theorems involving pointwise convergence and integration.

MATH 7210 REAL ANALYSIS II (3) LEC. 3. Pr. MATH 7200. L-p spaces, completeness, duals. Weak convergence, norm convergence, pointwise convergence, convergence in measure. Signed and complex measures. Absolute continuity, Lebesgue decomposition. Measure theory, Lebesgue integration, introductory functional analysis.

MATH 7230 FUNCTIONS OF A COMPLEX VARIABLE I (3) LEC. 3. Departmental approval. Complex numbers, analytic functions, derivatives, Cauchy integral theorem and formulae, Taylor and Laurent series, analytic continuation, residues, maximum principles, Riemann surfaces.

MATH 7240 FUNCTIONS OF A COMPLEX VARIABLE II (3) LEC. 3. Pr. MATH 7230. Conformal mappings, families of analytic functions and harmonic analysis.

MATH 7280 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Existence and continuation theorems for ordinary differential equations, continuity and differentiability with respect to initial conditions, linear systems, differential inequalities, Sturm theory.

MATH 7290 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7280. Stability theory, periodic solutions, boundary value problems, disconjugacy of linear equations, Green's functions, upper and lower solutions, a priori bounds methods, current research.

MATH 7310 ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Lagrange's Theorem, normal subgroups, factor groups, Isomorphism and Correspondence Theorems. Symmetric groups, alternating groups, free groups, torsion groups. Introduction to rings, correspondence theorems.

MATH 7320 ALGEBRA II (3) LEC. 3. Pr. MATH 7310. Rings, modules, vector spaces, and semi-simple modules. Commutative rings; prime and primary ideals, PIDs are UFD, factorizations in integral domains, field extensions, the Galois Correspondence Theorem.

MATH 7340 RING THEORY (3) LEC. 3. Pr. MATH 7320. Topics on: commutative rings (Cohen-Seidenberg theorems, Krull Intersection Theorem, Dedekind domains), or noncommutative rings (projective modules over Artinian algebras, representation type, Noether-Skolem Theorem, division algebras).

MATH 7350 ALGEBRAIC GEOMETRY (3) LEC. 3. Pr. MATH 7320 and P/C MATH 7500. Pr. ``C" or better in Math 7320 and Math 7500. Affine and projective varieties, the Ideal-Variety Correspondence, morphisms and rational maps of varieties, Bezout's Theorem, sheaves, schemes, divisors, sheaf cohomology.

MATH 7360 LIE ALGEBRA (3) LEC. 3. General introduction of Lie algebras including their structures and classifications of semisimple Lie algebras.

MATH 7370 MATRICES I (3) LEC. 3. Departmental approval. Jordan form, functions of a matrix, spectral theorem, singular values, norms, quadratic forms, field of values, inertia; topics of current interest.

MATH 7380 MATRICES II (3) LEC. 3. Pr. MATH 7370. Matrix stability and inertia, inequalities for matrix eigenvalues and singular values, The Kronecker and Hadamard matrix products, the exponential and logarithm matrix map; topics of current interest.

MATH 7390 MULTILINEAR ALGEBRA (3) LEC. 3. Pr. MATH 5370 or MATH 6370. Multilinear algebra, symmetry class of tensors, induced operators, generalized matrix functions, and current research topics.

MATH 7400 FUNCTIONAL ANALYSIS I (3) LEC. 3. Pr. MATH 7210. Departmental approval. Bounded linear transformations and functionals on Banach and Hilbert spaces, weak topologies, linear operators, adjoints, compact operators. Banach algebras, spectral theory, Gelfand transform.

MATH 7410 FUNCTIONAL ANALYSIS II (3) LEC. 3. Pr. MATH 7400. C*-algebras, Hermitian, self adjoint elements, functional calculus for commutative algebras. Normal operators on Hilbert space, spectral theorem, applications, symmetric and self-adjoint operators, normal operators, the spectral theorem.

MATH 7440 PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Second order linear elliptic and hyperbolic equations stressing non-linear and numerical problems, characteristic domains of dependence, energy integrals, finite difference schemes, Sobolev spaces, maximum principle.

MATH 7450 PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7440. Parabolic and hyperbolic equations, stressing numerical problems, characteristics, domains of dependence, energy integrals, reaction-diffusion problems, Navier-Stokes equations, fixed-point and Galerkin methods.

MATH 7460 ADVANCED PERTURBATION METHODS (3) LEC. 3. Departmental approval. Solutions of nonlinear problems and integrals using WKB, Rayleigh-Janzen, Generalized Scales, Latta, van der Pol, Watson, Laplace, Adomian, homotopy, Pade, Liouville-Green and Burmann transformations. May count either AERO 7460/7466 or MATH 7460/7466.

MATH 7500 TOPOLOGY I (3) LEC. 3. Departmental approval. Separation and countability axioms, covering properties, completeness, connectedness, metric spaces and metrizability, product and quotient spaces, function spaces.

MATH 7510 TOPOLOGY II (3) LEC. 3. Pr. MATH 7500. Homotopy, elementary properties of retracts, fundamental groups, covering spaces, computations of fundamental groups.

MATH 7530 CONTINUUM THEORY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Topics such as inverse limits, decompositions, hyperspaces, special mappings, topological structures from the pathological (indecomposable continua), to the straightforward (Peano continua).

MATH 7540 CONTINUUM THEORY II (3) LEC. 3. Pr. MATH 7530. Topics in continuum theory such as confluent mappings, epsilon mappings, chains, to-the-boundary theorems, relationship to inverse limits, advanced topics.

MATH 7550 SET THEORETIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Compactifications, covering properties, metrization theorems and generalized metrizable spaces, topological groups.

MATH 7560 SET THEORETIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7550. Topological Groups, Cardinal invariants, use of set-theoretic axioms such as Martin's Axiom, independence results, advanced topics.

MATH 7600 ADVANCED NUMERICAL MATRIX ANALYSIS (3) LEC. 3. Departmental approval. Topics selected from: discretization matrices, sparse matrices, QR-algorithm, symmetric eigenvalue problems, singular value decomposition, pseudo-inverses, simplex method, matrix algorithms for vector computers.

MATH 7610 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Pr. (MATH 2650 or MATH 2670) and (MATH 2660 or MATH 2667) and (MATH 5630 or MATH 6630) and (MATH 5640 or MATH 6640). Finite difference methods for ordinary and partial differential equations.

MATH 7630 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7610. Finite element methods for partial differential equations.

MATH 7700 GRAPH THEORY (3) LEC. 3. Algorithmic, enumerative and theoretical aspects of graph theory: matchings and factors, colorings, Hamiltonicity, connectivity, trees, extremal graphs, planarity. May count either MATH 6750 or MATH 7700.

MATH 7710 COMPUTATIONAL GEOMETRY (3) LEC. 3. Departmental approval. Design and time-complexity of computer algorithms for geometry problems studying the geometric ideas needed for computer-aided design, computer graphics and robotics.

MATH 7720 INTRODUCTION TO CODING THEORY (3) LEC. 3. Introduction to methods and algorithms for reliable communications through error control coding. BCH, Reed- Solomon, Reed-muller codes, convolutional codes, Berlekamp-Massey, Viterbi, and iterated decoding algorithms.

MATH 7730 ADVANCED TOPICS IN CODING THEORY (3) LEC. 3. Pr. MATH 7720. Departmental approval. Structure and theoretical properties of codes and related algorithms. Relations to other combinatorial and algebraic objects stressed.

MATH 7740 ADVANCED COMBINATORIAL DESIGNS (3) LEC. 3. Topics of current interest and research in combinatorial design theory. Areas included: latin squares, embeddings, Wilson's constructions, quadruple systems, Hadamard designs, graph designs, orthogonal arrays.

MATH 7750 ADVANCED TOPICS IN GRAPH THEORY (3) LEC. 3. Pr. MATH 6750 or MATH 7700. Topics of current interest and recent research in graph theory. May include edge colorings, algebraic graph theory, network flows, factor theory.

MATH 7760 INTRODUCTION TO ALGEBRAIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Homology of chain complexes, the axioms of homology and their verification, computations of homology groups.

MATH 7770 INTRODUCTION TO ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7760. Homology with coefficients and universal coefficient theorem theorems, Cohomology and universal coefficient theorems, homology of products of spaces, cup and cap products, duality in manifolds.

MATH 7780 ADVANCED ALGEBRAIC TOPOLOGY I (3) LEC. 3. Departmental approval. Advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7790 ADVANCED ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7780. Continuation of MATH 7780; advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7800 PROBABILITY I (3) LEC. 3. Pr., a full year of undergraduate mathematical analysis at a level commensurate with MATH 5200/5210. Measure-theoretic foundations, independence, conditioning, martingales, Markov property, stationarity, random walks, Markov chains, Poisson processes.

MATH 7810 PROBABILITY II (3) LEC. 3. Pr. MATH 7800. Classical and modern topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both MATH 7810 and STAT 7810.

MATH 7820 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances). Credit will not be given for both MATH 7820 and STAT 7820.

MATH 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances).

MATH 7870 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY I (3) LEC. 3. Pr. MATH 7210 or MATH 7500. Borel classification of sets, the Baire classification of real functions. Derivatives and approximately continuous functions. The Lebesegue density topology.

MATH 7880 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY II (3) LEC. 3. Pr. MATH 7870. Analytic and coanalytic sets. Lebesegue measurable, universally measurable and Marczewski measurable sets and functions. Baire properties. Singular sets. Category analogs to real analysis.

MATH 7950 SEMINAR (1-3) AAB. SU. Course may be repeated for a maximum of 6 credit hours.

MATH 7960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 10 credit hours.

MATH 7970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated with change in topics.

MATH 7980 RESEARCH AND SPECIAL PROJECT IN APPLIED MATHEMATICS (1-10) RES. SU. Departmental approval. For students working on the Master of Applied Mathematics degree with concentration in numerical analysis. Course may be repeated for a maximum of 10 credit hours.

MATH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

MATH 8310 HOMOLOGICAL ALGEBRA I (3) LEC. 3. Pr. MATH 7320. Departmental approval. Homology and cohomology. Hom and Tensor functors; the adjoint isomorphisms, injective/projective modules, flat modules, the classification of certain rings using homological tools.

MATH 8330 INTRODUCTION TO LIE GROUPS (3) LEC. 3. Pr. MATH 7310 or MATH 7370. Introduce Lie groups via matrix groups. Topics include exponential map, Lie algebras, classical groups, structures and classifications, manifolds, representations.

MATH 8960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Mechanical Engineering - MECH

Courses

MECH 2020 MANUFACTURING TECHNOLOGY LAB (2) LEC. 3. LAB. 1. Pr. PHYS 1600. Manufacturing technology lab for introduction of processes such as cutting, forming, machining, and joining of metals and other materials. Basic and applied machine shop and manufacturing floor safety.

MECH 2130 MECHANICAL ENGINEERING STATICS (3) LEC. 2.5. Pr. (MATH 1620 or MATH 1627) and (PHYS 1600 or PHYS 1607). Forces, vectors, moments and free body diagrams. Systems in mechanical equilibrium.

MECH 2140 KINEMATICS AND DYNAMICS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and MECH 2130. Kinematics and kinetics of particles and rigid bodies with an emphasis on mechanical engineering applications such as machines, mechanisms, cams, gears and vibrations. MECH 2130 with a grade of C or higher.

MECH 2220 COMPUTER-AIDED ENGINEERING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (COMP 1200 or COMP 1220 or COMP 1230) and P/C MATH 2650. The computer as a tool in mechanical engineering.

MECH 2AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Pr. MECH 2130 and MATH 2650 and PHYS 1610. Progress Assessment Examination in: multivariate calculus, differential equations, chemistry, physics, statics, dynamics. Course may be repeated with change in topics.

MECH 3020 THERMODYNAMICS II (3) LEC. 3. Pr. ENGR 2010. Gas and Vapor power cycles, Refrigeration cycles, Gas and gas-vapor mixtures, Chemical reactions, Chemical and phase equilibrium, Thermodynamic property relations. Pr. ENGR 2010 with a grade of C or higher.

MECH 3030 FLUID MECHANICS (3) LEC. Pr. MECH 2130 and ENGR 2010 and MATH 2650 and P/C MECH 3120. Fluid properties; fluid statics; mass conservation; momentum equation; external and internal flows; Euler and Bernoulli equations; dimensional analysis; viscous flows; boundary layers; compressible flow. Pr. MECH 2130 with a grade of C or higher, and ENGR 2010 with a grade of C or higher.

MECH 3040 HEAT TRANSFER (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Fundamentals of heat transfer by conduction, convection, and radiation. Introduction to heat exchangers.

MECH 3050 MEASUREMENT AND INSTRUMENTATION (3) LEC. 2. LAB. 3. Pr. MECH 3030 and P/C ELEC 3810. Theory and practice of modern sensors and computer-based data acquisition techniques, uncertainty analysis, results reporting, filtering and signal processing.

MECH 3120 MECHANICS OF MATERIALS (3) LEC. 3. Pr. MECH 2130 and MATL 2100 and MATH 2650 and MATH 2660. Stress and strain concepts, stress-strain relationships, applications, uniaxially loaded members, torsion, normal and shear stresses in beams, beam deflections, buckling, stress concentration, combined loading, failure theories (Grade of C or higher required in MECH 2130.)

MECH 3140 SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3. Pr. MECH 2140 and MATH 2650. System dynamics and automatic control theory.

MECH 3150 DYNAMICS LAB (1) LAB. 2.5. Pr. MECH 2140. Laboratory experiences designed to enhance student understanding of engineering mechanics, including statics, dynamics, and kinematics.

MECH 3160 MECHANICS LAB (1) LAB. 2.5. Pr. MECH 3120 and MECH 2220. Laboratory experiences designed to enhance student understanding of engineering mechanics including statics, stresses, & strains.

MECH 3200 CONCEPTS IN MECHANICAL DESIGN (2) LEC. 1. LAB. 1. Pr. MECH 2130 and (P/C MECH 2220 or P/C MECH 3220). Introduction to the mechanical design process including identification of needs and engineering requirements, concept generation and selection, and design development. Students will work in teams to perform a design project, and will also be exposed to project management and communication skills. MECH 2130 with a grade of C or higher.

MECH 3230 MACHINE DESIGN (3) LEC. 3. Pr. MECH 3120 and MECH 2020 and MECH 3200. Design of systems containing a variety of mechanical elements.

MECH 3AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr. MECH 2AA0 and MECH 2140 and MECH 3020 and MECH 3120. Progress Assessment Examination in: Statistics, linear algebra, mechanical design, thermo-fluid design, social impact, contemporary issues. Course may be repeated with change in topics.

MECH 4240 COMPREHENSIVE DESIGN I (2) LEC. 1. LAB. 3. Pr. (MECH 3AA0 and MECH 3150 and MECH 3160 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and MECH 3140) or (MECH 3AA0 and MECH 3150 and MECH 3160 and MECH 3230 and MECH 3040 and P/C MECH 3050 and P/C MECH 3140). Capstone engineering design course based on a design project similar to those encountered by the engineer in industry involving thermal and mechanical design.

MECH 4250 COMPREHENSIVE DESIGN II (2) LEC. 1. LAB. 3. Pr. (MECH 4240 and MECH 3040 and MECH 3050 and P/C MECH 3140 and P/C INSY 3600) or (MECH 4240 and MECH 3050 and MECH 3140 and P/C MECH 3040 and P/C INSY 3600) or (MECH 4240 and MECH 3140 and MECH 3040 and P/C MECH 3050 and P/C INSY 3600). Continuation of MECH 4240. Detailed design, fabrication, communication, and presentation of a prototype machine for an industrial sponsor.

MECH 4300 MECHANICAL EQUIPMENT ENGINEERING (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Operation, performance, maintenance, selection, design and optimization of mechanical equipment commonly found in industrial operations.

MECH 4310 HEATING, VENTILATING, AIR CONDITIONING AND REFRIGERATION (3) LEC. 3. Pr. MECH 3040. Theory and practice of modern heating, ventilation, air conditioning and refrigeration systems; concepts, equipment, and systems design.

MECH 4320 APPLIED CFD AND HEAT TRANSFER (3) LEC. 3. Pr. MECH 3040 and MATH 2660. Introduction to computational fluid dynamics and heat transfer techniques used to analyze thermal performance of devices and systems. Commercial software will be used.

MECH 4420 VEHICLE DYNAMICS (3) LEC. 3. Pr. MECH 3140. Ground vehicle resistance, propulsion, maneuvering, and control tires, suspensions, braking, aerodynamics, case studies.

MECH 4430 GROUND VEHICLE FUNDAMENTALS (3) LEC. 3. Pr. ENGR 2100 or ENGR 2350 or MECH 3120. Engineering fundamentals of ground vehicles and typical subsystems, including: power (engine and electrical); drivetrain; braking; steering; suspension; ergonomics; and structure.

MECH 4440 AUTOMOTIVE DESIGN EXPERIENCE I (2) LEC. 1. LAB. 3. Pr. MECH 3AA0 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and P/C MECH 3140. Departmental Approval. Team-based design of a ground vehicle, both whole-vehicle and subsystem; design evaluation and modification; oral and written communication.

MECH 4450 AUTOMOTIVE DESIGN EXPERIENCE II (2) LEC. 1. LAB. 3. Pr. MECH 4440. Departmental approval. Team-based fabrication, testing, modification and operation of a ground vehicle; oral and written communication; project management.

MECH 4700 INTEGRATED ENGINEERING THEORY AND PRACTICE (3) LEC. 3. Pr. MECH 3200 and MECH 2020. Real world engineering management decision making, case studies from industry.

MECH 4930 DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND/INT. Departmental approval. Individual or small group study of a specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 4970 SPECIAL TOPICS IN MECHANICAL ENGINEERING (3) LEC. Departmental approval. Regular course addressing a specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 9 credit hours.

MECH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student directed research and writing of an honors thesis. Course may be repeated for a maximum of 6 credit hours.

MECH 5010 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 5050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 3. Pr. ENGR 2010 or ENGR 2200. or permission of instructor. Overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles.

MECH 5120 COMBUSTION (3) LEC. 3. Pr. MECH 3040. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 5210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Pr. MECH 3040 and ELEC 3810. Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 5220 VIRTUAL PROTOTYPING (3) LEC. 3. Pr. MECH 2220 and MECH 3120. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 5230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Pr. MECH 3030 and MECH 3120. Theory and techniques for considering friction, wear and lubrication, in the design of machine components, and other surface interactions.

MECH 5240 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Pr. MECH 3030. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine comments in order to control friction and wear.

MECH 5250 MULTISCALE CONTACT MECHANICS (3) LEC. 3. Pr. MECH 3120. Theory and techniques for considering contact between solid bodies and the effect on friction, wear, the design of machine components, and other surface interactions.

MECH 5270 METALWORKING AND MANUFACTURING TRIBOLOGY (3) LEC. 3. Pr. MECH 2020. Theory and optimization techniques for tool life and surface finish considering friction, wear and lubrication in manufacturing processes including both metalworking fluids and hard/dry machining.

MECH 5300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Pr. MECH 3120. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problems, axisymmetric problems bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 5310 MECHANICS OF ELECTRONIC PACKAGING (3) LEC. 3. Pr. MECH 3120 and ELEC 3810. Stress and strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 5320 ENGINEERED FLEXIBLE STRUCTURES (3) LEC. 3. LAB. 0, LEC. 0. Pr. (MECH 3120 or AERO 3610 or CHEN 3090 or CIVL 3310 or MATL 3200). Fiber to fabric design, engineering, manufacturing, testing and applications. Principles of modern machinery and techniques for flexible material manufacturing.

MECH 5330 INTRODUCTION TO BIOMECHANICAL ENGINEERING (3) LEC. 3. Pr. MECH 2140 and MECH 3120 and MECH 2130. Introduction to the multidisciplinary field of study called Biomechanical Engineering – a mechanics and calculus-based examination of energy and forces within living systems and the physical effects produced by such energy and forces. Topics covered include 1) human musculoskeletal physiology and anatomy, 2) mechanics of biological materials, 3) biomechanically relevant rigid body dynamics, 4) engineering of technology and applications to biomechanical systems, 5) medical imaging technology, and 6) applications of biomechanical engineering study.

MECH 5390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 3. LAB. 0. Pr. MECH 3040 and MATH 2660 and MECH 3120. Introduction to the fundamentals of the finite element method.

MECH 5420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Pr. MECH 3140. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 5430 BASICS SENSOR APPLICATIONS (3) LEC. 3. Pr. MECH 3120. Basic concepts, fabrication and operation of micromachined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.

MECH 5450 NON-DESTRUCTIVE EVALUATION OF MATERIALS AND STRUCTURES (3) LEC. 3. Pr. MECH 3120. Non-destructive testing fundamentals. Ultrasonic, acoustic, vibration strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 5500 ENGINEERING IN THE ARTS (3) LEC. 3. This course will educate students on the engineering associated with multiple forms of art such as the playing of musical instruments, painting, Renaissance architecture, and dance. Students will also learn about key historical figures of the Renaissance that held major influence on the origins of Western engineering, architecture, and art.

MECH 5510 ENGINEERING ACOUSTICS (3) LEC. 3. Pr. MATH 2650. The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics and noise control will be emphasized.

MECH 5520 MANUFACTURING OF POLYMERIC STRUCTURES (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3120 or AERO 3610 or CHEN 3090 or CIVL 3310 or MATL 3200. Characteristics and flow properties of polymers; film and fiber extrusion, compression and injection molding technology, polymer material selection and processing.

MECH 5530 ADVANCED REFRIGERATION SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3020 and MECH 3040. Overview of thermodynamics, fluid mechanics, and heat transfer in advanced vapor compression systems. Methodology for the analysis of refrigeration systems and their components. Applications include advanced refrigeration systems, heat pump systems, buildings HVAC, industrial refrigeration systems, agricultural facilities climate control, energy storage, transport refrigeration, and cold food chain.

MECH 5610 MECHANICAL VIBRATION (3) LEC. 3. Pr. MECH 2140 and MATH 2650 and MATH 2660. Modeling of lumped dynamic systems, free and forced vibration of single degree freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 5630 FEEDBACK CONTROL OF DYNAMIC SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3140. Concepts in feedback control of dynamical systems including time and frequency domain, digital control, and modern state space control techniques.

MECH 5640 PRINCIPLES OF NAVIGATION AND GUIDANCE SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3140. Develop understanding of the principles associated with coordinate frames, pose estimation, and navigation with a focus on inertial navigation.

MECH 5650 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 3140. Detailed analysis of the GPS system and receiver including signal acquisition, tracking, decoding, and Position, Velocity, and Timing (PVT) determination

MECH 5710 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Pr. MECH 3140. Basic concepts in robotics such as kinematic analysis, coordinate transformation, Lagrange and Newton Euler equations of motion.

MECH 5720 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Pr. MECH 3140. Application of various algorithms for robot manipulators.

MECH 5810 MECHATRONICS (3) LEC. 3. Pr. MECH 2140 and ELEC 3810. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines, and design of automatic machinery.

MECH 5830 ENGINES (3) LEC. 3. Pr. (ENGR 2010 and MECH 3030) or ENGR 2200. or (ENGR 2010 plus any one of (AERO 3110, CHEN 2610, CIVL 3110, MECH 3030)), Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics, thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 5840 APPLIED MECHATRONICS (3) LEC. 3. LAB. 0, LEC. 0. Pr. (P/C MECH 3140). Implementation basic circuits, power electronics, analog (continuous) and digital (discrete) control topics in multiple design projects.

MECH 5850 SOFTWARE FOR SENSORS AND SYSTEMS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MECH 2220. Course Description: Develop C++ programs, use Linux terminal, manage source code using Git, implement robotics applications using the robot operating system (ROS).

MECH 5970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. 1-3. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 9 credit hours.

MECH 6010 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 6050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 3. An overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles.

MECH 6120 COMBUSTION (3) LEC. 3. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 6210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Thermal issues in electronics, review of heat transfer hermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 6220 VIRTUAL PROTOTYPING (3) LEC. 3. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 6230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Friction, wear, and lubrication in design of machine components and other surface interactions, with emphasis on optimizing tribological performance.

MECH 6240 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine comments in order to control friction and wear.

MECH 6250 MULTISCALE CONTACT MECHANICS (3) LEC. 3. Theory and techniques for considering contact between solid bodies and the effect on friction, wear, the design of machine components, and other surface interactions.

MECH 6300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problem, axisymmetric problems, bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 6310 MECHANICS OF ELECTRONIC PACKAGING (3) LEC. 3. Stress and strain analysis of Microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 6320 ENGINEERED FLEXIBLE STRUCTURES (3) LEC. 3. LAB. 0, DSL/LEC. 0. Fiber to fabric design, engineering, manufacturing, testing and applications. Principles of modern machinery and techniques for flexible material manufacturing.

MECH 6330 INTRODUCTION TO BIOMECHANICAL ENGINEERING (3) LEC. 3. Introduction to the multidisciplinary field of study called Biomechanics – the examination of energy and forces within living systems and the physical effects produced by such energy and forces. Topics covered include 1) human musculoskeletal physiology and anatomy, 2) properties of biological materials, 3) biomechanically relevant mechanics, 4) methods and practice of measuring biomechanical systems, and 5) applications of biomechanical study.

MECH 6390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 3. LAB. 0. Introduction to the fundamentals of the finite element method.

MECH 6420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 6430 BASICS OF SENSOR APPLICATIONS (3) LEC. 3. Basic concepts, fabrication and operation of micro machined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.

MECH 6450 NON-DESTRUCTIVE EVALUATION OF MATERIALS AND STRUCTURES (3) LEC. 3. Non-destructive testing fundamentals. Ultrasonic, acoustic, vibration, and eddy current techniques. Case studies.

MECH 6500 ENGINEERING IN THE ARTS (3) LEC. 3. This course will educate students on the engineering associated with multiple forms of art such as the playing of musical instruments, painting, Renaissance architecture, and dance. Students will also learn about key historical figures of the Renaissance that held major influence on the origins of Western engineering, architecture, and art. Sample lecture topics include 1) Science and Engineering in The Renaissance, 2) Leonardo da Vinci, 3) Musical Vibrations and Acoustics, and 4) Architecture and Biomimicry.

MECH 6520 MANUFACTURING OF POLYMERIC STRUCTURES (3) LEC. 3. LAB. 0, DSL/LEC. 0. Characteristics and flow properties of polymers; film and fiber extrusion, compression and injection molding technology, polymer material selection and processing.

MECH 6530 ADVANCED REFRIGERATION SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Overview of thermodynamics, fluid mechanics, and heat transfer in advanced vapor compression systems. Methodology for the analysis of refrigeration systems and their components. Applications include advanced refrigeration systems, heat pump systems, buildings HVAC, industrial refrigeration systems, agricultural facilities climate control, energy storage, transport refrigeration, and cold food chain.

MECH 6610 MECHANICAL VIBRATION (3) LEC. 3. Modeling of lumped dynamic systems, free and forced vibration of single degree of freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 6630 FEEDBACK CONTROL OF DYNAMIC SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Concepts in feedback control of dynamical systems including time and frequency domain, digital control, and modern state space control techniques.

MECH 6640 PRINCIPLES OF NAVIGATION AND GUIDANCE SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Develop understanding of the principles associated with coordinate frames, pose estimation, and navigation with a focus on inertial navigation.

MECH 6650 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 2.5. LAB. 0, LEC. 0. Detailed analysis of the GPS system and receiver including signal acquisition, tracking, decoding, and Position, Velocity, and Timing (PVT) determination

MECH 6710 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Basic concepts in robotics such as kinematics analysis, coordinate, Lagrange and Newton Euler equations of motion.

MECH 6720 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Application of various algorithms for robot manipulators.

MECH 6810 MECHATRONICS (3) LEC. 3. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines and design of automatic machinery.

MECH 6830 ENGINES (3) LEC. 3. Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 6840 APPLIED MECHATRONICS (3) LEC. 3. Implementation basic circuits, power electronics, analog (continuous) and digital (discrete) control topics in multiple design projects.

MECH 6850 SOFTWARE FOR SENSORS AND SYSTEMS (3) LEC. 2.5. Develop C++ programs, use Linux terminal, manage source code using Git, implement robotics applications using the robot operating system (ROS).

MECH 6930 INTERMEDIATE DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 6970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) AAB. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7010 ADVANCED THERMODYNAMICS (3) LEC. 3. Classical and statistical treatment of the laws and properties of thermodynamic systems; applications.

MECH 7110 ADVANCED FLUID MECHANICS I (3) LEC. 3. Mass Conservation, Linear and Angular Momentum Equations; Energy Equation for Fluid Systems; Foundations of Inviscid Flows.

MECH 7120 ADVANCED FLUID MECHANICS II (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Schwarz-Christoffel Transformation; Hodograph Method; Three-Dimensional Potential Flows; Interface Waves; Low Reynolds Number Solutions; Oseen Approximation; Stability of Laminar Flows.

MECH 7130 BOUNDARY LAYER THEORY (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Mass Conservation; Momentum Equation; Energy Equation; Dimensional Analysis; Fully-Developed Laminar Flows; Similarity Solutions; Boundary layer Approximation; Stability of Laminar Flows.

MECH 7140 TURBULENCE (3) LEC. 3. Pr. MECH 7130 or MECH 7136. Properties of Turbulence; Governing Conservation, Momentum and Energy Equations; Time-averaging, Vorticity Equatiion; Turbulence Models; Shear Flows; Jets, Wakes and Boundary Layers; Experimental Techniques.

MECH 7210 DIFFUSIVE TRANSPORT (3) LEC. 3. Formulations and analytical solutions of steady, periodic, and unsteady heat and mass diffusion problems in one, two, and three dimensions.

MECH 7220 CONVECTION HEAT TRANSFER (3) LEC. 3. Advanced topics in free and forced convection transport within the laminar, transitional and turbulent regimes; confined and external flows.

MECH 7230 THERMAL RADIATION (3) LEC. 3. Fundamentals of thermal radiation heat transfer including: absorption, emission, and reflection from solids; absorption, emission, and scattering by gases; combined mode and conjugate heat transfer; exact and approximate solution methodologies.

MECH 7240 NUMERICAL METHODS IN HEAT TRANSFER (3) LEC. 3. Advanced topics in finite element and finite difference methods; solution techniques, stability and convergence.

MECH 7250 BOILING AND CONDENSATION (3) LEC. 3. Hydrodynamics of vapor-liquid flow, pool boiling, forced convective boiling, condensation, instabilities in two-phase systems, augmentation of boiling and condensation.

MECH 7300 FRACTURE MECHANICS (3) LEC. 3. Stress and strain analysis of cracked bodies, energy release rate, Griffith problem, modes of fracture, crack tip fields, stress intensity factors, small scale crack tip yielding, the J-integral, HRR equations, experimental and numerical methods for fracture parameter estimation.

MECH 7310 SOLID MECHANICS (3) LEC. 3. Stress and strain analysis in 3-D, constitutive behavior of elastic solids, orthotropy and isotropy, stress compatibility equations, Navier's equation, stress functions, applications.

MECH 7320 CONTINUUM MECHANICS AND TENSOR ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Cartesian and curvilinear tensor analysis with applications to the mechanics of continuous media. Constitutive equations for solids and fluids.

MECH 7330 EXPERIMENTAL MECHANICS (3) LEC. 3. Experimental methods for measurement of stress, strain and displacement. Strain gauges, transducers and brittle coatings. Transmission photoelasticity and photoelastic coatings. Introduction to moire' and coherent optical techniques.

MECH 7340 INELASTIC STRESS ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Introduction to modeling material behavior of non-elastic materials. Theories of plasticity, linear and non-linear viscoelasticity, and viscoplasticity. Applications to modern engineering materials and simple structural members.

MECH 7360 MECHANICS OF COMPOSITE MATERIALS (3) LEC. 3. Properties and mechanical behavior of fiber-reinforced composite materials. Anisotropic stress-strain relations, orthotropic elasticity and laminated plate theories, failure criteria, applications.

MECH 7370 ANALYSIS OF PLATES AND SHELLS (3) LEC. 3. Theories for the bending and stretching of plate and shell structures. Transverse loading, buckling, vibration, and thermal stress problems. Introduction to energy methods, numerical techniques, and large deflection theories.

MECH 7390 VARIATIONAL MECHANICS (3) LEC. 3. Energy methods in solid mechanics. Virtual work, stationary potential energy, and variational calculus. Elastic strain energy. Applications to bars, trusses, beams, frames, and plates. Castigliano's Theorem and the Ritz Method.

MECH 7410 OPTICAL METHODS IN MECHANICS (3) LEC. 3. Measurement of stresses, strains, and deformations using optical methods; optical interference; Fourier optics; optical spatial filtering, white light methods; coherent optical methods.

MECH 7430 OPTICAL PROPERTIES OF ADVANCED MATERIALS (3) LEC. 3. Pr. MECH 6430 or MECH 6436 or PHYS 7200. Linear and nonlinear optical properties, correlation with material-structure, electro-optic effects, lasers, frequency conversion, fiber-optics, technological applications.

MECH 7500 STATE VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 2.5. LAB. 0, LEC. 0. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.

MECH 7520 PRINCIPLES AND APPLICATION OF OPTIMAL ESTIMATION (3) LEC. 2.5. LAB. 0, LEC. 0. Pr. (MECH 7500 or ELEC 7500 or MECH 5720 or MECH 6720 or MECH 4420). Statistical processes, Bayesian estimation including linear and non-linear batch and sequential filters such as least squares and Kalman filtering.

MECH 7610 ADVANCED DYNAMICS (3) LEC. 3. Dynamics of particles and systems of particles applied to engineering problems. Work-energy and impulse-momentum principles. Lagrange's equations and Hamilton's Principle.

MECH 7620 NONLINEAR SYSTEMS (3) LEC. 3. Introduction, geometrical concepts, analytical methods, Poincare' maps, strange attractors, bifurcation, normal forms, center manifold theory, Liapunov stability, Liapunov exponents, linearization about periodic orbits, Floquet theory, bifurcation analysis.

MECH 7630 MECHANICAL IMPACT (3) LEC. 3. Departmental approval. Investigation of the fundamental concepts used to solve collision problems with friction.

MECH 7710 CONTROL SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. Topics from control theory are introduced in the context of control systems analysis and design, including state variable feedback, modal control, optimal control and adaptive control for both continuous and discrete systems.

MECH 7930 ADVANCED DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Topics may vary. Will not fulfill degree requirements. Course may be repeated with change in topics.

MECH 7970 ADVANCED SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) DSL. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7990 RESEARCH & THESIS (1-12) MST. Individual Master's thesis research. May be repeated for credit. Course may be repeated with change in topics.

MECH 8990 RESEARCH & DISSERTATION (1-12) DSR. Individual Doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

MECH TECH MECHANICAL TECHNICAL ELECTIVE (3) LEC. 3.

Film and Media Studies - MDIA

Courses

MDIA 2350 INTRODUCTION TO FILM STUDIES (3) LEC. 2. LAB. 2. Introduction to film analysis, modes of film practice and critical approaches to the study of cinema. May count either MDIA 2350/MDIA 2353.

MDIA 3210 SOUNDTRACKS, MUSIC AND MEDIA (3) LEC. 3. Historical, artistic, sociocultural and economic contexts of music and media.

MDIA 3300 FOUNDATION OF MEDIA STUDIES (3) LEC. 2. LAB. 2. Pr. MDIA 2350 or MDIA 2353. This is a foundational course that provides students with a survey of the key theoretical approaches to studying the cultural, social, political and economic dimensions of entertainment media.

MDIA 3310 HISTORY OF NEW AND EMERGING MEDIA (3) LEC. 3. This course examines the origins and development of the Internet and related platforms including USENET, the World Wide Web, and social media. In the process, the course addresses many of the social, political, economic, and industrial implications that have accompanied the use of the Internet as a communication technology.

MDIA 3320 GENDER AND SEXUALITY IN MEDIA (3) LEC. 2. LAB. 2. Examines the relationship between gender, sexuality, identity and the media, from the perspective of key theories, representation, audience engagement and industry.

MDIA 3360 AUDIO STORYTELLING AND PODCASTING (3) STU. 3. Students will gain hands-on experience in producing audio stories and in designing and producing podcasts.

MDIA 3370 GLOBAL MEDIA (3) LEC. 2. LAB. 2. Global media is focused on the complex global dimensions of media production, distribution and reception, with a primary focus on entertainment media.

MDIA 3580 REPRODUCING POPULAR CULTURE (3) LEC. 3. Postmodern study on the widespread recycling of media artifacts. May count either MDIA 3580 or MDIA 3583 or RTVF 3580.

MDIA 3600 FILM GENRES (3) LEC. 2. LAB. 2. A critical examination of popular film genres and how they have been used historically within the film industry, film studies, media criticism and popular culture.

MDIA 3650 MEDIA INDUSTRIES (3) LEC. 2. LAB. 2. The course provides students a comprehensive overview of how the media industries work, why they work as they do, and the broader theoretical and practical implications of the media industries.

MDIA 3700 AUDIENCES AND FAN CULTURE (3) LEC. 2. LAB. 2. This course explores theories of the audience in media and cultural studies, the history of studying media audiences, while also considering contemporary scholarship, technology, identity and fan communities.

MDIA 3750 RACE AND AMERICAN FILM HISTORY (3) LEC. 2. LAB. 2. A critical examination of the historical and social constructions of race and ethnicity in popular U.S. films.

MDIA 3970 SPECIAL TOPICS (3) AAB. 3. Topics in Media Studies at the intermediate level. Course may be repeated for a maximum of 6 credit hours.

MDIA 4200 TV HISTORY (3) LEC. 2. LAB. 2. An examination of the development and evolution of U.S. television broadcasting as an art form, industry and social institution from the early twentieth century to the present day.

MDIA 4210 POPULAR CULTURE STUDIES (3) LEC. 3. Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes. Declared major in AGCO, COMM, JRNL, JRSP, MDIA or PRCM.

MDIA 4250 SCREEN CULTURE (3) LEC. 2. LAB. 2. A critical study of the historical development and the cultural meanings of dominant screen technologies (film screens, TVs, computer screens, mobile devices).

MDIA 4300 MEDIA PROGRAMMING (3) LEC. 3. Introduces organizational concepts, strategies, processes, and frameworks for programming in various media systems, including broadcast, cable and streaming sources.

MDIA 4310 MEDIA AND SOCIETY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of the relationship between the mass communication industry and a mass society. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4350 TELEVISION CRITICISM (3) LEC. 3. LAB. 1. This course prepares students to critically analyze television with a deep study of the aesthetics of television coupled with an overview of critical approaches to television research.

MDIA 4390 FILM AUTHORS (3) LEC. 2. LAB. 2. In-depth study of one or more filmmakers important to the development of film as a popular art form. Declared major in AGCO, COMM, JRNL, JRSP, MDIA or PRCM.

MDIA 4400 ADVERTISING AND CONSUMER CULTURE (3) LEC. 2. LAB. 2. This course is a critical examination of the relationship between the advertising industries and the media industries and how they have influenced each other as well as mainstream US culture.

MDIA 4420 HISTORY OF MEDIA TECHNOLOGY (3) LEC. 3. History of media technology from 18th-21st centuries.

MDIA 4500 CULTURE AND TECHNOLOGY (3) LEC. 3. This course explores the complex interrelations, issues and impacts between culture and technology through a range of interdisciplinary academic, professional and global settings, contexts and texts.

MDIA 4580 FAME, CELEBRITY, AND MEDIA CULTURE (3) LEC. 3. Examination of celebrity and fame as distinguishing cultural phenomena.

MDIA 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (MDIA 3300 or MDIA 3303). Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Declared major in MDIA or MDIV/MFLM. Requires admission to internship program.

MDIA 4930 DIRECTED STUDIES (3) IND. 3. Pr. MDIA 3300 or MDIA 3303. Study of narrowly-defined MDIA topic not already covered in the MDIA curriculum and under the direction of an MDIA faculty. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV/MFLM or PRCM. May count either MDIA 4930 or MDIA 4933 or MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

MDIA 4970 SPECIAL TOPICS (3) LEC. 3. Topics in Media Studies at the advanced level. Course may be repeated for a maximum of 6 credit hours.

MDIA 5500 GLOBAL MEDIA (3) LEC. 3. LAB. 0, SEM. 0. Pr. MDIA 2350 and MDIA 3300. Global media is focused on the complex global dimensions of media production, distribution and reception, situated within the study of critical theory.

Film and Media Studies - Film - FILM

Courses

FILM 2420 INTRODUCTION TO FILMMAKING (3) DSL/STU. 3. A studio course introducing students to the theory and practice of cinematography and editing for the short film.

FILM 2700 INTRODUCTION TO VISUAL MEDIA (3) DSL/STU. A studio course introducing students to concepts and techniques of digital image-making for the short film.

FILM 3100 INTERMEDIATE FILMMAKING (3) DSL/STU. 3. Pr. (MDIA 2420 or FILM 2420) and (MDIA 2700 or MDIA 2703 or FILM 2700). An intermediate studio course in which students develop sound design skills for the short film.

FILM 3110 CINEMATOGRAPHY (3) STU. 3. Pr. (MDIA 2420 or FILM 2420) and (MDIA 2700 or FILM 2700). An intermediate studio course in which students explore the art of filmmaking through methods and techniques of cinematography for the short film. The course structure will emphasize short scene studies which focus on visual outcomes including cameras technology, motion, lighting, composition and post-production.

FILM 3120 FILM EDITING (3) STU. 3. Pr. (MDIA 2700 or FILM 2700) and (MDIA 2420 or FILM 2420). An intermediate studio course in which students explore the theory and practice of editing for the short film.

FILM 3350 SCREENWRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (MDIA 2350 or MDIA 2353). A writing course introducing students to the basic concepts of screen storytelling and the craft of turning story ideas into screenplays.

FILM 3820 SEQUENCE DESIGN (3) STU. 3. A studio course in which students develop animation skills for title design.

FILM 4600 ADAPTATION FOR THE SHORT FILM (3) LEC. 3. Pr. MDIA 3100 or MDIA 3103 or FILM 3100. A survey of ways in which film can be adapted from pre-existing sources to create new works that stand on their own. Declared major in AGCO, COMM, JRNL, MDIA, MDIV/MFLM or PRCM. May count either MDIA 4600 or MDIA 4603 or RTVF 4600.

FILM 4940 FILM PROJECTS (3) DSL/STU. 3. Pr. MDIA 3100 or MDIA 3103 or FILM 3100. Capstone course in which students work as a team on an advanced film project.

Middle School Education - CTMD

Courses

CTMD 4190 CURRICULUM AND TEACHING IN THE MIDDLE SCHOOL (3) LEC. 2. LAB. 2. Admission to Teacher Education. To introduce and prepare undergraduate education students for the middle school student, middle school teaching, and middle level philosophy while incorporating reflective decision making.

CTMD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 4910 PRACTICUM IN MIDDLE SCHOOL EDUCATION (1-6) PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTMD 4920 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTSE 4200 or P/C CTSE 4203. Admission to Clinical Residency. Supervised teaching in a public middle or secondary school, abroad, accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTMD 4920 or CTMD 4923.

CTMD 4970 SPECIAL TOPICS (1-4) LEC. Course may be repeated for a maximum of 4 credit hours.

CTMD 5010 TEACHING MATHEMATICS: MIDDLE SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Admission to Teacher Education. The prospective middle school or junior high school mathematics teacher must examine the characteristics of students this age. Teaching strategies must be developed which lead not only to the learning of correct mathematics but also address the needs of a wide variety of learners. May count either CTMD 5010 or CTMD 6010.

CTMD 5011 PRACTICUM IN MIDDLE SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTMD 5010. Admission to Teacher Education. This course is designed to provide 21 clock hours of teaching and experience in Middle School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTMD 6010 TEACHING MATHEMATICS: MIDDLE SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. The prospective middle school or junior high school mathematics teacher must examine the characteristics of students this age. Teaching strategies must be developed which lead not only to the learning of correct mathematics but also address the needs of a wide variety of learners. May count either CTMD 5010 or CTMD 6010.

CTMD 6011 PRACTICUM IN MIDDLE SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTMD 6010. This course is designed to provide 21 clock hours of teaching and experience in Middle School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTMD 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to the respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 7970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

Military Science (AROTC) - MILS

Courses

MILS 1010 INTRODUCTION TO ARMY (1) LEC. 1. Coreq. MILS 1011. Introduction to the Reserve Officer Training Corps and the US Army.

MILS 1011 INTRODUCTION TO ARMY LAB (1) LAB. 3. Coreq. MILS 1010. Introduction to the Reserve Officer Training Corps and the US Army.

MILS 1020 FOUNDATIONS OF LEADERSHIP (1) LEC. 1. Coreq. MILS 1021. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 1021 FOUNDATIONS OF LEADERSHIP LAB (1) LAB. 2.5. Coreq. MILS 1020. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 2010 LEADERSHIP AND ETHICS (1) LEC. 1. Coreq. MILS 2011. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.

MILS 2011 LEADERSHIP AND ETHICS LAB (1) LAB. 2. Coreq. MILS 2010. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.

MILS 2020 ARMY DOCTRINE & DECISION MAKING (1) LEC. 1. Coreq. MILS 2021. Introduction to individual and team aspects of military training in small unit operations.

MILS 2021 ARMY DOCTRINE & DECISION MAKING (1) LAB. 2.5. Coreq. MILS 2020. Introduction to individual and team aspects of military training in small unit operations.

MILS 3010 TRAINING MANAGEMENT & WARFIGHTING FUNCTIONS (2) LEC. 2. Coreq. MILS 3011. Departmental approval. Introduction to squad level planning and operations. Admittance into the Advanced Course of Army ROTC.

MILS 3011 TRAINING MANAGEMENT & WARFIGHTING FUNCTIONS LAB (1) LAB. 4. Coreq. MILS 3010. Departmental approval. Practical application of the foundational skills of small unit leadership. Admittance into Advanced Course Army ROTC.

MILS 3020 APPLIED LEADERSHIP IN SMALL UNIT OPERATIONS (2) LEC. 2. Pr. MILS 3010 and MILS 3011. Coreq. MILS 3021. Departmental approval. Introduction to platoon-level planning and operations and the U.S. Army Training Management System.

MILS 3021 APPLIED LEADERSHIP IN SMALL UNIT OPERATIONS LAB (1) LAB. 2.5. Pr. MILS 3010 and MILS 3011. Coreq. MILS 3020. Departmental approval. Series of practical opportunities to lead small groups, receive performance assessments and coaching, and lead again in situations of increasing complexity.

MILS 3030 HISTORY OF THE UNITED STATES ARMY (3) LEC. 3. Survey of the history of the United States Army from the colonial era to present.

MILS 4010 THE ARMY OFFICER (2) LEC. 2. Pr. MILS 3020 and MILS 3021. Coreq. MILS 4011. Plan, conduct and evaluate training and organizational cohesion.

MILS 4011 THE ARMY OFFICER LAB (1) LAB. 4. Pr. MILS 3020 and MILS 3021. Coreq. MILS 4010. Plan, conduct and evaluate training and activities of the ROTC cadet organization.

MILS 4020 COMPANY GRADE LEADERSHIP (2) LEC. 2. Pr. MILS 4010 and MILS 4011. Coreq. MILS 4021. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques.

MILS 4021 COMPANY GRADE LEADERSHIP LAB (1) LAB. 2.5. Pr. MILS 4010 and MILS 4011. Coreq. MILS 4020. Practical application of the principles taught in MILS 4020.

MILS 4040 THE ARMY PROFESSION (0) LEC. 1. SU. U.S. Army current trends and affairs. Army policies and programs. Completion of Army ROTC Advanced Course or Early Commissioning Program.

Music - Applied - MUAP

Courses

MUAP 1110 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1210 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1110. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1310 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1410 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1310. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1520 PERFORMANCE I (2) PRL. 1. Pr., Successful audition and Departmental approval. Instruction in major performance medium for the first-year BM or BA in Music major. One-hour private lesson per week.

MUAP 1620 PERFORMANCE II (2) PRL. 1. Pr. MUAP 1520. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year BM or BA in Music major. One hour private lesson per week.

MUAP 2110 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1210. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week

MUAP 2210 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2110. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week.

MUAP 2520 PERFORMANCE III (2) PRL. 1. Pr. MUAP 1620. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 2620 PERFORMANCE IV (2) PRL. 1. Pr. MUAP 2520. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3120 PERFORMANCE V (1) PRL. 1. Pr. MUAP 2210. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3220 PERFORMANCE VI (1) PRL. 1. Pr. MUAP 3120. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3520 PERFORMANCE V (2) PRL. 1. Pr. MUAP 2620. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3620 PERFORMANCE VI (2) PRL. 1. Pr. MUAP 3520. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4520 PERFORMANCE VII (2) PRL. 1. Pr. MUAP 3620. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4620 PERFORMANCE VIII (2) STU. 1. Pr. MUAP 4520. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week. Course may be repeated for a maximum of 4 credit hours.

MUAP 4630 PERFORMANCE (1) PRL. 1. Pr. MUAP 4530. Departmental approval. Instruction in major performance medium for the fourth-yearmusic theatre major. Two half-hour private lessons perweek. Successful audition and

Music - MUSI

Courses

MUSI 1000 PERFORMANCE ATTENDANCE (0) LEC. 1. SU. Pr., Enrollment in MUAP. Required during each semester of MUAP enrollment. Monitored attendance at studio and departmental convocations, as well as approved concerts, lectures, and special presentations within the Department of Music and the community. Course may be repeated with change in topics.

MUSI 1020 PIANO SKILLS I - RUDIMENTS (1) LEC. 2. Group instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1030, MUSI 2040, or MUSI 2050.

MUSI 1030 PIANO SKILLS II (1) LEC. 2. Pr. MUSI 1020 or Departmental approval. Group Instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2040 or MUSI 2050.

MUSI 1050 SINGER'S DICTION (1) LEC. 2. Coreq., Enrolled in MUAP (Applied Voice) class. Introduction to the rules of singing in English, Italian, German, and French as applied to art songs and arias through use of the IPA.

MUSI 1310 MUSIC THEORY I (2) LEC. 2. Coreq. MUSI 1320. Systematic study of music composition procedures, form, and style during the Period of Common Practice. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1410 or MUSI 2310.

MUSI 1320 MUSIC SKILLS I (1) LEC. 3. Coreq. MUSI 1310. Development of aural, keyboard and sight singing skills with an understanding of basic harmonic practices. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1420 or MUSI 2320.

MUSI 1330 MUSIC THEORY AND SKILLS I (3) LEC. 3. LAB. 2. Pr. P/C MUAP 1110 or P/C MUAP 1520 or P/C MUAP 1530. The purpose of the course is to help students acquire an appreciation for, and understanding of, the compositional procedures, form, and style found during the Period of Common Practice through the systematic study of the fundamentals of music, chords, voice-leading, harmonic progressions, and analysis of musical scores.

MUSI 1410 MUSIC THEORY II (2) LEC. 2. Pr. MUSI 1310 or Departmental approval. Systematic study of music composition procedures, form, and style during the Period of Common Practice. For Music majors and minors. Normally taken with MUSI 1420. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2310. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1310 to enroll in this course.

MUSI 1420 MUSIC SKILLS II (1) LEC. 3. Pr. MUSI 1320 or Departmental approval. Development of aural, keyboard, and sight-singing skills with an understanding of basic harmonic practices. For Music majors and minors. Normally taken concurrently with MUSI 1410. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2320. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1320 to enroll in this course.

MUSI 1430 MUSIC THEORY AND SKILLS II (3) LEC. 3. LAB. 2. Pr. (MUSI 1330) and (P/C MUAP 1210 or P/C MUAP 1620 or P/C MUAP 1630). The second in the series of Music Theory and Skills courses. Designed to create an increased ability to understand and apply compositional procedures, forms, and styles found during the Period of Common Practice. This course is also designed to develop aural and sight-singing skills with melodic, harmonic, and rhythmic dictation and performance.

MUSI 2040 FUNCTIONAL PIANO I (1) LEC. 2. Pr. MUSI 1030 or Departmental approval. Development of functional piano skills for use in classroom, rehearsal or studio. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2050. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1030 to enroll in this course.

MUSI 2050 FUNCTIONAL PIANO II (1) LEC. 2. Pr. MUSI 2040 or Departmental approval. Development of functional piano skills for use in classroom, rehearsal or studio. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 2040 to enroll in this course.

MUSI 2150 ADVANCED DICTION (1) LAB. 2. Pr. MUSI 1050. Coreq., Enrolled in a MUAP (Applied Voice) class. Advanced study of the rules of singing in Italian, Spanish, German, and French through the use of the IPA. BA in Music and BM majors must receive a grade of "C" or better in MUSI 1050 to enroll in this course.

MUSI 2200 FUNDAMENTALS OF ARRANGING FOR COMMERCIAL MUSIC (2) LEC. 2. Pr. (MUSI 1430). A systematic study of the fundamentals of notation using Finale and/or Sibelius and the principles and techniques of writing and arranging for rhythm section and lead-line in a solo instrument or voice.

MUSI 2310 MUSIC THEORY III (2) LEC. 2. Pr. MUSI 1410 and MUSI 1320 or Departmental approval. Systematic study of music composition procedures, form and style from the advent of chromaticism through the music of late 19th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1320 and MUSI 1410 to enroll in this course.

MUSI 2320 MUSIC SKILLS III (1) LEC. 3. Pr. MUSI 1410 and MUSI 1420 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 1420 to enroll in this course.

MUSI 2330 MUSIC THEORY AND SKILLS III (3) LEC. 3. LAB. 2. Pr. (MUSI 1430) and (P/C MUAP 2110 or P/C MUAP 2520 or P/C MUAP 2530). The third course of a four-course sequence, Theory and Skills III is a systematic study of harmony, compositional procedures, form, and style of tonal music from the late 17th Century through the music of the early 20th Century. Because this course will also continue the development of aural dictation and sight-singing, mastery of material from the first two courses is assumed.

MUSI 2410 MUSIC THEORY IV (2) LEC. 2. Pr. MUSI 1420 and MUSI 2310 or Departmental approval. Systematic study of music composition procedures, form, and style from the late 19th century through the music of the 20th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1420 and MUSI 2310 to enroll in this course.

MUSI 2420 MUSIC SKILLS IV (1) LEC. 3. Pr. MUSI 1410 and MUSI 2320 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with the understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 2320 to enroll in this course.

MUSI 2430 MUSIC THEORY AND SKILLS IV (3) LEC. 3. LAB. 2. Pr. (MUSI 2330) and (P/C MUAP 2210 or P/C MUAP 2620 or P/C MUAP 2630). A systematic study of compositional procedures, form, and style from the late 19th Century through the music of the 20th Century. As the final course in a four semester sequence, mastery of material from the first three courses is assumed.

MUSI 2440 MUSIC THEORY AND SKILLS IV: COMMERCIAL MUSIC (3) LEC. 2. LAB. 2. Pr. MUSI 2330. A systematic study of compositional procedures, form and style from the late 19th century through the music of the 20th century with special focus on American popular music styles. As the final course in a four semester sequence, mastery of material from the first three courses is assumed.

MUSI 2450 ELECTRONIC MUSIC HISTORY (2) LEC. 2. Overview of the development and rise of electronic musical instruments, digital instruments, and circuitry-based music technologies.

MUSI 2480 FOUNDATIONS OF MUSIC TECHNOLOGY (3) LEC. 3. A foundational study of essential academic, creative, and professional music technology tools and techniques used in MIDI sequencing, digital recording, digital audio workstations, and digital music notation.

MUSI 2730 APPRECIATION OF MUSIC (3) LEC. 3. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2737 HONORS APPRECIATION OF MUSIC (3) LEC. 3. Pr. Honors College. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2740 SURVEY OF POPULAR MUSIC (3) LEC. 3. Fine Arts Core. Survey of popular music styles from the late 19th century to the present day. No previous music training required. May count either MUSI 2740, MUSI 2743, or MUSI 2747.

MUSI 2747 HONORS SURVEY OF POPULAR MUSIC (3) LEC. 3. Pr. Honors College. Fine Arts Core. Survey of popular music styles from the late 19th century to the present day. No previous music training required. May count either MUSI 2740 or MUSI 2743.

MUSI 2750 MUSIC AND SCIENCE (3) LEC. 3. Fine Arts Core. Music and its connection to science throughout history. No previous music training required.

MUSI 3040 BRASS INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching brass musical instruments.

MUSI 3060 WOODWIND INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Class instruction and practice in the techniques of playing and teaching woodwind musical instruments.

MUSI 3080 PERCUSSION INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching various percussion instruments.

MUSI 3090 STRING INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching upper and lower string musical instruments.

MUSI 3110 PIANO LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Renaissance to the Classical era, with emphasis on musical styles.

MUSI 3120 PIANO LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Romantic era to the present, with emphasis on musical styles.

MUSI 3130 VOCAL LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Survey of representative art song repertoire, including techniques and application of song study, musicianship, interpretation, and performance practice.

MUSI 3140 VOCAL LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the development of opera and oratorio literature from 1600 to the present time.

MUSI 3150 BRASS LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on brass instruments.

MUSI 3160 PERCUSSION LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on percussion instruments.

MUSI 3170 WOODWIND LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on woodwind instruments.

MUSI 3180 STRING LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on string instruments.

MUSI 3200 FORM AND ANALYSIS (3) LEC. 3. Pr. MUSI 2410. Study of the formal structure of music from 1700-1950 with an emphasis on standard forms and analytical techniques.

MUSI 3290 JAZZ THEORY AND IMPROVISATION (3) LEC. 3. Pr. MUSI 1410. Major practical and theoretical areas informing jazz performance.

MUSI 3300 SONGWRITING (3) LEC. 3. Pr. MUSI 1430. A systematic study of basic songwriting techniques covering a variety of styles, with an introduction to lyric considerations and an emphasis on compositional decisions and choices available to the lyricist. Prior musical training and performance experience required.

MUSI 3440 AUDIO ENGINEERING I (2) LEC. 1, LST. 1. An overview of digital recording studio equipment, recording techniques and procedures, signal flow and audio processing, microphone design and application, as well as digital audio editing and mixing.

MUSI 3450 AUDIO ENGINEERING II (3) LEC. 1.5. LAB. 1.5. Pr. (MUSI 3440). An in-depth study of advanced, professional level audio recording, editing, mixing, mastering, and live sound techniques through hands-on experiences in a recording studio setting.

MUSI 3510 MUSIC HISTORY I (3) LEC. 3. Pr. MUSI 1430. Study of the development of music from the earliest times through early 18th-century styles through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1430 to enroll in this course.

MUSI 3520 MUSIC HISTORY II (3) LEC. 3. Pr. MUSI 3510. Study of the development of music from the early 18th century to the present day through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3510 to enroll in this course.

MUSI 3610 CHORAL CONDUCTING I (2) LEC. 2. Pr. MUSI 2430. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3620 CHORAL CONDUCTING II (2) LEC. 2. Pr. MUSI 3610. Advanced conducting technique with practical experience in preparing choral groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3610 to enroll in this course.

MUSI 3630 INSTRUMENTAL CONDUCTING I (2) LEC. 2. Pr. MUSI 2430. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3640 INSTRUMENTAL CONDUCTING II (2) LEC. 2. Pr. MUSI 3630. Advanced conducting technique with practical experience in preparing instrumental groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3630 to enroll in this course.

MUSI 3700 ADVANCED DIGITAL AUDIO WORKSTATION OPERATIONS (2) LEC. 2, LST. 1. Pr. (P/C MUSI 2430 or P/C MUSI 2440). Advanced study of digital audio workstation operations focusing on Logic Pro.

MUSI 3800 JUNIOR PERFORMANCE RECITAL (1) PRL. 1. SU. Pr. MUAP 3520. Coreq., Enrollment in a MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a junior recital.

MUSI 3810 PORTFOLIO AND PROFESSIONAL DEVELOPMENT (2) LEC. 2. Analysis, evaluation and creation of portfolio materials needed for successful entry into the music business. Development of communication and interview skills.

MUSI 3830 MUSIC BUSINESS I: SURVEY OF THE MUSIC INDUSTRY (3) LEC. 3. An overview of the commercial music industry, including a focus on the professionals who comprise the artist's team, how music is distributed and the value of music in the marketplace.

MUSI 3840 MUSIC BUSINESS II: BRANDING AND PROMOTION (3) LEC. 3. Pr. MUSI 3830. An entrepreneurial approach to branding and promotion in the commercial music industry.

MUSI 3850 PROMOTION IN THE MUSIC INDUSTRY: HOW TO PROMOTE AN ARTIST (3) LEC. 3. A focused study of the essential elements of artist self-promotion or promotion of other artists, from traditional and non-traditional media to imaging, marketing and branding.

MUSI 3860 LEGAL ASPECTS OF THE MUSIC INDUSTRY (3) LEC. 3. Legal Aspects of the Music Industry examines the legal issues business leaders, artists, musicians, engineers, and producers encounter when building their companies and careers, focusing on important legal changes that have evolved as a result of the continuing shifts in the music business landscape.

MUSI 3970 SPECIAL TOPICS IN MUSIC (3) LEC. 3. Study of substantive topics and issues in music. Course may be repeated for a maximum of 6 credit hours.

MUSI 4000 MUSIC EDUCATION SENIOR RECITAL PROJECT (1) PRL. SU. Pr., Music Education major and MUAP 3120. Coreq., MUAP 3220. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital project.

MUSI 4010 VOCAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. For prospective voice teachers. Intensive study of the materials and methods of voice training.

MUSI 4020 INSTRUMENTAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. and BA in Music or BM major. For prospective instrumental teachers. Intensive study of the materials and methods of teaching various brass, woodwind and percussion instruments.

MUSI 4030 PIANO PEDAGOGY (2) LEC. 2. Music majors and minors specializing in piano or Departmental approval. Study of techniques, methods and experiences of former and current teachers to equip the student for future piano teaching.

MUSI 4280 AMERICAN ART MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. and BA in Music major or BM major or departmental approval. Survey of American art music from colonial times until the present.

MUSI 4290 FILM MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. History and analysis of film music. Basic scoring techniques will be applied to short scoring projects.

MUSI 4620 ORCHESTRATION FOR VIRTUAL ENSEMBLES (2) LEC. 2, LST. 1. Pr. MUSI 2430 or MUSI 2440. Techniques and sample technologies used in virtual orchestration and hybrid-music production with emphasis placed on the production values of the student work. Issues and techniques related to expression, musicality, idiomatic performance, and sonic quality will be addressed throughout the course.

MUSI 4660 COMMERCIAL MUSIC: RECORDING AND PRODUCTION (3) LEC. 3. Create, produce, and bring to market a product of recorded music. Develop and implement marketing materials and campaigns, and deliver that product across all media outlets.

MUSI 4670 COMMERCIAL MUSIC: CONCERT PROMOTION (3) LEC. 3. Create, produce, and promote two live concert events. Develop and implement marketing materials and campaigns and deliver that product across all media outlets.

MUSI 4700 BA CAPSTONE PROJECT (3) LEC. 1. SU. Pr. MUAP 2620. Capstone course requiring a culminating thesis or project bringing together prior music coursework.

MUSI 4800 SENIOR PERFORMANCE RECITAL (2) PRL. 2. SU. Pr. MUAP 4520. Coreq., Enrollment in MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital.

MUSI 4920 INTERNSHIP (3) INT. Pr. MUSI 3810 and MUSI 3830 and MUSI 3840 and MUSI 4660 and MUSI 4670. Supervised work experience in the student's preferred discipline of the commercial music industry, applying classroom concepts in a real-world setting. Departmental approval required.

MUSI 4930 DIRECTED STUDY (1-3) IND. Pr., Departmental approval. Independent study directed toward desired objectives related to student's areas of interest and specialization. Course may be repeated with change in topic. Course may be repeated for a maximum of 3 credit hours.

MUSI 5110 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 6110 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 7000 GRADUATE CHORAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7010 GRADUATE CHORAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7000 or MUSI 7006. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7040 GRADUATE INSTRUMENTAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7050 GRADUATE INSTRUMENTAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7040 or MUSI 7046. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7100 CHORAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7110 CHORAL ARRANGING II (3) LEC. 3. Pr. MUSI 7100 or MUSI 7106. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7140 ORCHESTRAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for the orchestra.

MUSI 7230 ADVANCED FORMAL ANALYSIS (3) LEC. 3. Advanced formal analysis of standard music literature.

MUSI 7240 WIND BAND LITERATURE I (3) LEC. 3. Coreq., Approved MUSE course. History of the development of the wind band to 1950. Advanced analysis of Grades 1-3 wind band literature.

MUSI 7250 WIND BAND LITERATURE II (3) LEC. 3. Coreq., Approved MUSE course. History of the development of the wind band from 1950 to present.

MUSI 7310 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 7320 AFRICAN-AMERICAN CHORAL MUSIC (3) LEC. 3. A study of the choral music of African-American composers and its interaction with western musical styles.

MUSI 7970 SPECIAL TOPICS IN MUSIC (1-6) DMU. Provides an opportunity for graduate students to pursue cooperatively selected topics. Course may be repeated for a maximum of 12 credit hours.

Music Education - CTMU

Courses

CTMU 1010 INTRODUCTION TO MUSIC EDUCATION (0) LAB. 1. Introduction to teaching music.

CTMU 1020 MUSIC EDUCATION LAB I (1) LAB. 3. Development and documentation of general music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 2010 MUSIC EDUCATION LAB II (1) LAB. 3. Development and documentation of vocal or instrumental music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 3040 MUSIC AND RELATED ARTS (3) LEC. 2. LAB. 1, LLB. 0. Interdisciplinary instruction appropriate for students' developmental characteristics which synthesize the content, professional resources, curriculum goals and instructional strategies of music.

CTMU 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTMU 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. Admission to Teacher Education. Cooperatively selected field experience. May count either CTMU 4910 or CTMU 4913. Course may be repeated for a maximum of 6 credit hours.

CTMU 4920 CLINICAL RESIDENCY (12) AAB/DSL. 40. SU. Admission to Clinical Residency. Supervised on-the-job experience in a school or other appropriate setting abroad with regularly scheduled discussions with supervising faculty provide evaluation and analysis of the intern. May count either CTMU 4920 or CTMU 4923.

CTMU 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTMU 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTMU 4997 HONORS THESIS (1-3) IND. Pr. Honors College. The student's thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTMU 5110 CHILDREN'S MUSIC LEARNING (4) LEC. 3. LAB. 3. Musical development and learning, birth-childhood. Curriculum, methods, and assessment for community and school children's music. Clear background check required. May count either CTMU 5110 or CTMU 6110.

CTMU 5120 SCHOOL AND COMMUNITY GENERAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, adolescence-adulthood. Curriculum, methods, and assessment for community and school general music. Clear background check required. May count either CTMU 5120 or CTMU 6120.

CTMU 5130 SCHOOL AND COMMUNITY INSTRUMENTAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, instrumentalists. Curriculum, methods, and assessment for community and school instrumental music. Clear background check required. May count either CTMU 5130 or CTMU 6130.

CTMU 5140 SCHOOL AND COMMUNITY VOCAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Admission to Teacher Education. Musical development and learning of vocalists. Curriculum, methods, and assessment for community and school vocal music. Clear background check required. May count either CTMU 5140 or CTMU 6140.

CTMU 6110 CHILDREN'S MUSIC LEARNING (4) LEC. 3. LAB. 3. Musical development and learning, birth-childhood. Curriculum, methods, and assessment for community and school children's music. Clear background check required. May count either CTMU 5110, CTMU 6110 or CTMU 6116.

CTMU 6120 SCHOOL AND COMMUNITY GENERAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, adolescence-adulthood. Curriculum, methods, and assessment for community and school general music. Clear background check required. May count either CTMU 5120 or CTMU 6120/CTMU 6126.

CTMU 6130 SCHOOL AND COMMUNITY INSTRUMENTAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning, instrumentalists. Curriculum, methods, and assessment for community and school instrumental music. Clear background check required. May count either CTMU 5130, CTMU 6130 or CTMU 6136.

CTMU 6140 SCHOOL AND COMMUNITY VOCAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Musical development and learning of vocalists. Curriculum, methods, and assessment for community and school vocal music. Clear background check required. May count either CTMU 5140, CTMU 6140 or CTMU 6146.

CTMU 6940 ELEMENTARY/MIDDLE SCHOOL MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for elementary and middle school music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master's Certification Program.

CTMU 6960 SECONDARY MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for secondary music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master's Certification Program

CTMU 7000 SCHOOL AND COMMUNITY MUSIC (1) LEC. 1. Developing skills, disposition, community, and research planning for graduate students in school and community music. May count either CTMU 7000 or CTMU 7006. Course may be repeated for a maximum of 2 credit hours.

CTMU 7510 RESEARCH STUDIES IN MUSIC EDUCATION (3) RES. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the changing needs of school musicians. May count either CTMU 7510 or CTMU 7516.

CTMU 7520 CURRICULUM AND TEACHING IN MUSIC EDUCATION (3) LEC. 3. Teaching practices and evaluation of experiences and content for curriculum improvements. Students develop recommendations for music curriculum. May count either CTMU 7520 or CTMU 7526.

CTMU 7530 ORGANIZATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Program, organization and development of basic and supplementary materials for guiding teachers, facilities and school systems in continuous improvement of curriculum and teaching practices in music education. May count either CTMU 7530 or CTMU 7536.

CTMU 7540 EVALUATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness including the utilization of human and material resources and the coordination of areas of specialization and issues in evaluation which are unique to music education settings. May count either CTMU 7540 or CTMU 7546.

CTMU 7550 APPLICATIONS OF TECHNOLOGY IN MUSIC EDUCATION (3) LEC. 3. An overview of applications of current technology in music classroom, studios, and offices. May count either CTMU 7550 or CTMU 7556.

CTMU 7560 DIGITAL MEDIA PRODUCTION FOR MUSIC EDUCATION (3) LEC. 3. Current tools, skills, and concepts for creating aural and visual interactive applications. May count either CTMU 7560 or CTMU 7566.

CTMU 7570 MUSIC INSTRUCTION MULTIMEDIA RESEARCH AND DEVELOPMENT (3) LEC. 3. Pr. CTMU 7550 or CTMU 7556. Departmental approval. Current research music instructional technology, design of interactive applications.

CTMU 7580 PSYCHOLOGY OF MUSIC (3) LEC. 3. This course will focus on exploring the musical experience psychological, psycho-acoustic, emotional, anthropological, sociological, and assistance perspectives to better understand how philosophical and practical approaches work in music teaching, learning, and in community settings. May count either CTMU 7580 or CTMU 7586.

CTMU 7590 WEB DESIGN AND MEDIA FOR MUSIC EDUCATORS (3) LEC. 3. Exploration and creation of media for music-focused curriculum and curriulcum support focused on competent implementation and delivery via web sites and web-based platforms.

CTMU 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMU 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DMU/PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMU 7970 SPECIAL TOPICS (1-9) DMU. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 9 credit hours.

CTMU 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTMU 8950 SEMINAR (1-3) DMU. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTMU 8980 FIELD PROJECT (1-6) DMU. SU. Course may be repeated for a maximum of 6 credit hours.

CTMU 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with change in topics.

Music Ensemble - MUSE

Courses

MUSE 1100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 1150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 1160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 1240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 1260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 1300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 1440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 1600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 1620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 2100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2120 SYMPHONIC BAND (1) LAB. 3. Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 2150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 2160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 2240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 2260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 2300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2310 CONDUCTOR'S CHORUS (1) LAB. 3. . Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 2440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 2600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 2620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 3100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 3150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 3160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 3240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 3260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 3300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 3360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 3440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 3480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 3600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 3620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 4100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 4150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 4160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 4240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 4260 COMMERCIAL MUSIC ENSEMBLE - SONIC NATION (1) LAB. 3. Departmental approval. Study and performance of popular commercial music, encompassing all genres and styles from the early 1900s to the present. Audition required for enrollment. Course may be repeated for a maximum of 2 credit hours.

MUSE 4300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4390 HORN ENSEMBLE (1) LAB. 3. Pr., Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Department approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 4440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 4600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 4620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 7400 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7410 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7510 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7610 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

Natural Resources Management - NATR

Courses

NATR 2020 NATURAL RESOURCES FIELD METHODS (3) LEC. 2. LAB. 4. Sampling methods relevant to the evaluation of the environment. Topics include sampling methods, quality assurance procedures, and data management.

NATR 2050 PEOPLE AND THE ENVIRONMENT: AN INTRODUCTION TO CONSERVATION SOCIAL SCIENCES (3) LEC. 3. Introduction to the variety of social sciences used to understand the relationships of people and their environment. Students will develop a deeper and broader understanding of the challenges and potential solutions to natural resource issues facing society today.

NATR 2100 INTRO TO LANDSCAPE ECOLOGY (4) LEC. 3. LAB. 2. An introduction to the study of spatial patterns and interactions between ecosystems within a landscape, focusing on how these patterns influence ecological processes, biodiversity, and environmental change.

NATR 2200 CURRENT TOPICS IN ENVIRONMENTAL CONSERVATION AND MANAGEMENT (2) LEC. 2. Comprehensive examination of the scientific challenges associated with environmental conservation and management. Through an exploration of contemporary environmental issues, students will gain foundational knowledge of the ecological and biological factors contributing to these challenges. The course emphasizes the development of a robust scientific vocabulary pertinent to environmental conservation, enabling students to engage effectively in advanced studies and professional dialogues.

NATR 3320 ECOSYSTEM SERVICES IN COSTA RICA (3) AAB. Coreq. NATR 4250 and PARK 3630 and GEOG 3720. The environment provides many services critical to our survival and well-being, such as food and fuel, climate regulation, water purification, and recreational and aesthetic opportunities. In this class, students examine the environmental services that ecosystems provide, their connection to human well-being and livelihoods, and the market mechanism and payment programs designed to provide incentives for their maintenance. Costa Rica was one of the first countries to establish a payment program for Ecosystem Services.

NATR 4240 WATERSHED MANAGEMENT (3) LEC. 3. Introduction to watersheds, effects of land management on erosion and water quality, and mitigation techniques to reduce adverse effects.

NATR 4250 WATERSHED MANAGEMENT IN TROPICAL REGIONS (3) AAB. Coreq. GEOG 3720 and NATR 3320 and PARK 3630. This intensive 3-week course focuses on the principles and practices of watershed management in tropical regions, with a specific emphasis on Costa Rica's unique ecosystems. Students will gain a comprehensive understanding of the hydrological, ecological, and socio-economic factors that influence watershed dynamics in tropical environments. The course combines classroom lectures, field studies, and hands-on projects to provide a holistic learning experience.

NATR 4535 COASTAL ZONE MANAGEMENT (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037. Management of shorelines and flood plains, and current legislation. Water quality and ecosystem quality management. Taught at Dauphin Island Sea Laboratory.

NATR 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Independent Study. Course may be repeated for a maximum of 6 credit hours.

NATR 4970 SPECIAL TOPICS (1-4) LEC. Overview of natural resources, classification, chemistry, ecology and sustainable management. Department approval and agreement with faculty and student. Course may be repeated for a maximum of 8 credit hours.

NATR 5050 URBAN ECOLOGY (3) LEC. 3. Examination of urban ecosystems and the influence of urbanization on rural and forested lands. Junior standing. May count either NATR 5050 or NATR 6050.

NATR 5250 WETLAND ECOLOGY AND MANAGEMENT (3) LEC. 3. Pr. BIOL 3060 or FORY 4230. Wetland ecology in the southeastern U.S. with emphasis on soils, hydrology, biology, and policies and practices related to agriculture, forestry, wildlife.

NATR 5310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics: historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course.

NATR 5320 ECOSYSTEM SERVICES (3) LEC. 3. Ecosystem services are the benefits that people obtain from ecosystems. Human well-being, livelihoods, and markets are covered with emphasis on watershed, biodiversity, carbon, and tourism services.

NATR 5350 WATER RESOURCE MANAGEMENT AND POLICY (3) DSL. This course examines social contexts, ecological contexts, human behaviors, institutions, laws, and policies that guide water management practices. Impacts of critical issues, including climate change, demand, conflict, and pollution, on water resources and water management behaviors are discussed.

NATR 5430 HUMAN DIMENSIONS OF WILDLIFE AND NATURAL RESOURCES (3) LEC. 3. Forests, wildlife, wetlands, and wilderness - sustaining and managing our natural resources ultimately depends on understanding people. Students will investigate the paradigms and theoretical foundations regarding our values, beliefs, attitudes and behaviors concerning human-environment interactions.

NATR 5450 COASTAL LAW (3) DSL. Course will provide students with a firm understanding of the principles of coastal and ocean law and policy and the legal and regulatory structures that are in place to protect people and the environment.

NATR 5550 WATERSHED HYDROLOGY (3) LEC. 3. Departmental approval. In depth focus on components of the hydrologic cycle in forested landscapes and how changes in the landscape and management practices impact the hydrologic regime in the watershed.

NATR 5560 ENERGY LAW (3) LEC. 3. Core principles of energy law, including various legal and regulatory structures that protect people and the environment, particularly as applied to the production, distribution, and consumption of different forms of energy within the US and other regions of the world.

NATR 5630 CONSERVATION PLANNING (3) LEC. 3. Trains students in how to build plans for conservation and management of natural resources. Covers established processes associated with developing conservation plans while addressing human concerns. Includes how to establish measurable objectives, utilize data, frame problems, and determine uncertainty/risk.

NATR 5880 ECOLOGICAL ECONOMICS (3) LEC. 3. Foundations, principles and empirical application of ecological economics to address current social and economic issues.

NATR 6050 URBAN ECOLOGY (3) LEC. 3. Examination of urban ecosystems and the influence of urbanization on rural and forested lands. May count either FOWS 5050 or FOWS 6050.

NATR 6250 WETLAND ECOLOGY AND MANAGEMENT (3) LEC. 3. Pr. BIOL 3060. Wetland ecology in the southeastern U.S. with emphasis on soils, hydrology, biology, and policies and practices related to agriculture, forestry, wildlife.

NATR 6310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics. Historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course.

NATR 6320 ECOSYSTEM SERVICES (3) LEC. 3. Ecosystem services are the benefits that people obtain from ecosystems. Human well-being, livelihoods, and markets are covered with emphasis on watershed, biodiversity, carbon, and tourism services.

NATR 6350 WATER RESOURCE MANAGEMENT AND POLICY (3) DSL. This course examines social contexts, ecological contexts, human behaviors, institutions, laws, and policies that guide water management practices. Impacts of critical issues, including climate change, demand, conflict, and pollution, on water resources and water management behaviors are discussed.

NATR 6430 HUMAN DIMENSIONS OF WILDLIFE AND NATURAL RESOURCES (3) LEC. 3. Forests, wildlife, wetlands, and wilderness - sustaining and managing our natural resources ultimately depends on understanding people. Students will investigate the paradigms and theoretical foundations regarding our values, beliefs, attitudes and behaviors concerning human-environment interactions.

NATR 6450 COASTAL LAW (3) DSL. Course will provide students with a firm understanding of the principles of coastal and ocean law and policy and the legal and regulatory structures that are in place to protect people and the environment.

NATR 6550 WATERSHED HYDROLOGY (3) LEC. 3. In depth focus on components of the hydrologic cycle in forested landscapes and how changes in the landscape and management practices impact the hydrologic regime in the watershed.

NATR 6560 ENERGY LAW (3) LEC. 3. Core principles of energy law, including various legal and regulatory structures that protect people and the environment, particularly as applied to the production, distribution, and consumption of different forms of energy within the US and other regions of the world.

NATR 6630 CONSERVATION PLANNING (3) LEC. Trains students in how to build plans for conservation and management of natural resources. Covers established processes associated with developing conservation plans while addressing human concerns. Includes how to establish measurable objectives, utilize data, frame problems, and determine uncertainty/risk.

NATR 6880 ECOLOGICAL ECONOMICS (3) LEC. 3. Foundations, principles and empirical application of ecological economics to address current social and economic issues.

NATR 7250 SURVEYING AND INTERVIEWING FOR SCIENTISTS (3) LEC. 3. A research design and methods course aimed at interdisciplinary students working on research with one foot in the biological or ecological sciences, and one foot in the social sciences.

NATR 7300 NATURAL RESOURCE MANAGEMENT FUNDAMENTALS (3) DSL. This course is a foundational overview of natural resource management systems. Topics include history, trends, innovations, administration, law, policy, and social-ecological connections. Focus is on exploring core concepts that guide contemporary natural resource management practices.

NATR 7560 MODELING ENVIRONMENTAL CHANGE AT MULTIPLE SCALES (3) LEC. 3. LAB. 1. Pr. FORY 7550 and FORY 6480. Modeling fundamentals to solve environmental change problems at multiples scales driven by (i) climate variability/change and (ii) land use/cover change. Problems will be tackled at both temporal (event-based and continuous) and spatial (small and large watersheds) scales to predict streamflow and water quality and develop abatement strategies. Spring, odd years. Department Approval Required or Instructor Permission.

NATR 7930 DIRECTED STUDIES (1-3) IND. Departmental approval. Directed studies in subject matter not covered by an existing course or to supplement knowledge gained from existing course offerings. Course may be repeated for a maximum of 9 credit hours.

NATR 7970 SPECIAL TOPICS (1-4) IND. Analysis of a problem in the natural resources management area involving lectures, discussions, laboratory for field work. Department approval and agreement with faculty and students. Course may be repeated for a maximum of 12 credit hours.

NATR 7990 RESEARCH AND THESIS (1-15) RES. 0. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.

Naval Science (NROTC) - NAVS

Courses

NAVS 1010 INTRODUCTION TO NAVAL SCIENCE (3) LEC. 3. Basic areas of Naval Science including uniforms and insignia, military courtesy, discipline, warfare components, organizational structure, and supporting elements of the U.S. Navy and U.S. Marine Corps.

NAVS 1011 INTRO TO NAVAL SCIENCE LAB I (1) LAB. 3. An introduction to the Reserve Officer Training Corps and the US Navy and USMC.

NAVS 1020 SEAPOWER AND MARITIME AFFAIRS (3) LEC. 3. Introduction to broad principles, concepts and elements of naval history, seapower, and maritime affairs from past to present.

NAVS 1021 INTRO TO NAVAL SCIENCE LAB II (1) LAB. 3. An introduction to the Reserve Officer Training Corps and the US Navy and USMC.

NAVS 2010 LEADERSHIP AND MANAGEMENT (3) LEC. 3. Fundamentals of leadership and management theory vital to the effectiveness of Navy/Marine Corps officers.

NAVS 2011 LEADERSHIP DEVELOPMENT LAB I (1) LAB. 3. To learn ethics-based leadership skills that develop individual attributes and contribute to effective team building. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 2021 LEADERSHIP DEVELOPMENT LAB II (1) LAB. 3. To learn ethics-based leadership skills that develop individual attributes and contribute to effective team building.

NAVS 2060 NAVIGATION (3) LEC. 3. Theory and principles of piloting involving the use of visual and electronic aids.

NAVS 3011 SMALL UNIT LEADERSHIP LAB I (1) LAB. 3. Introduction to individual and team aspects of military training in small unit operations.

NAVS 3021 SMALL UNIT LEADERSHIP LAB II (1) LAB. 3. Series of practical opportunities to lead small groups, receive performance assessments and coaching, and lead again in situations of increasing complexity.

NAVS 3030 EVOLUTION OF WARFARE (3) LEC. 3. Pr. P/C NAVS 3011 or P/C NAVS 3021. Forms of warfare practices to identify historical continuity and change in the evolution of warfare. Explores the impact of historical precedent, economic factors and technological change on politico-military thought and action.

NAVS 3050 NAVAL SHIP SYSTEMS I (ENGINEERING) (3) LEC. 3. Principles of ship design, construction, and stability. Introduction to thermodynamics and the steam cycle as applied to naval propulsion systems.

NAVS 3060 NAVAL SHIP SYSTEMS II WEAPONS (3) LEC. 3. Theory and employment of systems through a study of fundamental principles of sensor, tracking, computational, and weapons delivery subsystems.

NAVS 4011 ENS AND SECOND LT LAB I (1) LAB. 3. Plan, conduct, and evaluate training and organizational cohesion. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques.

NAVS 4020 LEADERSHIP AND ETHICS (3) LEC. 3. Pr. NAVS 2010. Departmental approval. Integrates an intellectual exploration of Western moral traditions and ethical philosophy with a variety of topics, such as military leadership, core values, and professional ethics.

NAVS 4021 ENS AND SECOND LT LAB II (1) LAB. 3. Discuss current events, affairs, policies and programs that affect the United States Navy and Marine Corps.

NAVS 4030 FUNDAMENTALS OF MANEUVER WARFARE (3) LEC. 3. Historical survey of the development of maneuver warfare in the context of military engagements and developments. Emphasis on the evolution of maneuver warfare in the United States Marine Corps in the 20th century.

NAVS 4050 NAVAL OPERATION AND SEAMANSHIP (3) LEC. 3. Inland and International law governing maritime operations, communication procedures, and other naval/maritime operational procedures.

Nursing - NURS

Courses

NURS 1010 NURSING SUCCESS (1) LEC. 1. SU. This elective course is designed to help students explore the nursing profession and the skills necessary to provide a pathway to academic success.

NURS 2020 DOSAGE CALCULATION AND MEDICAL TERMINOLOGY FOR HEALTHCARE PROFESSIONALS (1) DSL/LEC. Provides fundamental dosage calculation and medical terminology concepts essential for professional nursing and/or healthcare practice. Course may be repeated for a maximum of 2 credit hours.

NURS 2030 FOUNDATIONS OF PROFESSIONAL NURSING (3) LEC. Coreq. NURS 2040. Examines the principles of professional nursing and theoretical underpinnings of nursing care.

NURS 2040 PROFESSIONAL NURSING ACROSS THE LIFESPAN (3) LEC. Coreq. NURS 2030. Explores professional nursing care of clients across all stages of human development employing a holistic approach.

NURS 2120 CONTEMPORARY TOPICS IN WOMEN'S HEALTH (3) LEC. 3. This course will provide an overview of health issues affecting women. Topics will include sexually transmitted infections, contraception, childbearing, mental health, domestic violence, human trafficking, and menopause.

NURS 3010 PATHOPHARMACOLOGY FOR SIMPLE AND STABLE CONDITIONS (2) LEC. Pr. NURS 2020 and NURS 2030 and NURS 2040. Coreq. NURS 3510 and NURS 3410. Explores pathophysiological and pharmacological concepts that guide nursing professionals in providing person-centered care. Course content will focus on foundational pathophysiological and pharmacological concepts and their application for managing clients with simple and stable conditions.

NURS 3020 PATHOPHARMACOLOGY FOR ACUTE AND MENTAL HEALTH CONDITIONS (2) LEC. Pr. NURS 3010 and NURS 3410 and NURS 3510. Coreq. NURS 3530 and NURS 3520. Explores pathophysiological and pharmacological concepts that guide nursing professionals in providing person-centered care. Course content will focus on pathophysiological and pharmacological concepts and their application for managing clients with health exacerbations, complications, urgent and critical medical conditions, and mental health conditions.

NURS 3110 THEORETICAL CONCEPTS OF PROFESSIONAL NURSING PRACTICE (3) LEC. 3. Coreq. NURS 3141 and NURS 3130. Exploration of essential professional nursing concepts.

NURS 3120 NURSING PATHOPHYSIOLOGY (3) LEC. 3. Coreq. NURS 3141 and NURS 3130. Admission to the School of Nursing Upper Division. Pathophysiological concepts that guide nursing professionals in the assessment, planning, implementation and evaluation of care for patients across the lifespan.

NURS 3130 EVIDENCE BASED SKILLS, ASSESSMENT, AND HEALTH PROMOTION (4) LEC. 4. Coreq. NURS 3110 and NURS 3141. Integration of current evidence to guide nursing skills, assessment, and health promotion.

NURS 3140 INTERDISCIPLINARY APPROACHES TO CARING FOR CHILDREN IN THE COMMUNITY (2) LEC. 2. The course introduces students to community-dwelling children (birth through teens) who have special needs and/or chronic health conditions. Students will develop skills in communication and practical skills for relating to and interacting with this population. Students will explore community resources and participate in providing outreach projects serving children and their families, and health information to the public.

NURS 3141 CONCEPTS AND EVIDENCE BASED SKILLS FOR PROFESSIONAL CLINICAL PRACTICE (3) LAB. 9. SU. Coreq. NURS 3110 and NURS 3130. Application of foundational nursing concepts, skills, and assessment across the lifespan in diverse settings with emphasis on health promotion.

NURS 3210 CLINICAL PHARMACOLOGY (3) LEC. 3. Pr. (NURS 3120 or NURS 3123) and NURS 3130. Nurse's role in therapeutic pharmacology.

NURS 3230 PROFESSIONAL NURSING CONCEPTS: ACUTE CARE ACROSS THE LIFESPAN (6) LEC. 6. Pr. (NURS 3120 or NURS 3123) and NURS 3110 and NURS 3130 and NURS 3141. Coreq. NURS 3231 and NURS 3210. Concepts inherent in the delivery of nursing care for acutely ill individuals and their families.

NURS 3231 PROFESSIONAL NURSING CONCEPTS: ACUTE CARE ACROSS THE LIFESPAN - CLINICAL (4) LAB. 12. SU. Pr. NURS 3123 or NURS 3120. Coreq. NURS 3210 and NURS 3230. Application of concepts inherent in the delivery of nursing care for acutely ill individuals and their families.

NURS 3330 PROFESSIONAL NURSING CONCEPTS IN THE CHILDBEARING FAMILY AND REPRODUCTIVE HEALTH (4) LEC. 4. Pr. NURS 3120. Coreq. NURS 3331. Concepts inherent in reproductive health and nursing care for childbearing families.

NURS 3331 PROFESSIONAL NURSING CONCEPTS IN THE CHILDBEARING FAMILY AND REPRODUCTIVE HEALTH - CLINICAL (2) LAB. 6. SU. Pr. NURS 3120. Coreq. NURS 3330. Concepts inherent in reproductive health and nursing care for childbearing families applied in clinical settings.

NURS 3410 HEALTH ASSESSMENT (2) LEC. 1. LAB. 1. Pr. NURS 2020 and NURS 2030 and NURS 2040. Coreq. NURS 3510 and NURS 3010. Focuses on holistic assessment across the lifespan.

NURS 3420 PROFESSIONAL COMMUNITY AND PUBLIC HEALTH NURSING (3) LEC. 2. LAB. 3. Pr. NURS 2020 and NURS 2030 and NURS 2040. Coreq. NURS 3410. Explores concepts inherent in the delivery of equitable, just, safe, and person-centered care for individuals, families, and communities in diverse settings.

NURS 3510 CLINICAL JUDGMENT IN NURSING FOR SIMPLE AND STABLE CONDITIONS (5) LEC. 3. LAB. 6. Pr. NURS 2020 and NURS 2030 and NURS 2040. Coreq. NURS 3010 and NURS 3410 and NURS 3420. Prepares students to provide professional nursing care for adult clients experiencing simple and/or stable conditions through didactic, lab, and clinical experiences. Course content will focus on health promotion, wellness, and management of medical conditions.

NURS 3520 CLINICAL JUDGMENT IN NURSING FOR ACUTE CONDITIONS (8) LEC. 4. LAB. 12. Pr. NURS 3010 and NURS 3410 and NURS 3510. Coreq. NURS 3020. Prepares students to provide professional nursing care for adult clients experiencing acute and/or unstable conditions through didactic, lab, and clinical experiences. Course content will focus on health exacerbations, complications, and management of urgent and unstable medical conditions.

NURS 3530 CLINICAL JUDGMENT IN NURSING FOR MENTAL HEALTH (5) LEC. 3. LAB. 6. Pr. NURS 3010 and NURS 3410 and NURS 3510. Coreq. NURS 3020. Prepares students to provide professional nursing care for clients experiencing developmental, behavioral, and mental health disorders through didactic, lab, and clinical experiences. Course content will focus on addressing mental health and well-being across the lifespan.

NURS 3630 PROFESSIONAL NURSING LEADERSHIP IN MICROSYSTEMS (2) LEC. 2. Pr. NURS 3230 and NURS 3231. The study of leadership and management concepts for direct patient care. Nursing Science only

NURS 3700 COMPETENCY RETENTION COURSE FOR NON-CLINICAL CONCEPTS (3) LEC. 3. This course is designed for students who are out of sequence in the professional nursing curriculum. Topics and activities will assist the student in retaining competencies in completed non-clinical courses.

NURS 3701 COMPETENCY RETENTION COURSE FOR CLINICAL CONCEPTS (3) LEC. 2. LAB. 1. This course is designed for students who are out of sequence in the professional nursing curriculum. Topics and activities will assist the student in retaining competencies in completed clinical courses.

NURS 3730 PROFESSIONAL NURSING CONCEPTS: MENTAL HEALTH ACROSS THE LIFESPAN (2) LEC. 2. Pr. NURS 3110 and NURS 3130 and NURS 3141. Coreq. NURS 3330 and NURS 3731. Concepts inherent in the delivery of nursing care for mentally ill individuals, families, and communities across the lifespan.

NURS 3731 PROFESSIONAL NURSING CONCEPTS: MENTAL HEALTH ACROSS THE LIFESPAN CLINICAL (2) LAB. 2. SU. Pr. NURS 3110 and NURS 3130 and NURS 3141. Coreq. NURS 3730. Clinical application of concepts inherent in the delivery of nursing care for mentally ill individuals, families, and communities across the lifespan.

NURS 3810 HOLISTIC NURSING PATHOPHYSIOLOGY & HEALTH ASSESSMENT (5) LEC. 5. Pathophysiological concepts that guide professional nurses in assessment, planning, implementation and evaluation of holistic care for patients across the lifespan.

NURS 3830 EVIDENCE BASED PRACTICE (5) LEC. 5. Pr. (NURS 3813 or NURS 3810) and (NURS 3843 or NURS 3840). Admission into Online RN-to-BSN Program. Utilization of evidence-based practice to promote delivery of quality patient care.

NURS 3840 FORMATION OF PROFESSIONAL NURSING PRACTICE (5) DSL/LEC. 5. Admission to the School of Nursing RN to BSN Program. Examines concepts, theories, and competencies fundamental to the formation of professional nursing practice.

NURS 3940 HEALTHCARE IN THE GLOBAL ARENA (2-3) LEC. 45. LAB. 0. Pr. NURS 3520 and NURS 3530. Study abroad learning opportunity to explore healthcare delivery and cost, licensure and certification, and culture in the global arena. Course may be repeated for a maximum of 6 credit hours.

NURS 3970 SPECIAL TOPICS IN NURSING (3) LEC. 3. Focused study plan designed for students who are out of sequence in the professional nursing curriculum. Course may be repeated for a maximum of 6 credit hours.

NURS 4030 PATHOPHARMACOLOGY FOR PRECONCEPTION THROUGH ADOLESCENCE (2) LEC. Pr. NURS 3020 and NURS 3520 and NURS 3530. Coreq. NURS 4540. Explores pathophysiological and pharmacological concepts that guide nursing professionals in providing person-centered care. Course content will focus on caring for women, childbearing families, and pediatric clients from birth through adolescence.

NURS 4040 PATHOPHARMACOLOGY FOR COMPLEX CONDITIONS (1) LEC. Pr. NURS 4030 and NURS 4410 and NURS 4420 and NURS 4540. Coreq. NURS 4940 and NURS 4550. Explores pathophysiological and pharmacological concepts that guide nursing professionals in providing person-centered care. Course content will focus on pathophysiological and pharmacological concepts and their application for managing clients with critical and multisystem conditions.

NURS 4110 ADVANCED CONCEPTS OF PEDIATRIC NURSING (2) LEC. 2. Pr. NURS 3520 and NURS 3530. Departmental approval. Prepares students to provide professional nursing care for pediatric clients experiencing critical conditions through didactic, lab, and simulation experiences. Course content will focus on concepts of the critical pediatric client's airway, breathing, and circulation.

NURS 4120 HEALTH SCIENCE CAMP EXPERIENCE (2) LAB. 0. Clinical experience in the care of children with chronic conditions in a camp setting.

NURS 4130 WELLNESS IN AGING (2) LEC. 2. Pr. NURS 3520 and NURS 3530. Provides undergraduate nursing students with a specialized focus on geriatric care, equipping them with knowledge, skills, and hands-on simulation experiences to improve the quality of care for older adults in various clinical settings.

NURS 4140 VULNERABLE POPULATIONS (2) LEC. 2. Pr. NURS 3520 and NURS 3530. Explores healthcare challenges faced by vulnerable populations, emphasizing unique healthcare needs, barriers to care, and the importance of culturally competent and compassionate approaches.

NURS 4180 TRAUMA NURSING (2) LEC. 2. Pr. NURS 3520 and NURS 3530. A broad overview of the specialty of trauma nursing and the multiple factors that affect patient care in an emergency or trauma situation.

NURS 4230 PROFESSIONAL NURSING CONCEPTS: CHRONIC AND COMPLEX CONDITIONS (5) LEC. 5. Pr. (NURS 3330 and NURS 3331 and NURS 3730 and NURS 3731 and NURS 3231) and P/C NURS 4231. Concepts inherent in the delivery of nursing care for individuals, families, and populations with chronic and/or complex conditions.

NURS 4231 PROFESSIONAL NURSING CONCEPTS: CHRONIC AND COMPLEX CONDITIONS - CLINICAL (5) LAB. 15. SU. Pr. (NURS 3230 and NURS 3330 and NURS 3331 and NURS 3730 and NURS 3731) and P/C NURS 4230. Applications of concepts inherent in the delivery of nursing care for individuals, families, and populations with chronic and/or complex conditions.

NURS 4240 CULTURAL EXPEDITIONS IN HEALTH CARE (2) LEC. 2. Pr., Senior-level student in Nursing. Hands-on experience with different aspects of culture including an overnight stay in a replica of a third world global village.

NURS 4270 PERIOPERATIVE NURSING (2) LEC. 1. LAB. 1. Pr. NURS 3520 and NURS 3530. This course is designed to give the student a broad knowledge base for the specialty of perioperative nursing and the multiple factors that will impact patient care from the preoperative phase through the recovery phase. The course will cover concepts of care that span all ages and types of surgical procedures.

NURS 4280 ANIMAL-ASSISTED THERAPY (2) LEC. 2. Theoretical foundations and guidelines for practice of animal-assisted therapy.

NURS 4290 EVIDENCE BASED PRACTICE (2) LEC. 2. Pr. NURS 3230. Application of appropriate research findings and other evidence to influence nursing practice.

NURS 4410 PROFESSIONAL NURSING LEADERSHIP (3) LEC. Pr. NURS 3010 and NURS 3410 and NURS 3510 and NURS 3420. Coreq. NURS 4420. Explores knowledge, skills, and attitudes necessary to enhance leadership in nursing practice.

NURS 4420 EVIDENCE BASED PRACTICE (2) LEC. Pr. NURS 3010 and NURS 3410 and NURS 3510 and NURS 3420. Coreq. NURS 4410. Develops students' knowledge and skills to address clinical questions through appraisal of evidence and recommendations for nursing practice.

NURS 4540 CLINICAL JUDGMENT IN NURSING FOR PRECONCEPTION THROUGH ADOLESCENCE (6) LEC. 3. LAB. 9. Pr. NURS 3020 and NURS 3520 and NURS 3530. Coreq. NURS 4030. Prepares students to provide professional nursing care for women, childbearing families, and children experiencing a variety of acute and chronic health conditions through didactic, lab, and clinical experiences. Course content will focus on developmentally appropriate nursing care for women, childbearing families, and children from conception through adolescence.

NURS 4550 CLINICAL JUDGMENT IN NURSING FOR COMPLEX CONDITIONS (5) LEC. 3. LAB. 6. Pr. NURS 4030 and NURS 4410 and NURS 4420 and NURS 4540. Coreq. NURS 4940 and NURS 4040. Prepares students to provide professional nursing care for clients experiencing complex health conditions through didactic, lab, and clinical experiences. Course content will focus on the management of critical and multisystem medical conditions.

NURS 4830 LEADERSHIP AND MANAGEMENT IN PROFESSIONAL NURSING (3) LEC. 3. Pr. (NURS 3813 or NURS 3810) and (NURS 3843 or NURS 3840). Admission into Online RN-to-BSN Program. Addresses evidence-based leadership/management competencies for the professional nurse working with interprofessional team.

NURS 4840 TRANSITION TO PROFESSIONAL NURSING PRACTICE (5) LEC. 5. Pr. (NURS 4833 or NURS 4830) and (NURS 3830 or NURS 3833). Admission into Online RN-to-BSN Program. Integrate past nursing practice and acquired knowledge, skills, and attitudes for transition to the professional nursing role.

NURS 4850 CLINICAL PREVENTION AND POPULATION HEALTH (4) LEC. 4. Pr. (NURS 3833 or NURS 3830) and (NURS 4833 or NURS 4830). Admission into Online RN-to-BSN Program. Concepts inherent in the delivery of nursing care for individuals, families and populations in the global community.

NURS 4900 INDEPENDENT STUDY IN NURSING (1-6) IND. Directed readings and/or clinical study in student-selected areas related to nursing. Course may be repeated for a maximum of 6 credit hours.

NURS 4920 TRANSITION TO PROFESSIONAL NURSING PRACTICE (4) LEC. 4. Pr. NURS 4230 and NURS 4231. Coreq. NURS 4921. Provides the content and learning experiences designed to help students synthesize the essential concepts for successful transition into professional nursing. Course may be repeated for a maximum of 8 credit hours.

NURS 4921 TRANSITION TO NURSING PRACTICE (7) LAB. 7. SU. Pr. NURS 4230 and NURS 4231. Coreq. NURS 4920. Application of essential concepts for transition into professional nursing practice.

NURS 4930 COMMUNITY ASSESSMENT PROJECT (1) LEC. 1. LAB. 14. Pr. (NURS 4230 and NURS 4231) and NURS 4290. Capstone course for a community assessment project completed throughout the nursing program.

NURS 4940 PROFESSIONAL NURSING LICENSURE (1) LEC. Pr. NURS 4030 and NURS 4410 and NURS 4420 and NURS 4540. Coreq. NURS 4941. Facilitates synthesis of essential concepts for success on the NCLEX-RN examination.

NURS 4941 PROFESSIONAL NURSING PRECEPTORSHIP (5) LAB. 15. SU. Pr. NURS 4030 and NURS 4410 and NURS 4420 and NURS 4540. Coreq. NURS 4940. Synthesizes the knowledge, skills, attitudes, and values developed throughout the BSN curriculum with patients and families in an acute care setting.

NURS 4970 SPECIAL TOPICS IN NURSING (1-4) STU. SU. Focused study plan designed for students who have not met an identified curricular benchmark. Course may be repeated for a maximum of 4 credit hours.

NURS 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

NURS 5420 POPULATION HEALTH OUTCOMES (3) DSL. This course provides the student with knowledge and skills to examine population health issues across the lifespan, globally, and regionally. Students will learn and connect with populations while identifying how to measure the health within populations. The course includes a focus on improving health equity and reducing health disparities.

NURS 6420 POPULATION HEALTH OUTCOMES (3) DSL. This course provides the student with knowledge and skills to examine population health issues across the lifespan, globally, and regionally. Students will learn and connect with populations while identifying how to measure the health within populations. The course includes a focus on improving health equity and reducing health disparities.

NURS 7000 FOUNDATIONAL CONCEPTS IN HEALTHCARE SIMULATION (3) DSL/LEC. This course is the first in the Healthcare Simulation Certificate program series of courses. The course provides the learner with a foundation for use of simulation as a teaching methodology in professional healthcare education. Evidence-based standards and theoretical frameworks will be discussed and applied.

NURS 7010 EVIDENCE-BASED APPLICATION OF TECHNOLOGY AND IPE IN HEALTHCARE SIMULATION (3) DSL. Pr. NURS 7000. This is the second course in the Healthcare Simulation Certificate program. The course builds upon foundational knowledge to provide a basic understanding of simulation technology and attributes of effective simulation-enhanced interprofessional learning experiences and provide a review of basic research methods and their application to ensuring evidence-based simulation design. Learners will apply knowledge of simulation best practices, technology, and interprofessional considerations to design a simulation-based activity.

NURS 7020 HEALTHCARE SIMULATION CAPSTONE (4) DSL. Pr. NURS 7000 and NURS 7010. This is the final course in the Healthcare Simulation Certificate program. Students will integrate prior coursework to develop a capstone simulation-based experience utilizing best practices of adult experiential learning, curriculum design, evidence- based practice, research, evaluation, and project management.

NURS 7100 FOUNDATIONS OF RURAL AND UNDERSERVED HEALTH (3) LEC. 3. This course explores the unique challenges and opportunities associated with healthcare delivery in rural and underserved communities. Learners will examine foundational concepts such as social determinants of health, health disparities, health policy, and cultural norms, and their collective impact on community health. The course also emphasizes evidence-based strategies and innovative approaches to address the barriers to healthcare access and improve health outcomes in these settings. Must be currently enrolled in a health or health related.

NURS 7110 ADVANCED HEALTH AND PHYSICAL ASSESSMENT (3-4) DSL/LLB. Focus is on assessment, knowledge and techniques required for master's level prepared nurses in a clinical setting. Course may be repeated for a maximum of 4 credit hours.

NURS 7120 LEARNER DEVELOPMENT & SOCIALIZATION (1) DSL/LEC. Coreq. NURS 7210. Provides an overview of theoretical formulations and instructional technologies that support learner development and socialization.

NURS 7200 POPULATION HEALTH IN RURAL COMMUNITIES (3) DSL. This course will examine challenges with special populations in rural communities. Learners will apply knowledge through a team-based approach to address a specific rural health challenge in special populations. NURS 7200 may be taken as an elective course by any student enrolled in health or health related graduate program of study (Nursing, Psychology, Physical Therapy, Medical Doctors, Veterinarians etc.)

NURS 7210 EVIDENCE-BASED TEACHING STRATEGIES (2) LEC. 2. Coreq. NURS 7120. Provides an overview of evidence-based teaching strategies and instructional technology.

NURS 7220 ROLES AND ISSUES OF THE PRIMARY CARE PRACTITIONER (3) LEC. 3. Pr. (NURS 7340 or NURS 7346) and (NURS 7350 or NURS 7356) and (NURS 7310 or NURS 7316) and (NURS 7230 or NURS 7236) and (NURS 7250 or NURS 7256) and (NURS 7430 or NURS 7436) and (NURS 7240 or NURS 7246) and (NURS 7110 or NURS 7116) and (NURS 7540 or NURS 7546). This course explores the complex process of role development for the advanced practice nurse within current health care systems. Competencies and role development issues of advanced nursing practice are included. Role transition and strategies for facilitating role acquisition and implementation including social, legal and ethical issues governing advanced practice in primary health care are addressed. Admission to the MSN Program.

NURS 7230 ADVANCED PATHOPHYSIOLOGY (3) LEC. 3. This course incorporates the application of advanced pathophysiology concepts across the lifespan. It broadens the concepts of assessment findings and diagnostic testing for specific health issues, utilizing clinical judgment for expected variations in disease presentations.

NURS 7240 ADVANCED PHARMACOLOGY (3) LEC. 3. Pr. (NURS 7230). This course provides an in-depth understanding of pharmacology and pharmacotherapeutics, emphasizing their application in patient-centered care. The primary goal is to deepen comprehension of these principles, focusing on how to safely and effectively integrate these principles into advanced practice nursing.

NURS 7250 HEALTHCARE POLICY AND ETHICS FOR THE NURSE LEADER (3) LEC. 3. Departmental approval. This course addresses the U.S. health care delivery system at micro and macro levels, problems, principles and the alternatives for managing problems in a systematic manner. Health policy, economic, and ethical principles and the relationship of these concepts to advocacy and leadership roles are explored. Admission to the MSN Program

NURS 7260 TRANSITION FROM CLINICIAN TO NURSE EDUCATOR (2) LEC. 2. This course provides the nurse educator student with a basic understanding regarding the nature of the nurse educator role. The student will explore dynamics influencing the development of the students' role and attaining success in higher education, different career paths, and issues shaping their perception of higher education.

NURS 7280 PROFESSIONALISM AND LEADERSHIP (3) LEC. 3. This course is designed to prepare graduate nursing students for advanced practice leadership roles and to foster professionalism in diverse healthcare environments.

NURS 7300 RURAL HEALTH COMMUNITY IMMERSION AND PROJECT (3) DSL. Pr. (NURS 7100 and NURS 7200). This course includes an immersive educational experience in the rural setting to develop a community-based health initiative project to improve health outcomes.

NURS 7310 TRANSITION TO ADVANCED PRACTICE NURSING (2) LEC. 2. This course is designed to introduce the Masters student to scholarly writing and inquiry for evidence-based practice. The principles of synthesis in writing and understanding of research are addressed. Admission to AU MSN Program.

NURS 7320 CURRICULUM DEVELOPMENT AND EVALUATION (3-4) DSL/LEC. Pr. (NURS 7340 or NURS 7346) and (NURS 7210 or NURS 7216). Analysis and evaluation of curriculum construction, selection of teaching strategies for diverse groups and individuals, and evaluation of learning outcomes in education of patients, health providers, and nursing students. Admission to the MSN Program. Course may be repeated for a maximum of 4 credit hours.

NURS 7330 DIAGNOSTIC REASONING AND CLINICAL MANAGEMENT (3-7) DSL/LLB. Pr. NURS 7230 and NURS 7430 and NURS 7340 and NURS 7240 and NURS 7350 and NURS 7110. Focus is on the process of collecting data and arriving at diagnostic and therapeutic conclusions to guide clinical management for patients. Course may be repeated for a maximum of 7 credit hours.

NURS 7340 ADVANCED THEORETICAL FOUNDATIONS OF NURSING (3) LEC. 3. Students will analyze and apply theoretical principles to guide practice in healthcare delivery for individuals, families, and populations. Admission to the MSN or DNP Program.

NURS 7350 QUALITY AND SAFETY IN HEALTHCARE (3) LEC. 3. Students examine and analyze approaches to promote quality and safety in healthcare.

NURS 7420 ASSESSMENT & EVALUATION (3) DSL/LEC. Pr. (NURS 7320). Develop methods to assess learning outcomes and evaluate programs for compliance with accreditation standards.

NURS 7430 ADVANCED EVIDENCE-BASED PRACTICE (3) LEC. 3. Students will explore approaches for identifying and applying relevant evidence to improve practice and health outcomes.

NURS 7440 PRIMARY CARE PRACTICUM OF WOMEN AND CHILDREN (3-7) DSL/LLB. Pr. NURS 7230 and NURS 7430 and NURS 7340 and NURS 7240 and NURS 7350 and NURS 7110 and NURS 7330. Focus is on the primary care nurse practitioner's role in managing common acute and chronic healthcare problems in women and pediatric patients in a variety of primary care settings. Course may be repeated for a maximum of 7 credit hours.

NURS 7540 IMPLEMENTATION AND EVALUATION OF EVIDENCE-BASED NURSING PRACTICE (2) LEC. 2. Pr. NURS 7430 or NURS 7436. This course focuses on the concepts necessary for implementation and evaluation of an evidence-based practice project. Data collection tools, data analyses, and interpretation of data analysis will be explored. Students will discuss change strategies, development of measurable outcomes and dissemination of any results. Admission to MSN Program. Course may be repeated for a maximum of 4 credit hours.

NURS 7550 PRIMARY CARE II: ADULTS AND ELDERLY (3) LEC. 1. Pr. (NURS 7220 or NURS 7226) and (NURS 7330 or NURS 7336). Admission to the MSN Program and completion of pre-requisites. Focus is on the primary care nurse practitioner's role in managing common acute and chronic health problems in the adult and geriatric population in a variety of primary care settings.

NURS 7800 NURSE EDUCATOR PRACTICUM I (2) DSL/PRA. 2. Pr. (NURS 7420). Synthesis and application of theories, research, and strategies in healthcare delivery settings. (120 direct patient care hours)

NURS 7810 NURSING EDUCATION PRACTICUM (3) DSL/PRA. 3. Pr. (NURS 7340 or NURS 7346) and (NURS 7350 or NURS 7356) and (NURS 7310 or NURS 7316) and (NURS 7260 or NURS 7266) and (NURS 7210 or NURS 7216) and (NURS 7230 or NURS 7236) and (NURS 7250 or NURS 7256) and (NURS 7430 or NURS 7436) and (NURS 7320 or NURS 7326) and (P/C NURS 7240 or P/C NURS 7246) and (P/C NURS 7110 or P/C NURS 7116) and (P/C NURS 7540 or P/C NURS 7546). Synthesis of educational theories, research, and strategies in applying the roles of the educator in teaching clients, students, or healthcare providers. Selected educational settings provide opportunities to practice the roles of educator under guidance of a qualified preceptor. The practicum includes 120 academic clinical and 60 healthcare facility clinical based direct care hours. Admission to MSN Program and completion of all pre-requisites.

NURS 7820 CERTIFIED NURSE EDUCATOR PREP (1) DSL/LEC. Pr. (NURS 7800). Coreq. NURS 7810. Provides a comprehensive review of the competency areas for the Certified Nurse Educator and Academic Clinical Certified Nurse Educator exams.

NURS 7920 PRIMARY CARE PRACTICUM (7-8) LEC/PRA. Pr. NURS 7230 and NURS 7430 and NURS 7340 and NURS 7240 and NURS 7350 and NURS 7110 and NURS 7330 and NURS 7440. Focus is on the application of knowledge and skills in the transition to the role of the primary care nurse practitioner. Course may be repeated for a maximum of 8 credit hours.

NURS 8010 DOCTORAL SEMINAR I (1) SEM. This course is designed to foster scientific communication skills of new doctoral students, and to advance dissertation work through development of dissertation research ideas.

NURS 8020 DOCTORAL SEMINAR II (1) SEM. Pr. (NURS 8010). This course is designed to advance dissertation work by fostering data analytics skills and the use of secondary datasets to provide meaningful insights that support decision-making, formation of hypotheses, and making the case for the proposed research.

NURS 8030 DOCTORAL SEMINAR III (1) SEM. Pr. (NURS 8020). This course is designed to advance dissertation work by focusing on the creation of a complete draft of the first manuscript, presenting the scholarly work to peers and faculty, and providing critical reviews of peers' scholarship.

NURS 8040 DOCTORAL SEMINAR IV (1) SEM. Pr. (NURS 8030). This course is designed to advance dissertation work by focusing on approvals needed for the protection of human subjects and permissions for access to research data and/or subjects, and to promote successful career planning and transition.

NURS 8210 RESEARCH PRACTICUM (1-3) RES. Pr. (NURS 8340 and NURS 8350). This course provides the PhD student with practical experiences in conducting research prior to undertaking the dissertation. Course may be repeated for a maximum of 3 credit hours.

NURS 8320 INFORMATICS AND TECHNOLOGY IN HEALTHCARE (3) LEC. 3. Students gain competency to leverage information and technology to improve health outcomes.

NURS 8330 QUANTITATIVE METHODS FOR EVIDENCE-BASED PRACTICE (3) LEC. 3. Admission to DNP Program. Provides the DNP student with clinical data management and outcome skills with an essential component of any EBP.

NURS 8340 DEVELOPMENT OF THE ROLE OF SCIENTIST (2) DSL/LLB. The course is designed to socialize the student into the roles, activities, and responsibilities of a PhD prepared nurse scientist, and is foundational to preparation for a career in research in academia or other research-intensive environments. The content addresses the responsibilities and activities of a scientist in the health professions, including ethical issues, scientific freedom and social responsibility, collaboration and negotiation, interdisciplinary research peer review, development of a research plan, program of research and research career, research funding, presentations, and publications.

NURS 8350 NURSING PHILOSOPHY, SCIENCE, AND THEORY (3) DSL/LEC. This course is a foundational theory course that explores the philosophy of science, development of nursing knowledge, and evaluation and application of theory to nursing research, practice, and education.

NURS 8410 THEORY APPLICATION FOR ADVANCED PRACTICE (3) LEC. 3. Admission to DNP Program. The course is the basis for the Doctor of Nursing Practice (DNP) project by identifying and investigating the various phenomena of interest in student's practice area.

NURS 8420 POPULATION HEALTH OUTCOMES (3) LEC. 3. Provides the student with knowledge and skills to examine population health issues across the lifespan, globally and regionally.

NURS 8430 FINANCIAL MANAGEMENT FOR ADVANCED PRACTICE (3) LEC. 3. This course provides the DNP student with the knowledge and skills necessary to identify, evaluate, and consider costs associated with implementing and sustaining change.

NURS 8440 LEADERSHIP FOR ADVANCED HEALTH POLICY (3) LEC. 3. Admission to DNP Program. Provides the DNP student with the knowledge and skills to be a leader in health care and to influence health policies at multiple levels.

NURS 8450 QUALITATIVE RESEARCH METHODS IN NURSING (3) DSL/LLB. Pr. (NURS 8770). Explores the qualitative research method, including the philosophical, historical, and theoretical foundations of this approach. Learners will examine the ethical issues related to qualitative research and gain understanding of data collection, management, analysis and interpretation.

NURS 8460 QUANTITATIVE RESEARCH DESIGN AND METHODS (3) DSL/LLB. Pr. (STAT 7000 or STAT 7006). Coreq. STAT 7010. The focus of this course is on quantitative research methods and study designs appropriate for investigating health care phenomena and problems of importance to nursing and health care. The interrelationship among clinical problems, literature reviews, research questions, study designs, and methods of inquiry and analysis is emphasized. Through a combination of theoretical discussion and applied practical experience, students develop skills and knowledge that is foundational to the dissertation process. Students will apply knowledge by participating in class discussions, critiquing published research, and exploring possible designs for their research focus.

NURS 8510 FOUNDATION FOR EVIDENCE-BASED PRACTICE (3) LEC. 3. Admission to DNP Program. Provides the DNP student with the methodological basis for translating evidence into practice systems in a variety of health care environments.

NURS 8540 ADVANCED PRACTICE PRACTICUM (2) LEC. 2. Provides the DNP student with opportunity to synthesize advanced practice knowledge and role behaviors in an advanced practice role. Course may be repeated for a maximum of 6 credit hours.

NURS 8550 GRANT WRITING AND MANAGEMENT (3) DSL/LLB. Pr. (NURS 8770 and NURS 8750 and STAT 7010). This course is designed to prepare the student for the fundamental processes and essential skills in developing and writing a grant proposal, seeking and securing project funding, and managing a grant.

NURS 8560 SYSTEMATIC REVIEWS FOR MEDICAL AND BEHAVIORAL INTERVENTIONS (2) DSL/LEC. This course will enable students to conduct systematic and scoping reviews in biomedical and behavioral sciences, and introduce meta-analysis. Students will collaboratively use the PRISMA framework, PROSPERO registry, and Covidence tool to conduct a systematic review relevant to their research.

NURS 8710 TRANSITIONAL SKILLS FOR DNP PRACTICE (2) DSL/LEC. 2. Admission to DNP Program. Provides the DNP student with the knowledge and skills to develop their DNP role as a leader in health care improvement efforts.

NURS 8720 HEALTH INNOVATIONS AND CLINICAL OUTCOMES IMPROVEMENTS (3) LEC. 3. Pr. (NURS 8510 and NURS 8710). Admission to DNP Program. Provides the DNP student with knowledge and skills to develop, implement, and evaluate programs that improve health.

NURS 8740 DISSERTATION DEVELOPMENT SEMINAR (2) DSL/LLB. Pr. (NURS 8460 and NURS 8750 and NURS 8450 and NURS 8560). This seminar will provide students with in-depth exposure to the steps and process of developing, completing, and writing a dissertation.

NURS 8750 MEASUREMENT IN HEALTHCARE RESEARCH AND USE OF DATA (3) DSL/LLB. This course provides the foundation and information for designing sampling plans, measurement and instrumentation, measurement procedures or scoring, and appropriate data analysis for measurement.

NURS 8760 HEALTH POLICY (3) DSL/LLB. Pr. NURS 8460 and STAT 7000 and STAT 7010. This course immerses the student in analysis of health policy and the social determinants of health from ethical and political contexts. The focus of this course is on the research methods and other processes of identifying, evaluating, comparing, and selecting policy options to address problems and issues in health care, as well as evaluating the performance of implemented policy. Students develop a policy research and modeling skillset in considering complex, real-world social and healthcare issues.

NURS 8770 CONCEPTUAL DESIGN & CRITICAL REVIEW OF THE LITERATURE (3) DSL/LLB. This course provides the student with the conceptual foundation for research and development of questions. The course delivers an in-depth analysis of the literature related to concept analysis to support development and critique of conceptual models. Students will apply writing, research, and critical thinking skills in concept analysis. Students will also develop and integrate knowledge within a literature review. Admission to the PhD in Nursing Program required.

NURS 8920 DOCTOR OF NURSING PRACTICE SEMINAR (1) DSL. Pr. (NURS 7280 and NURS 7100 and NURS 7430 and NURS 7340 and P/C NURS 7350 and P/C NURS 8320). This course provides the foundational knowledge and skills necessary to develop and implement a DNP project.

NURS 8930 DNP PROJECT PRACTICUM I: DEVELOPMENT (3) DSL/LEC. Pr. (NURS 8330 and NURS 8920 and P/C NURS 8420). First in a three-course sequence which provides the DNP student with the tools and direction needed to develop a comprehensive project proposal. Student must be admitted to DNP Program.

NURS 8940 DNP PROJECT PRACTICUM II : IMPLEMENTATION (4) LEC. 4. Pr. (NURS 8930 or NURS 8936). Second in a three-course sequence for the DNP student to execute the project plan in collaboration with the agency site.

NURS 8950 DNP PROJECT PRACTICUM III : EVALUATION AND PRESENTATIONS (4) LEC. 4. Pr. NURS 8940 or NURS 8946. Third in a three-course sequence for the DNP student finalize, evaluate, and disseminate their DNP project.

NURS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Pr. (NURS 8350 and NURS 8340) and (STAT 7000 or STAT 7006) and (NURS 8460 and STAT 7010 and NURS 8770 and NURS 8450 and NURS 8750 and NURS 8760 and NURS 8550). Individualized support and direction for students writing their dissertations. Course may be repeated with change in topics. Course may be repeated for a maximum of 10 credit hours.

Nutrition - NTRI

Courses

NTRI 1010 INTRODUCTION TO THE PRE-HEALTH PROFESSIONS (1) LEC. 1. This course is designed to expose College of Human Sciences Pre-Health students to the different components of the pre-professional application process. This course will uncover the opportunities offered to students to enhance his/her ability to gain experiences that demonstrate core competencies of health professions. This course provides opportunities to explore and develop these competencies required for professional programs through discussion, activities, reading, writing, and collaboration.

NTRI 2000 NUTRITION AND HEALTH (3) LEC. 3. Principles of human nutrition and food choices related to the health of individuals. Credit will not be given for both NTRI 2000 and NTRI 2007.

NTRI 2007 HONORS NUTRITION AND HEALTH (3) LEC. 3. Pr. Honors College. Principles of human nutrition and food choices related to the health of individuals. Topics similar to NTRI 2000 but covered in greater depth with classroom discussion of controversial topics. Credit will not be given for both NTRI 2000 and NTRI 2007.

NTRI 2010 BASIC SPORTS NUTRITION (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) or (NTRI 2000 or NTRI 2007). An introductory course on the relationship between nutrition and sports performance. Topic areas to be covered include energy, carbohydrates, protein/amino acids, fluids, vitamins, minerals, body weight and supplement use as they directly relate to sports performance. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 2070 CAREERS IN NUTRITION, DIETETICS AND WELLNESS (1) LEC. 1. Pr. (NTRI 2000 or NTRI 2007). Professional roles and responsibilities in nutrition, dietetics, and wellness with emphasis on careers professional development and conduct. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 3560 EXPERIMENTAL STUDY OF FOODS (4) LEC. 3. LAB. 3. Pr. (NTRI 2000 or NTRI 2007) and (BIOL 1020 or BIOL 1027) and CHEM 1030 or departmental approval. Experimental approach to the chemistry to food including composition, preparation, recipe modification, food quality, sanitation, processing, and food laws. A C or better is required in all pre-requisite courses to enroll in the course .

NTRI 3750 NUTRITION EDUCATION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2017) and (NTRI 2000 or NTRI 2007). How to design, deliver, and evaluate the types of educational interventions and programs conducted by most of nutrition educators in a variety of settings such as work, community programs, clinic, food banks, family programs, and/or schools. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 3940 COMMUNITY SERVICE (3-9) LEC. 1. LAB. 6. Departmental approval. Application of NTRI-related knowledge to real-life situations through participation in directed community service experiences. A) nutrition; B) hospitality; C) general NTRI. Course may be repeated for a maximum of 9 credit hours.

NTRI 4090 PROFESSIONAL ISSUES IN DIETETICS AND NUTRITION (1) LEC. 1. SU. Pr. NTRI 2070. NTDI or departmental approval. Senior standing. Professional issues and trends affecting dietetics and nutrition practice; planning for professional advancement; includes externship. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4560 FOOD SYSTEMS OPERATIONS (2) LEC. 2. Pr. NTRI 2000 or Departmental approval. Principles for managing resources required in planning, purchasing, preparing and serving high quality food in food service operations. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4561 FOOD SYSTEMS OPERATIONS LAB (2) LAB. 4. Pr. NTRI 2000 or departmental approval. Coreq. NTRI 4560. Laboratory experience in food service operations. Food safety certification is included. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4580 FOOD AND CULTURE (2) LEC. 2. Departmental approval. Cultural and social factors affecting food habits and nutritional status of populations throughout the world.

NTRI 4620 PUBLIC HEALTH NUTRITION (3) LEC. 3. Pr. NTRI 4820 and NTRI 4830. Population-focused approaches that facilitate healthy diets through policy development and environmental changes. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4820 MACRONUTRIENT METABOLISM (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2007) and BCHE 3180 and P/C BIOL 2510 or departmental approval. Physiological and biochemical basis for energy-yielding nutrients; structure, function, dietary requirements, digestion, absorption, transport and metabolism of macronutrients. A C or better is required in all pre-requisite courses to enroll in the course

NTRI 4830 MICRONUTRIENT METABOLISM (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2007) and BCHE 3180 and P/C BIOL 2510. Metabolism, dietary needs, deficiency symptoms and food sources of vitamins and minerals in humans. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 4930 DIRECTED STUDIES (1-8) AAB/IND. Departmental approval. Independent reading or research in a content area of special interest; supervised by a faculty member. Course may be repeated for a maximum of 8 credit hours.

NTRI 4970 SPECIAL TOPICS (1-3) LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. A course offering unique or current issues not covered in a regularly scheduled course. Course may be repeated for a maximum of 6 credit hours.

NTRI 4980 UNDERGRADUATE RESEARCH AND STUDY (1-9) IND. Departmental approval. Directed research under faculty supervision. Course may be repeated for a maximum of 9 credit hours.

NTRI 4997 HONORS THESIS (1-3) IND. SU. Pr. Honors College. Departmental approval. Research in specialized topics. Course may be repeated for a maximum of 3 credit hours.

NTRI 5020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. NTRI 4820 and NTRI 4830. NTDI or departmental approval Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. NTRI 5020 or NTRI 6020. NTDI or departmental approval. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5040 GLOBAL NUTRITION AND HUNGER (3) LEC. 3. Pr. (NTRI 2000). This course explores the complex and interconnected issues of global nutrition and hunger. Students will examine the causes, consequences, and potential solutions to malnutrition and food insecurity around the world. Departmental approval required.

NTRI 5047 GLOBAL NUTRITION AND HUNGER (3) LEC. 3. Pr. (NTRI 2000). This course explores the complex and interconnected issues of global nutrition and hunger. Students will examine the causes, consequences, and potential solutions to malnutrition and food insecurity around the world. Department approval.

NTRI 5100 NUTRITION IN DISEASE PREVENTION (3) LEC. 3. Pr. P/C NTRI 4820 and P/C NTRI 4830. The functions, safety, and efficacy of selected nutrients and herbs in the prevention and/or treatment of selected diseases/conditions. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5380 STUDY/TRAVEL IN NUTRITIONAL SCIENCES (1-6) AAB/FLD. Pr. BIOL 1030. Departmental approval. Concentrated study in nutritional sciences in international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 5560 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. P/C NTRI 4560 and P/C NTRI 4561. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 5560 and NTRI 6560. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5760 NUTRITION COUNSELING (2) LEC. 2. Pr. P/C NTRI 3750 and (P/C NTRI 5030 or P/C NTRI 6030) or departmental approval. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760. A C or better is required in all pre-requisite courses to enroll in the course NTDI

NTRI 5820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4830 and NTRI 4820. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 5820 and NTRI 6820. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5830 NUTRITIONAL GENOMICS (3) LEC. 3. Pr. NTRI 4820 and NTRI 4830. Principles of nutrient-gene interactions and how these interactions influence human health and disease. May count either NTRI 5830 or NTRI 6830. A C or better is required in all pre-requisite courses to enroll in the course.

NTRI 5910 CLINICAL PRACTICUM IN DIETETICS (1) PRA. 3. SU. NTDI or department approval. Application of the practice of dietetics in a clinical or community setting.

NTRI 6020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. NTRI 4820. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. NTRI 5020 or NTRI 6020 or departmental approval. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030. A "C" or better is required in all pre-requisite courses to enroll in the course. NTDI

NTRI 6040 GLOBAL NUTRITION AND HUNGER (3) LEC. 3. This course explores the complex and interconnected issues of global nutrition and hunger. Students will examine the causes, consequences, and potential solutions to malnutrition and food insecurity around the world. Department approval.

NTRI 6100 NUTRITION IN DISEASE PREVENTION (3) LEC. 3. Pr. (NTRI 5820 or NTRI 6820) and (NTRI 5830 or NTRI 6830). The functions, safety, and efficacy of selected nutrients herbs in the prevention and/or treatment of selected diseases/conditions. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6380 STUDY/TRAVEL IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) AAB/FLD. Departmental approval. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 6560 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. NTRI 4560 and NTRI 4561. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 6560 and NTRI 5560. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6760 NUTRITION COUNSELING (2) LEC. 2. Pr. P/C NTRI 3750 and (P/C NTRI 5030 or P/C NTRI 6030). Coreq. NTRI 6030 and NTRI 5030. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4820 and NTRI 4830. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 6820 and NTRI 5820. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 6830 NUTRITIONAL GENOMICS (3) LEC. 3. Pr. NTRI 4820. Principles of nutrient-gene interactions and how these interactions influence human health and disease. A "C" or better is required in all pre-requisite courses to enroll in the course.

NTRI 7010 ADVANCED PRACTICUM IN DIETETICS (1-9) DSL/LEC. SU. DPD verification statement. Enrollment in Masters in Nutrition Program or department approval. Supervised practical experience in clinical, food service, and community settings for development of entry-level skills for the registered dietitian. Course may be repeated for a maximum of 9 credit hours.

NTRI 7020 ADVANCED NUTRITION AND DIET THERAPY (3) DSL/LEC. Explores complex medical nutrition therapies and the role of diet in disease prevention and management. Emphasizing evidence-based approaches, students will develop skills in nutrition assessment, intervention design, and evaluating outcomes, preparing them for advanced practice and research in clinical settings. Department approval.

NTRI 7030 LEADERSHIP AND MANAGEMENT IN NUTRITIONAL SCIENCES (3) LEC. 3. This course provides an in-depth examination of leadership and management principles specific to the the various areas within nutritional sciences. Students will develop the skills necessary to lead teams, manage resources, and navigate complex organizational systems. Topics include financial management, leadership styles, communication, team building, decision-making, and strategic planning within various nutrition-related settings. Department approval.

NTRI 7050 METHODS OF RESEARCH (3) LEC. 3. Departmental approval. Research methods and designs applicable to disciplines represented in nutrition.

NTRI 7280 LABORATORY METHODS IN FOOD SCIENCE AND NUTRITION (3) LEC. 2. LAB. 3. Departmental approval. Modern laboratory techniques and instruments used in human nutrition and food science research.

NTRI 7500 MINERALS (3) LEC. 3. Departmental approval. Sources, digestion, absorption, transport, function and metabolism of major and trace minerals in the human body.

NTRI 7510 VITAMINS (3) LEC. 3. Departmental approval. Advanced study of metabolism, requirements, interactions and deficiencies of the fat and water soluble vitamins as related to humans.

NTRI 7520 MACRONUTRIENTS: INTEGRATION AND METABOLISM (4) LEC. 4. Advanced study of energy metabolism, digestion, absorption, transport and integrative metabolism of macronutrients.

NTRI 7530 HUMAN NUTRIENT METABOLISM (4) LEC. 4. Advanced study of nutrition and metabolism, as related to humans. Department approval. Credit will not be given for both NTRI 7530 or NTRI 7536 once developed, or BCHE 6180 and BCHE 6190, and/or BCHE 7200.

NTRI 7620 SPORTS AND PERFORMANCE NUTRITION (3) LEC. 3. In-depth exploration of the principles and practices of sports and performance nutrition, including the role of macronutrients and micronutrients, supplements, and ergogenic aids in energy production, muscle recovery, and injury prevention. Strategies to meet the nutritional needs for different types of athletes and ways to maintain movement, performance, muscle mass, bone health, and mobility throughout the lifespan will also be discussed.

NTRI 7850 RESEARCH SEMINAR FOR MASTER'S PROGRAM (1) DSL/SEM. 1. Departmental approval. Current topics in nutrition, dietetics and hospitality management presented by M.S. graduate students.

NTRI 7910 PRACTICUM IN NUTRITION AND DIETETICS (1-12) PRA. SU. Departmental approval. Application of principles and theories of nutrition in a professional setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 12 credit hours.

NTRI 7930 ADVANCED INDEPENDENT STUDY (1-6) DSL/IND. Departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

NTRI 7960 SPECIAL PROBLEMS (1-5) DSL/IND. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 10 credit hours.

NTRI 7980 NONTHESIS RESEARCH (1-6) AAB. SU. Departmental approval. In-depth work in a particular project related to hotel and restaurant management. Course may be repeated for a maximum of 6 credit hours.

NTRI 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

NTRI 8850 RESEARCH SEMINAR FOR DOCTORAL PROGRAM (1-2) SEM. Departmental approval. Required for doctoral students in nutrition and hospitality management. Advanced topics in nutrition and food science presented by doctoral students. Course may be repeated for a maximum of 2 credit hours.

NTRI 8910 SUPERVISED TEACHING (1) AAB/IND. 1. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

NTRI 8970 ADVANCED TOPICS IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) DSL/LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. Course may be repeated for a maximum of 6 credit hours.

NTRI 8990 RESEARCH AND DISSERTATION (1-10) AAB/DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

Parks and Recreation - PARK

Courses

PARK 1050 AMERICA'S NATIONAL PARKS (3) LEC. 3. Introduces America’s National Parks and the National Park Service from their origins to current day. Students will understand the places, politics, people, controversies, and conservation ethics embodied in the National Park system.

PARK 2010 INTRODUCTION TO NATURE-BASED RECREATION AND MANAGEMENT (3) LEC. 3. Introduction to fundamentals of nature-based recreation; recreationists' motivations, society benefits, and management of the outdoor recreational environment.

PARK 2020 INTRODUCTION TO COMMUNITY PARKS AND RECREATION (3) LEC. 3. This course is an introduction to all the elements for successful community parks, recreation, and sport-facility management, administration, and programming by public agencies.

PARK 3010 ENVIRONMENTAL INTERPRETATION (3) LEC. 3. Communication theory as management and public relations tool for natural resource management.

PARK 3050 SAFETY, RISK AND LEGAL ASPECTS OF PARKS, RECREATION, AND SPORT FACILITY MANAGEMENT (3) LEC. The delivery of safe services, facilities, and activities in areas designated as parks, recreation areas, and community sporting facilities is presented from a legal, risk management, and liability perspective.

PARK 3100 LEADERSHIP IN PARKS AND RECREATION (3) LEC. 3. Introduces leadership theories and practices as applied to parks and recreation. Students examine leadership and communication skills and tools to help develop positive relationships, attitudes, motivations, and group dynamics. Leadership in outdoor recreation and adventure is highlighted.

PARK 3350 PROGRAMMING IN PARKS AND RECREATION (3) LEC. 3. The parks and recreation programmer is responsible for the development and delivery of recreation, leisure, and sport programs and activities that provide opportunities and promote healthy lifestyles for all constituents. Students will be introduced to and learn how to develop a range of park and recreation programming, including activities such as ropes courses and backcountry travel, arts and crafts such as jewelry making and photography classes, health and wellness classes, dance, drama, art, and music summer camps, sports leagues, service learning, environmental education, and birdwatching trips.

PARK 3630 COSTA RICA PROTECTED AREA CONSERVATION MANAGEMENT (3) AAB. Coreq. NATR 4250 and NATR 3320 and GEOG 3720. This class will introduce the different protected area (PA) management categories (IUCN and other co-management approaches), focusing on examples of Costa Rican PAs to showcase these different approaches. Guest lectures and tours will allow students to experience firsthand how PA management schemes work in practice, and the challenges they may face, based on the diversity of social and ecological conditions unique to each PA.

PARK 3850 PROFESSIONAL PREPARATION IN PARKS AND RECREATION (1) LEC. 1. Assessment of career opportunities. Prepares students for their parks and recreation internship and post-graduation employment and career development.

PARK 3910 FIELD SKILLS PRACTICUM (3) PRA. SU. Departmental approval. Micro-credentials for leading outdoor adventure recreation. Hands-on training in tools and applications for Parks and Recreation Management. Sophomore standing or higher. PARK majors ONLY. Course instruction will extend into semester break.

PARK 4200 NATURE, RECREATION, AND HEALTH (3) LEC. 3. Nature is a prescription for better mental and physical health. This class explores the many ways that healthy parks and recreation areas can contribute to a healthier society.

PARK 4300 PARKS AND RECREATION ADMINISTRATION, FINANCE, AND MANAGEMENT (3) LEC. 3. Pr. (PARK 2010 or PARK 2020) and PARK 3050. Provides an advanced understanding of the administration and management critical to operating park, recreation, and community sports facilities. Topics include organizational structure, personnel management and supervision, working with community partners, interaction with customers, and managing personnel, finances, evaluation, and decision-making.

PARK 4310 SUSTAINABLE NATURE TOURISM (3) LEC. 3. Ecotourism, responsible tourism, wildlife tourism are all forms of nature tourism that can contribute positively to environmental conservation, community development, and cultural awareness, while maintaining viable businesses. A systems approach for sustainable nature tourism analysis is applied.

PARK 4400 PARK AND RECREATION FACILITIES AND INFRASTRUCTURE PLANNING AND MANAGEMENT (3) LEC. 3. Pr. (PARK 2010 or PARK 2020) and PARK 3050. This course introduces students to the management of park and recreation facilities (i.e., national or community parks, trails, interpretative centers, campgrounds, restrooms, and community sports facilities), emphasizing planning, support, and maintenance.

PARK 4500 SUSTAINABLE PLANNING AND DESIGN OF COMMUNITY PARKS AND RECREATION (3) LEC. 3. A planning approach for viewing parks, recreation, and community sports facilities and programs as an organizing system to promote community connections, health, sustainability, and resilience. Students develop practical grant writing skills for recreation project funding.

PARK 4920 INTERNSHIP IN PARKS AND RECREATION (2-12) INT. Departmental approval. Supervised work experience in a Parks and Recreation (PARK) setting for a minimum of 50 hours/credit hour. PARK major, 2.2 cumulative GPA, and senior standing required. Course may be repeated for a maximum of 12 credit hours.

PARK 5250 ACCESS AND PARTICIPATION IN PARKS AND RECREATION (3) LEC. 3. This course examines access-to and participation-in outdoor recreation based on differences in location, gender, age, income, race, ethnicity, and physical abilities. Supply and demand analysis and the recreation constraints model to participation are used to frame class analysis.

PARK 6250 ACCESS AND PARTICIPATION IN PARKS AND RECREATION (3) LEC. 3. This course examines access-to and participation-in outdoor recreation based on differences in location, gender, age, income, race, ethnicity, and physical abilities. Supply and demand analysis and the recreation constraints model to participation are used to frame class analysis.

Pharmacy (PharmD) - PYPD

Courses

PYPD 9000 ORIENTATION (1) WSP. 12.5. This one week course introduces the expectations for a student in the Harrison School of Pharmacy's Practice Ready Curriculum. The course introduces aspects of the role of the pharmacist in healthcare including team member, interprofessional practice, and continual professional development.

PYPD 9010 DRUGS IN PREGNANCY AND LACTATION (1) LEC. 1. The purpose of this course is to introduce pharmacy students to the concepts of teratogenicity, pregnancy and lactation. Non-pharmacological and pharmacological therapy is focused to common pregnancy disease states and lactation issues.

PYPD 9020 FOUNDATIONS OF LEADERSHIP WITHIN THE PHARMACY PROFESSION (1) LEC. 1. This course will allow students to identify leadership skills, traits and values. Leadership tools and resources will be discussed. Students will be exposed to leadership within the practice of pharmacy as well as pharmacy organizations.

PYPD 9030 INTRODUCTION TO PEDIATRICS (1) LEC. 1. The purpose of this course is to introduce students to the basic concepts regarding pediatric development and care including but not limited to normal growth and development, pediatric calculations, community based care, counseling skills, and common disease states.

PYPD 9040 KIDNEYS, DRUGS AND ELIMINATION: WHAT PHARMACISTS NEED TO KNOW (1) LEC. 1. Students will gain in-depth knowledge of how declining kidney function and renal replacement modalities affect biopharmaceutics and develop experience in evaluating drug information related to renal dosing.

PYPD 9050 ONCOLOGY CARE (1) LEC. 1. This course will provide student pharmacists with a working knowledge of cancer as a disease state, as well as the pharmacotherapeutics of chemotherapy, targeted therapy, and biologic therapy. Additionally, students will explore aspects of supportive care, ADR and drug interaction management, chemotherapy administration, and drug monitoring. The structure of the course is highly collaborative and interactive. Students are expected to participate in group activities with a professional and collegial spirit.

PYPD 9060 SELF-CARE AND NONPRESCRIPTION PHARMACOTHERAPY (1) LEC. 1. This course will introduce students to nonprescription pharmacotherapy and other self-care measures used in the outpatient setting to treat minor medical problems. As the most accessible health care professionals, pharmacists are often approached by members of the community to recommend treatments for common ailments. It is important for pharmacists to quickly and accurately assess patients to determine if they are an appropriate self-care candidate or if referral to another health care provider is warranted. This course will expand upon self-care and nonprescription pharmacotherapy topics introduced in the required curriculum, introduce students to self-care issues specific to various special populations, and allow students to learn from one another through group presentations and case discussions.

PYPD 9080 POPULATION HEALTH IPPE (2) CLN. 2. SU. This course is a longitudinal introductory pharmacy practice experience (IPPE) that students will complete during the P2 year. During this course, practical concepts related to pharmaceutical care and the pharmacists' patient care process are re-enforced through the provision of basic care to community based patients. Students will earn 10 IPPE hours from the successful completion of the course. Earning of IPPE hours will be done through multiple formats including traditional in-home patient encounters, patient care simulations, as well as other practical experiences in collaboration with community partners.

PYPD 9160 COMMUNITY PHARMACY IPPE (2) LEC. 2. SU. Students will be exposed to a community pharmacy setting in which they will gain experience in the drug distribution process, patient counseling, and interprofessional collaboration. Students will have opportunities to apply concepts and clinical knowledge learned during their P1 year. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic Programs.

PYPD 9170 HEALTH SYSTEM PHARMACY IPPE (2) CLN. SU. Students will have opportunities to apply concepts and clinical knowledge previously learned to patient care in the setting of a functioning institutional pharmacy. They will participate in patient care through the drug distribution process, prospective drug review, drug monitoring, and interprofessional interactions. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic Programs.

PYPD 9180 CLINICAL PHARMACY IPPE (1) LEC. 1. SU. This is an introductory pharmacy practice experience (IPPE) course focused on providing pharmaceutical care to patients in a primary/ambulatory care or acute care setting. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic Programs.

PYPD 9190 HEALTH AND WELLNESS INTRODUCTORY PHARMACY PRACTICE EXPERIENCE (1) CLN. 1. SU. This is an Introductory Pharmacy Practice Experience (IPPE) that students will complete during a one-week block in their P2 year. Students will receive 40 IPPE hours upon completing the course. Students will build upon their initial exposure to the community pharmacy setting that occurred during their three-week Community Pharmacy IPPE in the Summer after their P1 year and focused on the medication distribution process. The focus of the Health and Wellness rotation experience is providing clinical services to patients within in the community pharmacy setting. Students have opportunities to apply concepts and clinical knowledge learned during their P1 and P2 years to the community pharmacy setting. Students will be engaged in determining patients' immunization status and making appropriate recommendations. Students will educate patients on immunizations and administer immunizations under the supervision of their licensed pharmacist preceptor. Another area of emphasis during this experience will be screening patients for hypertension and diabetes by performing blood pressure and blood glucose measurements. Students will interpret and explain results of health screenings to patients and educate them on the importance of self-monitoring. Admission into the Doctor of Pharmacy Program or approval of the Associate Dean for Academic Affairs.

PYPD 9200 INTEGRATED LEARNING EXPERIENCE I (6) LEC. 6. Students will acquire foundational knowledge of Hypertension, Diabetes Mellitus, Obesity Management, Diarrhea and Constipation, Fluid and Electrolytes, and Hypersensitivity. These disease states will provide context for students to develop knowledge and skills of various aspects of the Patient Care Process.

PYPD 9210 INTEGRATED LEARNING EXPERIENCE II (6) LEC. 6. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. Students will acquire foundational knowledge of Lipids, Depression, Alzheimer's/Dementia, Hypothyroid, Asthma, Chronic obstructive pulmonary disease (COPD), and Smoking Cessation. These disease states will provide context for students to develop knowledge and skills of various aspects of the PPCP.

PYPD 9220 INTEGRATED LEARNING EXPERIENCE III (6) LEC. 6. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216). Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences. Students will acquire foundational knowledge related to Pain, Osteoarthritis (OA), Seizures, Gastroesophageal reflux disease (GERD), Stable ischemic heart disease (SIHD), Stroke, Thromboembolism, and Heart Failure.

PYPD 9230 INTEGRATED LEARNING EXPERIENCE IV (6) LEC. 6. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216). This six-week course will focus on knowledge and skills related to various aspects of the Pharmacists' Patient Care Process such as collecting information, conducting assessments, developing and implementing a plan including patient counseling, and documenting patient information. The course includes an introduction to pharmaceutical compounding and foundational knowledge related to over-the-counter treatment of cough, cold, and various dermatologic conditions.

PYPD 9240 INTEGRATED LEARNING EXPERIENCE V (6) LEC. 6. Pr. (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences to provide students with the knowledge, skills, behaviors, and attitudes necessary for developing into a practice ready pharmacist. During this ILE, students will acquire foundational knowledge related to generalized anxiety disorder; bipolar disorder/ schizophrenia; dementia; Parkinson's disease, attention-deficit/hyperactivity disorder (ADHD); sleep disorders; hepatitis and cirrhosis; pancreatitis; and hyperthyroidism.

PYPD 9250 INTEGRATED LEARNING EXPERIENCE VI (6) LEC. 6. Pr. (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences to provide students with the knowledge, skills, behaviors, and attitudes necessary for developing into a practice ready pharmacist. During this ILE, students will acquire foundational knowledge related to diabetic ketoacidosis (DKA)/ hyperosmolar hyperglycemic state (HHS); acid-base disturbances; nausea and vomiting; dehydration; chronic kidney disease (CKD) and secondary complications; acute kidney injury (AKI); nutrients/nutrition; and iron deficiency.

PYPD 9260 INTEGRATED LEARNING EXPERIENCE VII (6) LEC. 6. Pr. (PYPD 9240 or PYPD 9246) and (PYPD 9250 or PYPD 9256). Students will acquire foundational knowledge related to HIV/AIDS, fungal and opportunistic infections, upper respiratory tract infections, allergic rhinitis, viral infections, meningitis, and sepsis. Students will increase the depth of disease states and medications encountered in ILE 4 including: skin and soft-tissue infections, pneumonia, urinary tract infections, sexually transmitted diseases, cough and cold, and dermatologic conditions. The disease states will be integrated to allow student understanding of the relationship between the disease states and medications used to treat these disorders. These disease states will provide context for students to apply knowledge and skills of various aspects of the Pharmacists' Patient Care Process such as collecting information, conducting assessments, developing and implementing a plan including patient counseling, and documenting patient care plans in the SOAP format and/or in the electronic health record (EHR). Students will explore the relationship between medicinal chemistry and the physical and chemical properties which affect ADME, as well as how these relate to differences within and between drugs and drug classes. ILE 7 will reinforce previous competencies introduced in ILEs 1-6, allowing students to apply what was learned in a different context (varying disease states and/or more complex situations).

PYPD 9270 INTEGRATED LEARNING EXPERIENCE VIII (6) LEC. 6. Pr. (PYPD 9240 or PYPD 9246) and (PYPD 9250 or PYPD 9256). During this learning experience, students will acquire foundational knowledge related to cardiology, rheumatology, men's and women's health, and neurology. Students will increase the depth of disease states and medications encountered earlier in the program including: stable ischemic heart disease, venous thromboembolism, stroke, heart failure, osteoarthritis, pain, and epilepsy. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs

PYPD 9280 INTEGRATED LEARNING EXPERIENCE IX (6) LEC. 6. Pr. (PYPD 9260 or PYPD 9266) and (PYPD 9270 or PYPD 9276). In this course, students will acquire and/or reinforce knowledge related to inflammatory bowel disease, fluids and electrolytes, nutrition support services, hematology, oncology, sepsis, endocarditis, fungal infections, sedation, delirium of critical illness, glomerulonephritis, diabetic ketoacidosis, acid-base disturbances, and type 1 diabetes. This course reinforces competencies related to using subjective and objective information to determine patient-specific healthcare needs and the formulation of an assessment. The content will reinforce organizing and prioritizing information gathered, assessing the appropriateness of therapy based on efficacy and safety, determining the relevance of medication allergies and interactions, and preventing hospital admissions. The development and implementation of an evidence-based, patientcentered care plan that incorporates the assessment of patient-specific factors and medications will be emphasized throughout. Professional communication, focusing on communicating with patients or healthcare providers when there is an educational need, will be reinforced. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs.

PYPD 9290 INTEGRATED LEARNING EXPERIENCE X (6) LEC. 6. Pr. (PYPD 9260 or PYPD 9266) and (PYPD 9270 or PYPD 9276). This course reinforces competencies related to collecting and using subjective and objective information to determine patient specific healthcare needs and the formulation of an assessment and plan. The content will reinforce organizing and prioritizing information gathered, assessing appropriateness of therapy based on efficacy and safety, determining the relevance of medication allergies and interactions, preventing hospital admissions, and knowing when self-treatment is appropriate versus conditions that need a referral. The development and implementation of an evidence-based, patient-centered care plan that incorporates the assessment of patient-specific factors and medications will be emphasized throughout. Professional communication, focusing on communicating with patients or healthcare providers will be reinforced with emphasis on cultural awareness and barriers in education.

PYPD 9300 INTEGRATED LEARNING EXPERIENCE XI (6) LEC. 6. Pr. (PYPD 9280 or PYPD 9286) and (PYPD 9290 or PYPD 9296). This course reinforces competencies related to collecting and using subjective and objective information to determine patient specific healthcare needs and the formulation of an assessment and plan. The content will reinforce organizing and prioritizing information gathered, conducting medication reconciliation, assessing appropriateness of therapy based on efficacy and safety, determining the relevance of medication allergies, and knowing when self-treatment is appropriate versus conditions that need a referral. The development and implementation of an evidence-based, patient-centered care plan that incorporates the assessment of patient-specific factors and medications will be emphasized throughout. The legal requirements for medication distribution will be emphasized for processing medication orders as well as medication safety reporting and documentation.

PYPD 9310 INTEGRATED LEARNING EXPERIENCE XII (6) LEC. 6. Pr. (PYPD 9280 or PYPD 9286) and (PYPD 9290 or PYPD 9296). This course reinforces competencies related to collecting and using subjective and objective information to determine patient specific healthcare needs and the formulation of an assessment and plan. The content will reinforce the interpretation, verification, processing, and labeling of medications orders in different healthcare settings with increasing complexity, complying with all federal, state, and local laws; collecting, reviewing, and assessing subjective and objective information; identifying and correcting drug-related problems; utilizing appropriate medical and medication informational resources and applying the knowledge of study design and literature analysis; performing calculations; communicating with and educating patients, caregivers and stakeholders; and identifying resources for patient's healthcare needs. The students will further develop an understanding of the relationship between patient-specific factors, including pharmacogenomics, on drug selection and monitoring. Drug interactions will be explored more in-depth as students understand how to predict and resolve drug-drug and drug-disease interactions based on drug-specific and patient-specific factors. Cases will emphasize various patient populations, such as adolescent, pregnancy, and older adult. Immunization assessment and plan will be incorporated in each patient case. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic Programs.

PYPD 9320 LONGITUDINAL EXPERIENCE I (3) LEC. 3. This semester-long course focuses on navigating the health care system. Learners will explore key issues related to patient education/public health, communication, assessment, advocacy, and management.

PYPD 9330 LONGITUDINAL EXPERIENCE II (3) LEC. 3. Pr. (PYPD 9320 or PYPD 9326). Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This semester long course integrates multiple disciplines, including social/behavioral/administrative sciences and clinical sciences to introduce students to issues related to public health, population health, and individual health and wellness.

PYPD 9340 LONGITUDINAL EXPERIENCE III (3) LEC. 2.5. Pr. (PYPD 9330 or PYPD 9336). This longitudinal experience will introduce students to topics related to strategic marketing strategies for pharmacists' services and will expose students to different types of innovative pharmacy services in different practice settings. The overall goal of this longitudinal experience is to teach students the pertinent skills and decision-making tools needed to establish a new non-dispensing pharmacy service and justify its existence through both financial and intangible values, as well as to design systems and processes that will foster effective and appropriate communication between the pharmacist and patients, other healthcare providers, and stakeholders.

PYPD 9350 LONGITUDINAL EXPERIENCE IV (3) LEC. 2.5. Pr. PYPD 9340 or PYPD 9346. This Longitudinal experience will build on prior courses with a focus on incorporating and improving a given service within a pharmacy, within the context of services and products. Thus, the Longitudinal will have a Pharmacy Operations Management and Continuous Quality Improvement (CQI) emphasis. Students will be introduced to the CQI process and principles to enable them to 'improve' existing operations and clinical services. The use of a variety of examples will provide opportunities to apply principles to support recommendations regarding pharmacy operations. This will involve data collection and creation of an improvement plan. To complete the exploration of operations and CQI topics, financial considerations will be incorporated, focusing on the entire pharmacy program, including the role of payers. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs

PYPD 9360 LONGITUDINAL EXPERIENCE V (3) LEC. 2.5. Pr. PYPD 9350 or PYPD 9356. This course will focus on the planning and sustainability of pharmacy services through billing, contract, and inventory management along with personnel and formulary management. The emphasis on formulary management will be to assist the Pharmacy and Therapeutics (P&T) committee's decision making regarding which drugs to put on the formulary. The medication use process will also be discussed and applied. The Longitudinal will also prepare students to meet future needs of the pharmacy profession by engaging students in thinking about non-traditional services and ideas.

PYPD 9370 LONGITUDINAL EXPERIENCE VI (3) LEC. 2.5. Pr. PYPD 9360 or PYPD 9366. This semester-long course focuses on providing learners with learning opportunities related to their personal and professional goals. Learners will explore key issues related to drug information / evidence-based medicine, leadership, professionalism, and professional development.

PYPD 9380 GERIATRIC CARE I (1) LEC. 1. This study of geriatric health focuses on geriatric patient assessment and interprofessional care of the older adult patient. Students will be required to evaluate how pharmacists can impact these sequelae through interprofessional care teams while optimizing patient's health-related quality of life. This course focuses on those environmental, psychological, and physiological characteristics that are unique to, or more prevalent among, geriatric patients. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9390 GERIATRIC CARE II (1) LEC. 1. This study of geriatric health focuses on geriatric patient assessment and management of common pharmacotherapy issues in the older adult patient. Students will be required to evaluate how pharmacists can impact these sequelae through pharmacotherapy management while optimizing patient's health-related quality of life. This course focuses on those pharmacodynamic and pharmacokinetic characteristics that are unique to, or more prevalent among, geriatric patients. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9400 WORKSHOP I (1) LEC. 1. In this workshop, will explore the use of drug information resources and related to the use of drug information resources and population levels.

PYPD 9410 WORKSHOP II (1) LEC. 12.5. Pr. PYPD 9400 or PYPD 9406. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to the Pharmacists' Patient Care Process.

PYPD 9420 WORKSHOP III (1) LEC. 12.5. Pr. PYPD 9410 or PYPD 9416. This is a focused, intensive, one-week workshop where students will acquire theoretical and practical knowledge related to a contemporary issue in the field of pharmacy. In this workshop, students will explore the provision of pharmacy-based immunization services utilizing the APhA Pharmacy-Based Immunization Delivery course materials and additional supplemental instructional materials. At the end of this workshop students will have the knowledge and skills related to the development and provision of pharmacy-based immunization services, will know how to serve as a vaccine advocate, and will receive a certificate of completion for the APhA Pharmacy-Based Immunization Delivery course.

PYPD 9430 WORKSHOP IV (1) LEC. 1. Pr. PYPD 9420 or PYPD 9426. This workshop builds upon concepts taught across the first two years in the ILE's and will utilize information the students have developed from a series of self paced videos designed to teach the basic science concepts of pharmacokinetics. The students will also be expected to incorporate knowledge related to previously covered diseases and medications. The focus of the workshop will be to show the students the application of pharmacokinetic knowledge related to A, D, M, and E in multiple settings (retail, hospital, long term care) of pharmacy practice in a case based setting. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs.

PYPD 9440 WORKSHOP V (1) LEC. 12.5. Pr. PYPD 9430 or PYPD 9436. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to pharmacoeconomics and its application to the economic evaluation of pharmaceuticals and the overall healthcare system.

PYPD 9450 WORKSHOP VI (1) DSL/LEC. 12.5. Pr. PYPD 9440 or PYPD 9446. In this focused, intensive, one week workshop students will review and update their patient care skills, determine their own long term career goals, and develop a plan for achieving those goals.

PYPD 9460 FINANCES FOR THE PHARMACIST (1) LEC. 1. Pharmacy students need specific advice to prepare for life after pharmacy school in relation to financial planning including managing debt, credit, budgeting, and banking. After graduation from pharmacy school, the majority of students have high amounts of debt and enter the workforce with a higher income that they are likely unaware of how to manage. Equipping students with skills and knowledge to manage their finances will help them be more productive and avoid pitfalls and anxiety related to finances. Admission into the Doctor of Pharmacy Program or permission of the Associate Dean for Academic Programs.

PYPD 9470 PRINCIPLES OF FUNCTIONAL MEDICINE – A PATIENT CENTERED APPROACH (1) LEC. 1. Students will be introduced to the concept of Functional Medicine and the pharmacist's role in chronic disease state management using Functional Medicine principles. Students will also examine the impact of holistic healing as a path to overall health and wellness through investigation of their own health and wellness. Students will utilize evidence-based medicine as a framework for these principles and will apply the information learned in this course to patient care. Admission into the Doctor of Pharmacy Program or permission of the Associate Dean for Academic Programs.

PYPD 9480 ADVANCED PHARMACOKINETICS I (1) LEC. 1. SU. Pr. PYPD 9430 or PYPD 9436. The purpose of this course is to build upon basic pharmacokinetic concepts introduced earlier in the curriculum to develop the skills and expertise necessary to create an individualized plan for dosing and monitoring vancomycin and aminoglycoside antibiotics.

PYPD 9490 INTRODUCTION TO PHARMACOGENOMICS (1) LEC. 1. Pr. (PYPD 9230). This College of Pharmacy elective course will introduce pharmacy students to genetic variation and how this impacts efficacy and adverse effects associated with pharmacotherapy within a variety of disease states.

PYPD 9500 AMBULATORY CARE ANTICOAGULATION (1) LEC. 1. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will provide students with a working knowledge of pharmacotherapeutic issues related to anticoagulation therapy in the out-patient setting including an introduction to the various roles of pharmacists in the management of anticoagulation therapy.

PYPD 9510 EXPLORING DIABETES CARE FROM THE PATIENT PERSPECTIVE (1) LEC. 2.1. Pr. (PYPD 9200 or PYPD 9206 and PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226 and PYPD 9230 or PYPD 9236). or permission of the Associate Dean for Academic and Student Affairs. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. Students will learn from pharmacists who specialize in diabetes to discuss pivotal literature sources and their impact on patient care. Students will gain appreciation of Standards of Care through active participation in a weekly deconstructed "diabetes experience" documented with reflective individual writings and/or group video recordings.

PYPD 9520 DRUGS OF ABUSE AND MISUSE (1) LEC. 1. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will provide students with a working knowledge of the current trends in drugs of abuse, the public health implications from abuse of these drugs, and the role of different community stakeholders in the fight against this epidemic.

PYPD 9530 RESEARCH METHODS IN HEALTH SERVICES I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. The course is designed to provide a comprehensive introduction to the primary research methods used in clinical and health services research. It will focus on an introduction to various research designs including experimental and non-experimental, as well as quantitative and qualitative research methods. This course is ideal for student pharmacists and graduate students who want to acquire research knowledge and skills enabling them to participate in clinical and translational research teams and to evaluate programs/services at their clinical/pharmacy sites. It will serve as a research resource for their future research projects.

PYPD 9540 RESEARCH METHODS IN HEALTH SERVICES II (1) LEC. 12.5. PYPD 9530 or enrolled in PYPD 9530 during the same semester. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course is ideal for student pharmacists and graduate students who want to acquire research knowledge and skills enabling them to participate in clinical and translational research teams and to evaluate programs/services at their clinical/pharmacy sites. It will serve as a research resource for their future research projects.

PYPD 9550 ACUTE CARE PHARMACOTHERAPY I (1) LEC. 1. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course is designed to orient the pharmacy student to the acute care environment and familiarize the student with patient disease states and pharmacotherapy issues associated with the acutely ill patient in an inpatient setting.

PYPD 9560 ACUTE CARE PHARMACOTHERAPY II (1) LEC. 2. This course is a continuation of PYPD 9550. The course will cover more disease states and pharmacotherapy issues related to patients in an inpatient setting. Additionally, there will be more focus on special populations along with dosing medications in organ dysfunction.

PYPD 9570 HISTORY OF PHARMACY (1) LEC. 1. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. History influences nearly everything we do and that is certainly the case for the profession of pharmacy. Every course taught can provide historical contexts for the information and application. A general course in pharmacy history can give a firm foundation for any student and graduate to fully embrace their chosen profession, understand its beginnings and development, and be a competent practitioner. The intent of this course is to provide that background so that the student has an appreciation for what has come before and an understanding of the many symbols and advances of the profession that surround any pharmacy practitioner. This ranges from the Rx to the patient counseling booth to the pharmacokinetic consult.

PYPD 9580 PALLIATIVE CARE AND END OF LIFE (1) LEC. 1. Students will be introduced to the pharmacist's role in hospice/palliative care and symptoms experienced by the dying with an emphasis on interdisciplinary care. Students will also examine the impact of multicultural aspects of providing care in palliative and hospice care.

PYPD 9590 ADVANCED TRAINING IN DIABETES CARE FROM THE PROVIDER'S PERSPECTIVE (1) LEC. 1. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236) and (PYPD 9240 or PYPD 9246) and (PYPD 9250 or PYPD 9256) and (PYPD 9260 or PYPD 9266) and (PYPD 9270 or PYPD 9276). Course will emphasize completion of necessary steps for achieving The Pharmacist and Patient-Centered Diabetes Care certificate by the American Pharmacists Association, which will include but is not limited to: small group exercises, class discussions, simulated patient counseling (medication, lifestyle and devices). Permission of the Associate Dean for Academic Programs may be needed.

PYPD 9600 ADVANCED PHARMACY PRACTICE EXPERIENCE (5) PRA. Pr. (PYPD 9310 or PYPD 9316). Advanced pharmacy practice experiences in Acute Care/General Medicine, Ambulatory Care/Primary Care, Community Pharmacy, Drug Information, and various other pharmacy practice settings. Course may be repeated for a maximum of 45 credit hours.

PYPD 9610 COMMUNITY PHARMACEUTICAL CARE (5) PRA. 62.5. Advanced Practice Experience in a community pharmacy practice setting that provides pharmaceutical care services such as disease management and other advanced patient care activities. Fall, Spring, Summer.

PYPD 9620 MEDICINE I (5) PRA. 62.5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Fall, Spring, Summer.

PYPD 9630 MEDICINE II - SELECTIVE (5) PRA. 62.5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Additional experience beyond PYDI 9620. Fall, Spring, Summer.

PYPD 9640 PRIMARY/AMBULATORY CARE I (5) PRA. 62.5. Advanced practice experience in providing care to patients as they initially access the health care system. Fall, Spring, Summer.

PYPD 9650 PRIMARY/AMBULATORY CARE II (5) IND/PR1. 62.5. This culminating course will require a comprehensive review and application of knowledge gained throughout the first 3 years of the PharmD Curriculum. Through case, problem and project based learning, learners will apply didactic and clinical knowledge/skills in a self-directed manner.

PYPD 9660 HEALTH SYSTEM PRACTICE (5) PRA. 62.5. Advanced practice experience in a health system setting that prepares the student to adapt and function within systems of integrated pharmaceutical care services. Fall, Spring, Summer.

PYPD 9670 PRACTICE ELECTIVE I (5) PRA. 62.5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYPD 9680 PRACTICE ELECTIVE II (5) PRA. 62.5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYPD 9690 DRUG INFORMATION-SELECTIVE (5) PRA. 62.5. Status of a 4th Year Doctor of Pharmacy Student (P4) or Permission of the Associate Dean for Academic and Student Affairs. Advanced practice experience in providing drug information services to health care providers. Fall, Spring, Summer.

PYPD 9700 SUMMATIVE EXPERIENCE I (3) IND. 37.5. SU. The P4 Summative Experience I is an independent study course focusing on the North American Pharmacist Licensure Examination (NAPLEX) preparation utilizing the RxPrep package. Students will work longitudinally to complete study modules based on an assigned schedule with each module culminating in a cumulative assessment. Course requirements are to be completed outside of Advanced Pharmacy Practice (APPE) rotation requirements.

PYPD 9710 COMMUNITY PHARMACY PRACTICE I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will focus on legal and business aspects of community pharmacy practice. Students will be paired with a mentor for this course who will provide real world examples of these aspects of community pharmacy.

PYPD 9720 COMMUNITY PHARMACY PRACTICE II (1) LEC. 1. This course will focus on the development and implementation of clinical services within the community pharmacy setting. Students will receive training on concept development through implementation of medication therapy management services in this setting.

PYPD 9730 INFECTIOUS DISEASES I (1) LEC. 1. This course will provide the student with an in depth exposure to the treatment of bacterial infectious diseases, with a particular focus on antimicrobial stewardship and the treatment of multidrug-resistant organisms.

PYPD 9740 INFECTIOUS DISEASES II (1) LEC. 1. This course will provide the student with an in depth exposure to the treatment of different viral, fungal, and bacterial infectious diseases not covered in depth in other portions of the curriculum. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs

PYPD 9750 ADVANCED MOTIVATIONAL INTERVIEWING (1) LEC. 1. Motivational interviewing (MI) is an evidence-based method for facilitating voluntary health behavior change with patients and with providers. Target behaviors for patients engaged in comprehensive disease management may include outcome enhancing behaviors like medication taking, healthy eating, monitoring, physical activity, sleep management, smoking cessation, among others. This course will 1) explore the conceptual basis for why motivational interviewing is effective in facilitating health behavior change, and 2) provide basic and advanced training and practice for using motivational interviewing to help patients with self-management of their health conditions. This course is intended and designed to support and build student self-efficacy for using MI in patient encounters within a health/disease management context. MI principles and micro skills will be applied by the instructor in the process of helping facilitate student learning. It is hoped that the student will come away from the course encouraged, not discouraged, about using MI for improved patient outcomes in future practice/research.

PYPD 9760 POST-GRADUATE TRAINING PREPARATION (1) LEC. 1. This course will review post-graduate education opportunities for pharmacists with a focus on pharmacy residency training. Students will learn about post-graduate opportunities within pharmacy and develop skills and tools necessary in securing a position after graduation.

PYPD 9770 ACUTE CARE ANTITHROMBOTIC (1) LEC. 1. This course will provide students with a working knowledge of pharmacotherapeutic issues related to antithrombotic therapy in the inpatient setting including an introduction to roles and responsibilities of pharmacists in the management of antithrombotic therapy in this setting. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9780 TOXICOLOGY AND POISONS (1) LEC. 1. Toxicology is the science of poisons and their antidotes. Almost any substance has the ability to cause noxious effects on living beings. The Toxicology and Poisons course is designed to introduce the Doctor of Pharmacy student to the role of the pharmacist in the management of poisonous substances and intentional and unintentional drug overdoses. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Program.

PYPD 9790 THERAPEUTIC USE OF OPIOIDS (1) LEC. 1. Opioids as a class of medications are a high risk class of medications. As such, it is important that pharmacists learn to be systematic in their approach to dosing these medications and to recognize common mistakes made in their dosing. This course will provide an in-depth approach to dosing these medications. Each week will focus on a different area of dosing using patient cases to allow students to practice calculations and making recommendations. Status as a 3rd year student in the Doctor of Pharmacy program or permission of the Associate Dean of Academic Programs.

PYPD 9800 SUMMATIVE EXPERIENCE II (3) IND. 3. SU. Pr. PYPD 9700. The P4 Summative Experience II contains both an independent study component focusing on North American Pharmacist Licensure Examination (NAPLEX) board exam and Multistate Pharmacy Jurisprudence Examination (MPJE) preparation utilizing the RxPrep package and supplemental materials as well as the completion of various assignments during the course of Advanced Pharmacy Practice Experiences (APPE) rotations. Course requirements are adjunctive to APPE rotation requirements. Status of a 4th Year Doctor of Pharmacy Student (P4) or permission of the Associate Dean for Academic Programs.

PYPD 9810 ADVANCED PEDIATRICS (1) LEC. 1. The purpose of this course is to expose students to advanced pediatric topics regarding disease states, therapeutics (acute and chronic therapy) and pharmacogenomics. Concepts from the Introduction to Pediatrics course will be incorporated. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9820 INTERPROFESSIONAL PEDIATRICS (1) LEC. 1. Course will expose students to advanced pediatric topics regarding disease states, pharmacokinetics, and therapeutics. Admission into the Doctor of Pharmacy program or permission of the Associate Dean for Academic Programs.

PYPD 9830 ACUTE CARE SELECTIVE II (5) LEC. 5. Advanced practice experience in providing pharmaceutical care to patients in an additional acute care setting. General medicine (acute care) experiences provide comprehensive, evidence-based, individualized, patient-centered care to adult inpatients typically located on a general medicine floor. Pharmacists are expected to be accountable for the patient's drug therapy outcomes and practice as an integrated member of the inter-professional health care team. Typical patients present with the following medical problems: cardiac, pulmonary, renal, hepatic, neurologic, gastrointestinal, endocrine and infectious diseases. The experience incorporates all elements of care from medication reconciliation, medication therapy recommendations and monitoring, discharge counseling, and transitions of care. Doctor or Pharmacy program or permission of the Associate Dean for Academic Programs

PYPD 9840 CLINICAL ISSUES IN UNDERSERVED POPULATIONS (1) LEC. 1. This course focuses on addressing barriers patients vulnerable to health disparities face in our healthcare system. Students will expand knowledge of social determinants of health, available medication resources, and clinical strategies to reduce health disparities in the primary care setting. Enrollment in the Doctor of Pharmacy Program or approval of the Associate Dean for Academic Programs.

PYPD 9850 PRIMARY CARE SELECTIVE II (5) LEC. 5. Advanced practice experience in providing pharmaceutical care to patients as they initially access the health care system. This is an additional opportunity for students to train in a primary care care setting. Primary care experiences provide evidence-based, patient-centered collaborative care in the outpatient setting to meet the medication management needs of patients in the treatment of chronic disease. These pharmacists promote health and wellness, disease prevention and education, and medication management of chronic illnesses such as diabetes, hypertension, coronary artery disease / dyslipidemia, asthma / chronic obstructive pulmonary disease, and heart failure. Other chronic diseases encountered by the ambulatory care pharmacist may include chronic kidney disease, chronic infectious diseases, and other chronic diseases responsive to infusion therapy that do not require hospitalization. Pharmacist delivered ambulatory care occurs in institutional health system-based clinics, community-based clinics, government-funded clinics, and managed care organizations as well as the community pharmacy setting where comparable care is provided. 4th year Doctor of Pharmacy Students or the permission of the Associate Dean for Academic Programs

PYPD 9860 METABOLIC SYNDROME 1 (1) LEC. 1. Metabolic Syndrome 1 will focus on the assessment and treatment (nonpharmacologic and pharmacologic) of disease states related to metabolic syndrome, including prevention of these comorbidities. Special attention will be given to patient considerations in the management of these diseases. Enrollment in the Doctor of Pharmacy Program or Approval of the Associate Dean for Academic Programs.

PYPD 9870 METABOLIC SYNDROME 2 (1) LEC. 1. Metabolic Syndrome 2 will focus on the assessment and treatment (nonpharmacologic and pharmacologic) of disease states related to metabolic syndrome with special attention given to its management of unique patient populations. In addition, considerations for communication with other healthcare providers will be addressed. Enrollment in the Doctor of Pharmacy Program or approval of the Associate Dean for Academic Programs.

PYPD 9880 CARDIOLOGY (1) LEC. 1. Pr. PYPD 9230. This course will introduce and expand upon core cardiovascular disease states essential for the practice ready pharmacist. HCOP students will utilize evidence-based medicine to guide all pharmacotherapy discussions and gain experience in applying these principles to make patient care decisions.

PYPD 9890 CONSULTANT PHARMACY: AN EXPANDING AREA OF PRACTICE (1) LEC. 1. Pr. PYPD 9230. Consultant pharmacy is an expanding area of practice. Consultant pharmacists collaborate with the healthcare team to provide expert clinical guidance to promote safe and effective drug therapy for older adult patients and to ensure compliance with state and federal regulations. This course will introduce HCOP students to the field of consultant pharmacy.

PYPD 9900 THE NUTRITION KITCHEN, AN INTERDISCIPLINARY CULINARY MEDICINE ELECTIVE (PHARMACY) (1) LEC. 1. SU. Pr. (PYPD 9230). The Nutrition Kitchen is an interdisciplinary culinary medicine elective to prepare future healthcare professionals utilizing a food-forward approach in the care of patients with nutrition-related chronic diseases. This specific course is for Doctor of Pharmacy students in the Harrison College of Pharmacy.

PYPD 9910 ANTIMICROBIAL STEWARDSHIP (1) LEC. 1. Pr. PYPD 9230. This HCOP elective course will explore the principles of antimicrobial stewardship and avenues for pharmacists to engage in antimicrobial stewardship efforts in a variety of patient care settings. Through simulated activities, pharmacy students will gain experience learning, recommending, and communicating antimicrobial stewardship interventions.

PYPD 9920 PHARMACY-BASED POINT-OF-CARE TEST AND TREAT (1) LEC. 1. SU. Pr. PYPD 9230. This course provides pharmacy students with knowledge and skills to develop and implement collaborative point-of-care testing programs. This HCOP elective will discuss the point-of-care test and treat process, including specimen collection, legal and management issues associated with point-of-care testing and follow-up care, and assessment of patients to determine if point-of-care testing is appropriate.

PYPD 9930 PRINCIPLES OF FUNCTIONAL MEDICINE 2 – A PATIENT CENTERED APPROACH (1) LEC. 1. Pr. (PYPD 9470). HCOP students will use the principles from the Functional Medicine course and the pharmacist's role in chronic disease state management to approach patient care using nutritional and lifestyle interventions to help prevent, heal, and potentially reverse disease. Students will continue to examine the impact of holistic healing as a path to overall health and wellness through investigation of their own health and wellness.

PYPD 9940 VETERINARY PHARMACY I (1) LEC. 1. Pr. (PYPD 9230). The purpose of this course is to introduce HCOP students to the practice of veterinary pharmacy. Veterinary-specific laws and regulations will be discussed, including special requirements for veterinary prescriptions. Species differences in pharmacokinetics, pharmacodynamics, and pharmacogenomics will be discussed, along with common disease states and pharmacologic treatments.

PYPD 9950 VETERINARY PHARMACY II (1) LEC. 1. Pr. (PYPD 9940). The purpose of this course is to expand HCOP students' knowledge of the practice of veterinary pharmacy. Large and exotic animal pharmacy will be discussed, along with pharmacological treatments.

PYPD 9980 PHARMACY RESEARCH (1-3) LEC. 1-3. The student will be expected to learn to conduct independent research activity. The specific research topic will lie within the scope of the School of Pharmacy writ large and will be decided by the student's faculty research advisor. Course may be repeated for a maximum of 6 credit hours.

Philosophy - PHIL

Courses

PHIL 1010 INTRODUCTION TO LOGIC (3) LEC. 3. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1017 HONORS LOGIC (3) LEC. 3. Pr. Honors College. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1020 INTRODUCTION TO ETHICS (3) LEC. 3. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought. May count either PHIL 1020 or PHIL 1023.

PHIL 1027 HONORS ETHICS (3) LEC. 3. Pr. Honors College. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought.

PHIL 1030 ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1037 HONORS ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Pr. Honors College. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1040 BUSINESS ETHICS (3) LEC. 3. Humanities Core. Types of ethical theory; application to such normative issues in commerce as advertising, management, and business abroad.

PHIL 1050 INTRODUCTION TO POLITICAL PHILOSOPHY (3) LEC. 3. Humanities Core. Principal theories and thinkers in political philosophy from antiquity to the present.

PHIL 1060 PHILOSOPHY EAST AND WEST (3) LEC. 3. Humanities Core. Principal thinkers and theories in four philosophical traditions: Indian, Chinese, European, and Arabic.

PHIL 1070 ART, VALUE, AND SOCIETY (3) LEC. 3. Humanities Core. Introduction to philosophical aesthetics, focusing on the relationship of artistic values and the extra-artistic values of societies that house them.

PHIL 1080 INTRODUCTION TO PHILOSOPHY OF RELIGION (3) LEC. 3. Humanities Core. Philosophy of religion, including questions about God's existence, relationship of reason and faith, religious epistemology, and language.

PHIL 1090 PHILOSOPHY OF RACE AND GENDER (3) LEC. 3. Humanities Core. Philosophical issues associated with race and gender, including role of biology and social construction, nature of prejudice, questions about justice and redress.

PHIL 1100 INTRODUCTION TO PHILOSOPHY (3) LEC. 3. Humanities Core. Methods of philosophical inquiry and examination of selected philosophical topics. May count either PHIL 1100 or PHIL 1103.

PHIL 1110 ETHICAL AND CONCEPTUAL FOUNDATIONS OF SCIENCE (3) LEC. 3. Introduction to the moral and conceptual foundations of science, concentrating on ethical facets of scientific research, theorizing, and knowledge production, as well as conceptual issues regarding the nature of causation, induction, scientific explanation and confirmation. May count either PHIL 1110 or PHIL 1113.

PHIL 1120 INTRODUCTION TO ENVIRONMENTAL ETHICS (3) LEC. 3. Ethical inquiry into environmental issues such as non-human animal welfare, environmental justice, global climate change, resource use, and conservationism versus preservationism.

PHIL 1130 MINDS AND MACHINES: THE PHILOSOPHY OF ARTIFICIAL INTELLIGENCE (3) LEC. 3. LAB. 0, LEC. 0. The course explores the foundations and ethical implications of Artificial Intelligences, including the nature of mind and consciousness, the moral ramifications of AI, and the relationship between AI and human creativity.

PHIL 2110 LOGIC AND REASONING (3) LEC. 3. Students will refine their ability to wield the tools of logical analysis in situations which call for precise reasoning, learning to apply these tools in a variety of contexts.

PHIL 2970 GATEWAY SEMINAR (3) LEC. 3. An introduction to philosophy through special topics. The course is designed to provide students with the basic skills required for more advanced work in philosophy. Topics vary. Course may be repeated for a maximum of 6 credit hours.

PHIL 3050 AESTHETICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Modern and contemporary theories of the nature of art.

PHIL 3060 PHILOSOPHY OF FILM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Consideration of philosophical issues raised within particular films and by the nature of cinematic representation in general.

PHIL 3100 ETHICAL THEORY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Overview of contemporary questions and positions in ethics, including moral realism, the rationality of moral action, subjectivism and non-cognitivism, naturalism, and various theories of practical reason.

PHIL 3110 SYMBOLIC LOGIC (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area IV) Propositional logic and predicate logic through relations; natural language and logic; some philosophical problems in logic.

PHIL 3200 RACE AND JUSTICE (3) LEC/SEM. Pr. A grade of D or higher in PHIL 1000-2999. This course is an intermediate introductory course that examines themes of race and justice from a philosophical perspective in both historical and contemporary contexts.

PHIL 3300 PHILOSOPHY OF RELIGION (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Nature of religion, religious experience, religious knowledge, religious theories of humanity and evil, arguments for the existence of God and immortality of the soul.

PHIL 3330 HISTORY OF ANCIENT PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from the Pre-Socratics through the Hellenistic philosophers, emphasizing Plato and Aristotle.

PHIL 3340 HISTORY OF EARLY MODERN PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Descartes to Kant, emphasizing major figures in the rationalist and empiricist traditions.

PHIL 3350 HISTORY OF LATE MODERN AND PRE-ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Kant to the Pre-Analytic philosophers, possibly including Schopenhauer, Hegel, Nietzsche, Kierkegaard, James, Brentano, Frege, Meinong, Cook-Wilson, Bradley, and Moore.

PHIL 3360 HISTORY OF EARLY ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought in the early Analytic period, including the works of Russell, Moore, Wittgenstein, and members of the Vienna Circle.

PHIL 3400 MEDIEVAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from late antiquity through the Middle Ages, with emphasis on the ideas of Plotinus, Islamic thinkers, Augustine, Abelard, Anselm, and Thomas Aquinas.

PHIL 3500 EPISTEMOLOGY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Origin, nature, kinds, and validity of knowledge, with considerations of faith, institution, belief, opinion, certainty, and probability.

PHIL 3510 PHILOSOPHY OF SCIENCE (3) LEC. 3. Student must have taken at least one philosophy course prior to taking PHIL 3510. Empirical meaning, verifiability, measurement, probability, causality and determinism.

PHIL 3530 PHILOSOPHY OF PHYSICS (3) LEC. 3. An overview of the philosophy of physics, with attention to topics such as the nature of matter, motion, change, space, time, space-time, time travel, Einstein's theories of special and general relativity, and non-relativistic quantum mechanics.

PHIL 3540 PHILOSOPHY OF MIND (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Classical and modern texts on the phenomenology of consciousness and mind-body problems.

PHIL 3550 PHILOSOPHY OF LANGUAGE (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Survey of contemporary philosophical discussions of the nature of language.

PHIL 3600 CLASSICAL POLITICAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. At least one course in philosophy at the 1000 level. Political thought of classical thinkers, including Plato, Aristotle, Machiavelli, Hobbes, Locke, Mill, Spencer, and Marx. (Area I for PHIL major)

PHIL 3620 CONTEMPORARY POLITICAL PHILOSOPHY (3) LEC. 3. Pr. POLI 3020. or at least one PHIL course at the 1000 or 2000 level. A survey of major schools of 20th- and 21st-century political thought, including liberalism, communitarianism, libertarianism, feminism, and anarchism. May count either PHIL 3620 or POLI 4340.

PHIL 3640 PHILOSOPHY OF LAW (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Functions of law, including judicial reasoning, ground of authority, natural law, legal responsibility, punishment, civil disobedience, and the relation of law to ethics.

PHIL 3660 APPLIED ETHICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Advanced philosophical study of the ethical issues that arise in intellectual endeavors, such as law, business, military science, and engineering.

PHIL 3700 METAPHYSICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Critical analysis of such topics as monism and pluralism, freedom and determinism, realism and nominalism, and the mind-body problem.

PHIL 3740 EXISTENTIALISM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Selected works of such authors as Kierkegaard, Neitzsche, Sartre, Jaspers, and Heidegger.

PHIL 3800 FEMINISM AND PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. This is an intermediate level philosophy course introducing students to feminist philosophers' attempts to grapple with traditional philosophical problems that either directly or indirectly bear on issues of gender and oppression. Texts may include historical and contemporary discussions of topics of concern to feminists, in any of the following areas: metaphysics, epistemology, ethics, philosophy of science, language, law and social political philosophy.

PHIL 3970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Topics vary. Course may be repeated for a maximum of 6hours.

PHIL 4110 ADVANCED LOGIC (3) LEC. 3. Pr. (P/C PHIL 3110 or P/C MATH 3100). Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics. May count either PHIL 4110 or MATH 4110.

PHIL 4920 INTERNSHIP (3) INT. 200. SU. Opportunity to apply skills acquired in classroom in career setting. Internship must be supervised and appropriate to major.

PHIL 4960 SPECIAL PROBLEMS IN PHILOSOPHY (1-6) IND. Pr., Departmental approval. Reading program on a particular philosopher, period, or problem. Course may be repeated for a maximum of 6 credit hours.

PHIL 4967 HONORS SPECIAL PROBLEMS IN PHILOSOPHY (1-3) IND. Pr. Honors College or Departmental approval. Reading program on a philosopher, period, or problem. Course may be repeated for a maximum of 3 credit hours.

PHIL 4970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 6 credits in PHIL 3000-3999. Advanced topics in ethics and value theory, metaphysics and epistemology, or history of philosophy. Emphasis on readings drawn from the contemporary, professional literature. Course may be repeated for a maximum of 9 credit hours. Area distribution requirement fulfilled depends on class content.

PHIL 4980 UNDERGRADUATE RESEARCH (3) PRA. Pr. A grade of D or higher in PHIL 4000-4999. Pr. One 3-hour philosophy class at the 4000 level or instructor permission. Capstone course in which students develop previously written paper into presentation to be delivered at end-of-semester conference.

PHIL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Senior thesis. Course may be repeated for a maximum of 3 credit hours.

PHIL 6950 SEMINAR (1-3) SEM. Pr., Departmental approval. Content varying from movements of thought to an extensive study of one of the great thinkers. Course may be repeated for a maximum of 3 credit hours.

Physical Education - PHED

Courses

PHED 1000 ACTIVE AUBURN (2) LEC. 2. Basic concepts associated with physical activity and the opportunities on campus to engage in health-promoting and wellness activities. Course may be repeated for a maximum of 4 credit hours.

PHED 1200 CARDIO RESPIRATORY: FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning. Activities may include, but are not limited to running (jogging) swimming, cycling and aerobic dance. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1210 CARDIO RESPIRATORY: AEROBIC DANCE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in aerobic dance.

PHED 1220 CARDIO RESPIRATORY: CIRCUIT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in circuit training.

PHED 1230 CARDIO RESPIRATORY: JOGGING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in jogging.

PHED 1240 CARDIO RESPIRATORY: SWIM FOR FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in swim for fitness.

PHED 1250 CARDIO RESPIRATORY: WATER AEROBICS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in water aerobics.

PHED 1260 MILITARY FITNESS FOR EVERYONE (2) LEC. 2. Basics of military-type physical activity training, goal-setting, and fitness principles.

PHED 1300 FITNESS AND CONDITIONING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness. Activities may include, but are not limited to calisthenics and weight training. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1310 FITNESS: BODYBUILDING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in bodybuilding.

PHED 1320 FITNESS: LIFETIME ACTIVITY (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in lifetime activity.

PHED 1330 FITNESS: WEIGHT CONTROL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight control.

PHED 1340 FITNESS: WEIGHT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training.

PHED 1350 FITNESS WEIGHT TRAINING WOMEN (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness for weight training for women.

PHED 1360 FITNESS: WEIGHT TRAINING II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training II.

PHED 1380 KETTLEBELL TRAINING (2) LEC. 1. LAB. 1. Introductory approach to kettlebell techniques and kettlebell program development.

PHED 1390 WEIGHT MANAGEMENT (2) LAB. 2. Nutrition and exercise concepts associated with maintaining healthy weight.

PHED 1400 TEAM SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport. Team sports may include, but are not limited to, volleyball, basketball and softball. Course may be repeated with change in topic.

PHED 1410 TEAM SPORTS: BASKETBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1420 TEAM SPORTS: FLAG FOOTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1430 TEAM SPORTS: SOCCER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1440 TEAM SPORTS: SOFTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1450 TEAM SPORTS: VOLLEYBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1500 INDIVIDUAL SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport. Sports may include, but are not limited to tennis, golf and racquetball. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1510 INDIVIDUAL SPORTS: BOWLING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1520 INDIVIDUAL SPORTS: GOLF (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1530 INDIVIDUAL SPORTS: GOLF II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1550 INDIVIDUAL SPORTS: TENNIS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1600 PERFORMANCE ACTIVITIES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Activities may include, but are not limited to, dance and gymnastics. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1610 PERFORM ACTIVITY - PILATES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1620 PERFORMANCE ACTIVITY: KARATE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Course may be repeated for a maximum of 6 credit hours.

PHED 1630 PERFORMANCE ACTIVITY: TAE KWON DO (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1640 PERFORMANCE ACTIVITY: YOGA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1700 AQUATICS: OTHER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills. Activities may include, but are not limited to, swimming skills instruction, lifeguard training, and scuba diving. When appropriate, successful completion of the course will lead to Red Cross certification or certification by other agencies. Course may be repeated for a maximum of 4 credit hours.

PHED 1710 AQUATICS: WHITEWATER KAYAKING I (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1720 AQUATICS: WHITEWATER KAYAKING II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1740 AQUATICS: LIFEGUARD TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1750 AQUATICS: BEGINNING SWIMMING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1760 AQUATICS: SCUBA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1800 VARSITY SPORTS: STRENGTH AND CONDITION (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topic.

PHED 1810 VARSITY MEN'S SPORTS: FOOTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1820 VARSITY MEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1830 VARSITY MEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1840 VARSITY MEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1850 VARSITY MEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1860 VARSITY MEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1870 VARSITY MEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1880 VARSITY MEN'S SPORTS: BASEBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1900 VARSITY WOMEN'S SPORTS: SOCCER (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1910 VARSITY WOMEN'S SPORTS: GYMNASTICS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1920 VARSITY WOMEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1930 VARSITY WOMEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1940 VARSITY WOMEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1950 VARSITY WOMEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1960 VARSITY WOMEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1970 VARSITY WOMEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1980 VARSITY WOMEN'S SPORTS: SOFTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1990 VARSITY WOMEN'S SPORTS: VOLLEYBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 2100 WHEELCHAIR SPORTS FOR EVERYONE (2) LEC. 2. LAB. 1. A physical education class which introduces students to various wheelchair sports.

PHED 2200 SELF DEFENSE FOR WOMEN (1) LEC. 1. The Rape Aggression Defense (RAD) System is a comprehensive program of realistic self-defense tactics and techniques for women that promotes awareness, prevention, risk reduction and risk avoidance with a progression to hands-on training and simulation exercises.

Physics - PHYS

Courses

PHYS 1000 FOUNDATIONS OF PHYSICS (4) LEC. 3. LAB. 2. Science Core. Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics. Students who have previous credit in any higher-numbered physics course may not receive credit.

PHYS 1001 FOUNDATIONS OF PHYSICS LABORATORY (1) LAB. 2. Coreq. PHYS 1003. Core-curriculum laboratory course in physics focusing on practical applications and hands-on experience. Topics include: Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics.

PHYS 1100 PHYSICS ORIENTATION (1) LEC/SEM. SU. The course will provide incoming Physics majors with an orientation to the Physics program and will develop critical thinking and professional skills that complement academic and research training. Students will be exposed to aspects of physics research through a broad range of topical discussions with the instructor, other faculty and/or outside speakers.

PHYS 1150 ASTRONOMY (4) LEC. 3. LAB. 3. Science Core. Open to non-science majors. Earth, the solar system, stars, neutron stars, black holes, supernova, galaxies, the expanding universe, and modern cosmological theories.

PHYS 1400 PHYSICS FOR AVIATORS (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1150 or MATH 1610 or MATH 1617) and SCMH 1010. Departmental approval. The course provides students with an overview of introductory physics topics such as kinematics, laws of motion, conservation laws, thermodynamics, waves, basic electrical circuits, magnetic fields, and optics essential as a foundation of aviation. The course will specifically utilize examples and problems related to aviation.

PHYS 1500 GENERAL PHYSICS I (4) LEC. 3. LAB. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 1710 or P/C MATH 1720 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation and cosmology, concept of conservation laws, solids and fluids, thermodynamics. Math at level of MATH 1130 or higher is expected. Credit will not be given for both PHYS 1500 and PHYS 1600 or PHYS 1607.

PHYS 1510 GENERAL PHYSICS II (4) LEC. 3. LAB. 3. Pr. PHYS 1500 or PHYS 1600 or PHYS 1607. Science Core. Electricity and magnetism, AC circuits, waves, nuclear physics, radioactivity and particle physics. Physics at the level of PHYS 1500 or higher is expected. Credit will not be given for both PHYS 1510 and PHYS 1610 or PHYS 1617.

PHYS 1600 ENGINEERING PHYSICS I (4) LEC. 3. LAB. 3. Pr. MATH 1610 or MATH 1613 or MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation, cosmology, conservation of energy, momentum and angular momentum, special relativity, and fluids using introductory calculus. Math at the level of MATH 1610 or higher is required as a prerequisite. Credit will not be given for both PHYS 1500 and PHYS 1600 or PHYS 1607.

PHYS 1607 HONORS PHYSICS I (4) LEC. 3. LAB. 3. Pr. Honors College. Science Core. Honors version of PHYS 1600. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1610 or higher is required as a prerequisite. Credit will not be given for both PHYS 1500 and PHYS 1600 or PHYS 1607.

PHYS 1610 ENGINEERING PHYSICS II (4) LEC. 3. LAB. 3. Pr. (PHYS 1600 or PHYS 1607) and (MATH 1620 or MATH 1623 or MATH 1627). Science Core. Thermodynamics, electricity and magnetism, simple AC circuits, waves, and geometric optics. Physics at the level of PHYS 1600 or higher is expected. Math at the level of MATH 1620 or higher is required as a prerequisite. Credit will not be given for both PHYS 1510 and PHYS 1610 or PHYS 1617.

PHYS 1617 HONORS PHYSICS II (4) LEC. 3. LAB. 3. Pr. Honors College. MATH 1620 and PHYS 1600 or PHYS 1607. Science Core. Honors version of PHYS 1610. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1620 or higher is required as a prerequisite. Physics at the level of PHYS 1600 or higher is expected. Credit will not be given for both PHYS 1510 and PHYS 1610 or PHYS 1617.

PHYS 2100 INTERMEDIATE MECHANICS (3) LEC. 3. Pr. (PHYS 1610 or PHYS 1617) and (P/C MATH 2630 or P/C MATH 2637 or P/C MATH 2633). Principles and applications of Newtonian mechanics, noninertial reference frames, harmonic motion, central forces, rigid bodies, introduction to Lagrangian and Hamiltonian mechanics.

PHYS 2200 INTRODUCTORY QUANTUM PHYSICS AND RELATIVITY (3) LEC. 3. Pr. PHYS 1617 or PHYS 1610. Observational foundations of quantum physics, relativity and developments of several branches of physics up to their present frontiers.

PHYS 2300 PHYSICS LABORATORY SKILLS (3) LEC. 1. LAB. 5. Pr. PHYS 1617 or PHYS 1610. The measurement process and its unavoidable uncertainties; standard laboratory instruments; data analysis techniques and tools.

PHYS 2400 MATHEMATICAL AND COMPUTATIONAL METHODS OF PHYSICS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1610 or PHYS 1617). This course introduces students of physics and related fields to mathematical tools and techniques that are needed later in the physics curriculum. Topics include complex numbers, linear algebra, linear and partial differential equations, Fourier series and integrals, and vector calculus with physical application. Students will be introduced to the Python-based computational toolkits to aid in their problem solving.

PHYS 3100 INTERMEDIATE ELECTRICITY AND MAGNETISM (3) LEC. 3. Pr. (PHYS 1617 or PHYS 1610) and (MATH 2630 or MATH 2637 or MATH 2730). Electrostatics, Magnetostatics, Laplace's equation, boundary-value problems, multipole expansions, dielectric and magnetic materials. Faraday's law, AC circuits, and Maxwell's equations.

PHYS 3200 STATISTICAL THERMODYNAMICS (3) LEC. 3. Pr. PHYS 2200. The basic laws of thermodynamics, kinetic theory, and statistical mechanics including entropy, the partition function, free energy, and the quantum statistics of Fermions and Bosons.

PHYS 3500 PHYSICS OF THE WORLD AROUND US (3) LEC. 3. Interdisciplinary topic e.g. Biophysics, Astrophysics, Physics of Weather, Physics of Music, or Environmental Physics. Course may be repeated for a maximum of 12 credit hours.

PHYS 3610 APPLICATIONS OF MODERN PHYSICS (3) LEC. 3. Pr. PHYS 2200. Survey of contemporary subdisciplines in physics and technology that are based on the principles of quantum mechanics such as atomic/molecular physics, statistical mechanics, condensed matter/material science, astrophysics, nuclear physics, and elementary particle physics.

PHYS 3620 OBSERVATIONAL ASTRONOMY (3) LEC. 3. Pr. PHYS 1600 and (MATH 1620 or MATH 1627). This course will introduce students to astronomy from an observational perspective. Students will first learn about astronomical images and data analysis and discuss the physics of the solar system, stars, galaxies, and the universe. As part of the course, students will collect and analyze astronomical data using departmental telescopes and access publicly available data from facilities to demonstrate astrophysical principles.

PHYS 4100 FUNDAMENTALS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 2200 and MATH 2650. Schrodinger equation, stationary and time-dependent solutions, spin and the exclusion principle, perturbation theory, scattering and resonances, the interpretation of quantum mechanics.

PHYS 4200 FUNDAMENTAL EXPERIMENTS IN PHYSICS (3) LEC. 1. LAB. 5. Pr. PHYS 2300. Experiments that demonstrate the fundamental ideas and facts of physics. Data will be collected, analyzed, interpreted and reported in comprehensive lab reports.

PHYS 4930 DIRECTED STUDIES IN PHYSICS (1-5) IND. Departmental approval. Student will study a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours.

PHYS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

PHYS 4980 UNDERGRADUATE RESEARCH IN PHYSICS (1-5) IND. Departmental approval. Student will work under the direction of a faculty member on a problem of mutual interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

PHYS 5100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 4100. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 5200 TEACHING AND LEARNING OF STEM (3) LEC. 3. This course will provide students with a basic knowledge of the relevant research in cognitive psychology and learning science and the ability to apply that knowledge to enhance their ability to learn and teach science, particularly at the undergraduate level. This course will involve readings, discussion, and application of the ideas through the creation of learning activities. It is suitable for advanced undergraduates and graduate students with some science background.

PHYS 5300 OPTICS (3) LEC. 2. LAB. 2. Pr. PHYS 1617 or PHYS 1610. An overview of optics to include geometrical optics, electromagnetic waves, interference of light, diffraction of light, optical detectors, instrumentation and displays.

PHYS 5500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 5600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.

PHYS 5610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 5620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Pr. PHYS 3100. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 5900 PHYSICS TEACHING SEMINAR (1) LEC. 1. LAB. 0. SU. Introduction to issues, resources and best practices related to the teaching of physics. Physics undergraduate student or instructor approval required.

PHYS 6100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 6200 TEACHING AND LEARNING OF STEM (3) LEC. 3. This course will provide students with a basic knowledge of the relevant research in cognitive psychology and science education and the ability to apply that knowledge to enhance their ability to learn and teach science, particularly at the undergraduate level. The course will involve readings, discussion, and application of the ideas through the creation of learning activities. It is suitable for advanced undergraduates and graduate students with some science background. Prerequisite: B.S. in a STEM discipline or 20+ credit hours of STEM coursework.

PHYS 6300 OPTICS (3) LEC. 2. LAB. 2. An overview of optics to include geometrical optics, electromagnetic waves, interference of light, diffraction of light, optical detectors, instrumentation and displays.

PHYS 6500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 6600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.

PHYS 6610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 6620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 6900 PHYSICS TEACHING SEMINAR (1) LEC. 1. LAB. 0. SU. Graduate Students in Physics or Departmental Approval. Introduction to issues, resources and best practices related to the teaching of physics.

PHYS 7100 CLASSICAL MECHANICS (3) LEC. 3. Lagrangian and Hamiltonian formulations of mechanics, canonical transforms. Hamilton-Jacobi theories, action angle variables, rigid rotators, normal modes, and mechanics of continuous media.

PHYS 7200 ELECTRICITY AND MAGNETISM I (3) LEC. 3. Electrostatics, special function expansions, magnetostatics, linear media and Maxwell's equations.

PHYS 7250 ELECTRICITY AND MAGNETISM II (3) LEC. 3. Time dependent Maxwell theory, wave propagation and dispersion, diffraction, scattering, radiation, relativistic covariance and applications.

PHYS 7300 QUANTUM MECHANICS I (3) LEC. 3. Schrodinger wave equation, discrete and continuous spectra, matrix formulation, perturbation theory.

PHYS 7350 QUANTUM MECHANICS II (3) LEC. 3. Time-dependent approximation methods, relativistic wave equations, and second quantization.

PHYS 7400 STATISTICAL PHYSICS (3) LEC. 3. Thermodynamic quantities, equilibrium ensembles for classical and quantum systems, fluctuations, phase transitions and critical phenomena.

PHYS 7850 GRADUATE PHYSICS RESEARCH SEMINAR (1) LEC. 1. LAB. 0. SU. This course is designed to develop and expand incoming graduate student's knowledge and experience with state-of-the-art research as it is done in the Auburn University Department of Physics.

PHYS 7900 DIRECTED STUDIES (1-5) IND. SU. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7930 DIRECTED STUDIES (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7950 PHYSICS COLLOQUIUM (1) SEM. SU. Offers a series of talks presented by invited speakers on broad fields of physics. Check with graduate advisor for credit allowed. Course may be repeated for a maximum of 6 credit hours.

PHYS 7970 SPECIAL TOPICS IN PHYSICS (1-5) SEM. Seminar or lecture series in a rapidly advancing specialty of physics. Course may be repeated for a maximum of 6 credit hours.

PHYS 7990 RESEARCH AND THESIS (1-10) MST. May be repeated as often as is appropriate. Course may be repeated with change in topics.

PHYS 8100 RELATIVISTIC QUANTUM MECHANICS (3) LEC. 3. Dirac equation, 1D barrier scattering, 3D central potentials, S-matrix theory, Feynman diagrams, quantum electrodynamics, renormalization, tree and loop level problems.

PHYS 8200 INTRODUCTION TO ATOMIC PHYSICS (3) LEC. 3. Hydrogen atom, Hartree-Fock theory, radiative transitions, photoionization, autoionization, electron-atom scattering.

PHYS 8600 PLASMA PHYSICS (3) LEC. 3. A detailed study of plasma physics including particle orbit theory, magnetohydrodynamics, plasma waves and transport phenomena.

PHYS 8700 SOLID STATE PHYSICS (3) LEC. 3. Atomic and electronic structures of solids and the associated electical, optical and transport properties.

PHYS 8900 DIRECTED STUDIES (1-5) IND. SU. Students will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8930 DIRECTED STUDIES IN ADVANCED PHYSICS (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8970 SPECIAL TOPICS IN ADVANCED PHYSICS (1-5) LEC. Departmental approval. Topic at the forefront of physics research will be chosen by the lecturer. Course may be repeated for a maximum of 10 credit hours.

PHYS 8990 RESEARCH AND DISSERTATION (1-10) DSR. May be repeated as often as is appropriate. Course may be repeated with change in topics.

Plant Pathology - PLPA

Courses

PLPA 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

PLPA 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH (1-4) IND/RES. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

PLPA 3000 GENERAL PLANT PATHOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Survey of plant diseases common in Alabama, including symptom recognition, pathogen biology and management of plant diseases. Course credit will not be given for both PLPA 3000 and PLPA 3003/3004.

PLPA 4960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-3) IND. Departmental approval. Supervised work on a project in plant pathology. Areas of study are: A. Mycology; B. Nematology; C. Virology; D. Bacteriology; E. Extension and Clinic Experience; F. Physiological and Molecular Approaches. Course may be repeated for a maximum of 3 credit hours.

PLPA 4980 UNDERGRADUATE RESEARCH (1-4) LAB. 2-8. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

PLPA 5050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Pr. PLPA 3000 or PLPA 3003. Approaches, techniques, and practical experience in diagnosis of plant diseases. Credit will not be given for both PLPA 5050 and PLPA 6050. Summer.

PLPA 5200 MYCOLOGY (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems with an emphasis on plant pathogens. Credit will only be given to one of the following: PLPA 5200 or 6200.

PLPA 5250 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 5300 PLANT-BACTERIAL INTERACTIONS (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. Credit will only be given to one of the following: PLPA 5300 or PLPA 6300.

PLPA 5330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

PLPA 5400 PLANT VIROLOGY (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Plant viruses are one of the major pathogens causing problems in plants. This course will cover the fundamentals of plant viruses such as infectious cycle, genome, structure, and evolution. The course will also introduce applied biotechnology based on virus-plant interaction. Credit will only be given to one of the following: PLPA 5400 or PLPA 6400.

PLPA 5500 PLANT NEMATOLOGY (2) LEC. 1. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. Credit will only be given to one of the following: PLPA 5500 or PLPA 6500.

PLPA 5600 MOLECULAR PLANT-MICROBE INTERACTIONS (3) LEC. 3. Pr. BIOL 3000. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances. Introduces biochemical, molecular and cellular mechanisms by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli. Credit will only be given for one of the following courses: PLPA 5600 or PLPA 6600.

PLPA 5700 VECTOR ENTOMOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

PLPA 5800 OMICS IN AGRICULTURE (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 3000 or AGRI 3000. This course will introduce students to the recent advances in high-throughput technologies such as genomics, transcriptomics, metagenomics, metabolomics, phenomics, modeling, and digital agriculture and how these technologies can be applied to tackling new and old problems in agriculture and human health. Students will be able to gain hands-on experience in analyzing and interpreting datasets obtained using these technologies.

PLPA 5820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Pr. STAT 2510. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

PLPA 5920 INTERNSHIP (3) IND. 3. SU. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 6050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Experience with plant disease diagnosis procedures and the diagnosis of many common plant diseases. Summer.

PLPA 6200 MYCOLOGY (2) LEC. 1. LAB. 2. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems with an emphasis on plant pathogens. Graduate level standing or Departmental approval. Credit will only be given to one of the following: PLPA 5200 or PLPA 6200.

PLPA 6250 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. Pr. BIOL 3200. or prior approval of the instructor. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 6300 PLANT-BACTERIAL INTERACTIONS (2) LEC. 1. LAB. 2. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. Credit will only be given to one of the following: PLPA 5300 or PLPA 6300.

PLPA 6330 INTEGRATED PEST MANAGEMENT (3) LEC. 3. Aspects of pest management as a broad-based approach that integrates practices for economic control of pests. May count either ENTM/HORT/PLPA 5330/6330.

PLPA 6400 PLANT VIROLOGY (2) LEC. 1. LAB. 2. Plant viruses are one of the major pathogens causing problems in plants. This course will cover the fundamentals of plant viruses such as infectious cycle, genome, structure, and evolution. The course will also introduce applied biotechnology based on virus-plant interaction. Credit will only be given to one of the following: PLPA 5400 or PLPA 6400.

PLPA 6500 PLANT NEMATOLOGY (2) LEC. 1. LAB. 2. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. Credit will only be given to one of the following: PLPA 5500 or PLPA 6500.

PLPA 6600 MOLECULAR PLANT-MICROBE INTERACTIONS (3) LEC. 3. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances, biochemical, molecular and cellular mechanism by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli. Credit will only be given for one of the following courses: PLPA 5600 or PLPA 6600.

PLPA 6700 VECTOR ENTOMOLOGY (3) LEC. 3. This course is designed to give students an understanding of insect vectors of pathogens. The use of case studies during this course is designed to show real world examples of pathogens which utilize insects as an important part of their lifecycle. May only count one of PLPA/ENTM 5700/6700.

PLPA 6800 OMICS IN AGRICULTURE (3) LEC. 2. LAB. 2. This course will introduce students to the recent advances in high-throughput technologies such as genomics, transcriptomics, metagenomics, metabolomics, phenomics, modeling, and digital agriculture and how these technologies can be applied to tackling new and old problems in agriculture and human health. Students will be able to gain hands-on experience in analyzing and interpreting datasets obtained using these technologies.

PLPA 6820 PRINCIPLES AND TOOLS FOR REPRODUCIBLE SCIENCE IN AGRICULTURE (2) LEC. 2. Reproducibility is fundamental to science. This course will cover basic concepts in scientific reproducibility, accessibility, and organization as it relates to handling large datasets and publishing data workflows.

PLPA 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 7080 FIELD SURVEY OF PLANT PATHOLOGY (3) LEC. 1. LAB. 6. Practical aspects of plant diseases under field conditions, on-site visits via field trips; discussion of experimental design for field research. Summer.

PLPA 7860 PLANT DISEASE EPIDEMIOLOGY (2) LEC. 2. Pr. PLPA 3000. Aspects of plant disease epidemiology including disease assessment and temporal progress, pathogen spread, and yield loss determination.

PLPA 7861 PLANT DISEASE EPIDEMIOLOGY LABORATORY (2) LAB. 4. Coreq. PLPA 7860. Quantitative aspects of plant disease epidemiology including spatial and temporal modeling, and disease system simulation.

PLPA 7880 PLANT MICROBIAL ECOLOGY (3) LEC. 3. LAB. 0. Concepts in ecology of plant-associated microbes and their interactions with plants using molecular approaches.

PLPA 7881 PLANT MICROBIAL ECOLOGY LABORATORY (2) LAB. 4. This course will involve hands-on experience with genomic, metagenomic, transcriptomic datasets. Graduate standing in the College of Agriculture/COSAM.

PLPA 7900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research.

PLPA 7910 TEACHING PRACTICUM (1) LAB. 2. SU. Graduate level standing in PLPA or ENTM or Departmental approval. The teaching practicum will address the practical and heretical issues of laboratory learning and facilitating the skills of pedagogy. Course may be repeated for a maximum of 3 credit hours.

PLPA 7930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 2 credit hours.

PLPA 7950 SEMINAR IN PLANT PATHOLOGY (1) SEM. 1. SU. Departmental approval. Seminar presentations on current departmental research and current issues in plant pathology and related disciplines. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 7960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-4) LAB. 2-8. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

PLPA 7970 SPECIAL TOPICS IN PLANT PATHOLOGY (1-5) ST1. Advanced topics related to plant pathology. Course may be repeated for a maximum of 5 credit hours.

PLPA 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research and thesis on problems in plant pathology. Course may be repeated with change in topics.

PLPA 8880 MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Open discussion and article review on current topics and cutting-edge discoveries in the field of molecular plant pathology, covering the cellular mechanisms of plant interactions with, and immune responses against pathogens.

PLPA 8900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

PLPA 8910 TEACHING PRACTICUM (1) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

PLPA 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

PLPA 8950 SEMINAR (1) SEM. 1. SU. Departmental approval. Presentations and discussion of scientific literature or dissertation research findings. Required for al Ph.D. candidates. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 8960 ADVANCED SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-4) LAB. 2-8. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

PLPA 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research and dissertation on problems in plant pathology. Course may be repeated with change in topics.

Political Science - POLI

Courses

POLI 1050 GLOBAL POLITICS AND ISSUES (3) LEC. 3. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1057 HONORS GLOBAL POLITICS AND ISSUES (3) LEC. 3. Pr. Honors College. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1090 AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the the United States has impacted its politics.

POLI 1097 HONORS AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Pr. Honors College. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the United States has impacted its politics.

POLI 2100 STATE GOVERNMENT AND POLICY (3) LEC. 3. Organization and operation of American state governments, including their relationship to the United States federal system and their role in public policy issues.

POLI 2120 URBANIZATION AND THE CITY (3) LEC. 3. This course introduces students to main themes and problems in the interdisciplinary field of urban studies.

POLI 2300 INTRODUCTION TO THE LEGAL PROFESSION (3) LEC. 3. This course introduces students to various aspects of the legal profession, including its procedural elements, practice areas, and practitioners.

POLI 2310 INTRODUCTION TO LEGAL RESEARCH AND WRITING (3) LEC. 3. Introduction to legal research and writing, including legal databases, legal citation, and basic components of effective legal writing.

POLI 3000 POLITICAL SCIENCE RESEARCH METHODS I (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Introduction to the basic concepts and methodology used in contemporary political analysis.

POLI 3020 INTRODUCTION TO POLITICAL THEORY (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1020 or PHIL 1023 or PHIL 1027. Selected major themes in political thought from ancient to modern times.

POLI 3080 MODEL UNITED NATIONS (3) LEC. 3. This course offers an in-depth analysis of the workings of the United Nations. It involves thorough studies of countries, the veto-power of the Security Council, and prepares students to participate in a Model United Nations exercise.

POLI 3090 INTRODUCTION TO INTERNATIONAL RELATIONS (3) LEC. 3. International relations, including a consideration of the bases of national power and the rudiments of international politics.

POLI 3100 INTRODUCTION TO WORLD AFFAIRS (3) LEC. 3. Contemporary international politics and an evaluation of foreign policy objectives and strategies of seven major countries and how their stability as sovereign states are affected.

POLI 3110 NATIONAL SECURITY LAW (3) LEC. 3. This course provides an overview of the law and historic use of U.S. national security power, with emphasis on constitutional issues, federal statutes, regulations, executive orders, and court decisions.

POLI 3120 INTRODUCTION TO COMPARATIVE POLITICS (3) LEC. 3. Methods of classifying governments by institutional and developmental characteristics.

POLI 3130 INTERNATIONAL AND COMPARATIVE LAW (3) LEC. 3. Examination of international law and different legal systems from around the world.

POLI 3140 AMERICAN FOREIGN POLICY (3) LEC. 3. Analysis of the decision-making process of American foreign policy and/or of selected current issues of American foreign policy.

POLI 3160 NATIONAL SECURITY POLICY (3) LEC. 3. Introduction to national security aspects of United States foreign policy.

POLI 3170 RUSSIAN FOREIGN POLICY (3) LEC. 3. Analysis of the decision-making process of Russian foreign policy and/or of selected current issues of Russian foreign policy.

POLI 3180 LATIN AMERICA AND THE UNITED STATES (3) LEC. 3. Analysis of the political, social, and economics aspects of Latin American-United States relations.

POLI 3190 INTERNATIONAL RELATIONS OF THE MIDDLE EAST (3) LEC. 3. Survey of contemporary issues in international relations, focusing on the Middle East.

POLI 3240 ADMINISTRATION OF JUSTICE (3) LEC. 3. Components of the American legal system responsible for administration of public justice.

POLI 3250 INTRODUCTION TO PUBLIC ADMINISTRATION (3) LEC. 3. Pr. P/C POLI 1090 or P/C POLI 1093 or P/C POLI 1097. Administration in the public sector with particular emphasis on public administration as it exists in modern American government. May count either POLI 3250 or POLI 3253.

POLI 3260 ORGANIZATION THEORY (3) LEC. 3. Pr. POLI 3250. Structure and function of governmental organizations with an emphasis on theories of administrative hierarchies and evaluation of bureaucracy.

POLI 3270 POLICY PROCESS (3) LEC. 3. Formulation and implementation of public policy; the roles of the major governmental institutions in policy-making.

POLI 3290 AMERICAN EXECUTIVE POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Examination of institutions and processes that impact the elections, decisions, and other outcomes of political actors within state and federal executive offices.

POLI 3300 LAW AND SOCIETY (3) LEC. 3. Introduction to how law and legal actors influence and mediate some of the basic conflicts in society.

POLI 3310 THE LEGISLATIVE PROCESS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Principles, procedures, and problems of lawmaking in the United States; special attention to Congress and state legislatures.

POLI 3320 JUDICIAL PROCESS (3) LEC. 3. Basic information about the structure and function of courts and the role of judges in all societies, with a special focus on American.

POLI 3330 MOCK TRIAL COMPETITION COURSE (2) LLB. Departmental approval. Preparation for and competition in national mock trial program, including practical study of rules of evidence and trial procedure used in the American judicial system. The course is restricted to students selected for the Auburn University Mock Trial Team. Students should consult with their academic advisors regarding how course credit is applied toward curriculum requirements in their major. Course may be repeated for a maximum of 12 credit hours.

POLI 3340 INTRODUCTION TO CONFLICT RESOLUTION (3) LEC. 3. Methods of conflict resolution at various levels, from the interpersonal to international.

POLI 3350 CONTROVERSIES IN CONSTITUTIONAL LAW (3) LEC. 3. Origins and influence of controversial Supreme Court decisions, in such areas as religion, free speech, privacy, abortion, and criminal justice.

POLI 3360 FEDERAL JURISDICTION (3) LEC. 3. Introduction to the federal court system and Federal Jurisdiction under Article III.

POLI 3370 FEDERAL INDIAN LAW (3) LEC. 3. Introduction to the federal laws governing and regulating the relationship between tribal nations, on the one hand, and the states and federal governments, on the other.

POLI 3380 EVIDENCE AND LEGAL REASONING (3) LEC. 3. Introduction to the rules governing the presentation of evidence at trial.

POLI 3390 RELIGION AND POLITICS (3) LEC. 3. Interaction of religion with governmental institutions, elections, and public policies.

POLI 3400 POLITICAL PARTIES AND INTEREST GROUPS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Nature, organization and operation of political parties in the United States; suffrage; nominating and electoral processes; importance and nature of interest groups.

POLI 3410 POLITICAL PARTICIPATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Political participation in the traditional and unconventional forms and the developing trends in citizen participation in recent years.

POLI 3430 JUSTICE AND SOCIETY (3) LEC. 3. Historical overview of issues affecting legal policy.

POLI 3450 INTERNATIONAL SECURITY (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. An overview of the most pressing international security problems today through a lens of how states and other international actors respond to and manage such problems.

POLI 3460 INTERNATIONAL CONFLICT RESOLUTION (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Theories and practice on the management and resolution of international and civil conflict.

POLI 3470 INTERNATIONAL ORGANIZATIONS (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Exploration of various theories of international cooperation and of a wide-range of specific international organizations at the global level (the United Nations system, the World Trade Organization) and at the regional level (like the European Union), with an eye toward insight into the benefits and limitations of international organizations in global politics.

POLI 3510 THE EUROPEAN UNION (3) LEC. 3. Analysis of the complex mixture of historical, economic, and cultural phenomena that comprise the European Union.

POLI 3520 COMPARATIVE POLITICS OF THE MIDDLE EAST (3) LEC. 3. Domestic politics in the states of the Middle East.

POLI 3540 EAST EUROPEAN POLITICS (3) LEC. 3. Survey and analysis of evolving political institutions and policies in eastern and central Europe under Communism and in the post-Communism period.

POLI 3550 GOVERNMENT AND POLITICS OF LATIN AMERICA (3) LEC. 3. Political environment, institutions and processes of Latin America, emphasizing factors that influence the degree of democracy and authoritarianism, stability and instability, and political development.

POLI 3560 THE ARAB SPRING (3) LEC. 3. Examination of the Arab Uprising that began in Tunisia in 2010 and spread to the rest of the region.

POLI 3570 WOMEN AND GLOBAL POLITICS (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Exploration of women and political representation, including why political representation matters, theories of substantive and descriptive representation, political institutions that facilitate or hinder the electoral success of women and other marginalized groups, and the unique strengths and obstacles to women participating in the political process as candidates, constituents, and office holders.

POLI 3580 POLITICS AND CULTURE (3) LEC. 3. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Analyzes the relationship between politics and culture, both historically and contemporarily. Specific attention is paid to how culture is defined, the politicization of culture, how political activity and behavior are shaped by culturally-specific symbols and meaning, and how culture shapes our understanding of concepts such as the economy, states, class, political participation and social movements.

POLI 3590 THE POLITICS OF NATO (3) AAB. This course is designed to familiarize students with the basic theoretical and practical approaches to understanding the national security and foreign policy components of the relationship between the United States and its allies along the Atlantic Ocean.

POLI 3610 ASIAN POLITICS (3) LEC. 3. Politics of the leading nations in East Asia with major attention being devoted to China, Japan, North and South Korea, and Taiwan.

POLI 3670 POLITICAL ECONOMY (3) LEC. 3. Pr. POLI 1090. Examination of normative issues in political-economic systems. Fulfills political theory requirement.

POLI 3680 ENVIRONMENTAL POLICY (3) SEM. 3. This course covers federal, state, and local environmental policy-making and governance. It discusses how planners, policy-makers, and government officials implement existing environmental policies, how environmental policies are created, theories of environmental policy, and new and emerging methods of environmental policy.

POLI 3710 ISSUES IN AMERICAN POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Topics in American politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3720 ISSUES IN COMPARATIVE POLITICS (3) LEC. 3. Topics in comparative politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3730 ISSUES IN INTERNATIONAL RELATIONS (3) LEC. 3. Topics in international relations. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3750 ISSUES IN PUBLIC ADMINISTRATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Topics in public administration. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3760 ISSUES IN PUBLIC POLICY (3) LEC. 3. Topics in public policy. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3770 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (3) LEC. 3. Topics in public law and conflict resolution. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours

POLI 3800 PROFESSIONAL LEGAL ETHICS (3) LEC. 3. This course focuses on legal ethics as prescribed within the American professional legal community.

POLI 3810 INTRODUCTION TO TORTS (3) LEC. 3. This course surveys legal doctrines governing responsibility and compensation for civil wrongs that people do to each other (car accidents, medical malpractice, etc.).

POLI 3980 UNDERGRADUATE RESEARCH (1-3) LAB. Pr. POLI 3000. Supplementary learning concurrent with experience political science research. May be repeated twice, with change of topic. Course may be repeated for a maximum of 6 credit hours.

POLI 4000 TRIAL ADVOCACY (3) LEC. 3. This course focuses on trial advocacy in the United States and the constitutional, statutory, and procedural rules that govern it. The course also helps students develop the oral, written, and organizational skills needed to conduct a trial.

POLI 4010 CONSTITUTIONAL LAW: GOVERNMENT POWERS (3) LEC. 3. Constitutional law cases dealing with separation of powers, federalism, and elections.

POLI 4020 CONSTITUTIONAL LAW: CIVIL LIBERTIES (3) LEC. 3. Constitutional law cases dealing with First Amendment freedoms of religion, speech, press, assembly, and association.

POLI 4030 CONSTITUTIONAL LAW: CIVIL RIGHTS (3) LEC. 3. Supreme Court opinions defining gender discrimination, race discrimination, age discrimination, affirmative action, and such right to privacy issues as abortion, marriage, and physician-assisted suicide.

POLI 4040 CONSTITUTIONAL LAW: CRIMINAL JUSTICE (3) LEC. 3. Supreme Court rulings of Fourth, Fifth, Sixth, and Eighth Amendments to the United States Constitution.

POLI 4050 AMERICAN LOCAL GOVERNMENT (3) LEC. 3. Pr. POLI 2100. Structure of local government, the roles and incentives of key elected and appointed officials, and the policy issues faced by those officials.

POLI 4060 ADVANCED LEGAL RESEARCH AND WRITING (3) LEC. 3. Pr. POLI 2310. An advanced approach to case law and statutes, legal research and bibliography, legal analysis, writing legal memoranda, and writing for readability.

POLI 4140 PUBLIC FINANCE (3) LEC. 3. Pr. POLI 3250. Theory and practice of public finance, with an emphasis on applications in state and local government.

POLI 4160 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Pr. POLI 3250. Responsibilities, challenges, and opportunities that confront modern public administration in the management of human resources.

POLI 4200 CAMPAIGNS AND ELECTIONS (3) LEC. 3. Pr. POLI 1090 or POLI 1093. Examination of the theory and methods of studying elections and general election campaigns, as well as corresponding structural rules, in the United States.

POLI 4340 CONTEMPORARY POLITICAL THEORY (3) LEC. 3. Pr. POLI 3020 or PHIL 1050 or PHIL 1053. Survey of late 20th- and early 21st- century political philosophies, including neo-classicist, post-modernist, communitarian, and critical theories.

POLI 4710 NATIONALISM AND ETHNIC CONFLICT (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. This course surveys the politics of ethnicity and nationalism and their effect on conflicts around the globe.

POLI 4720 STRATEGIC INTELLIGENCE (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1090 or POLI 1093. Examination of the US Intelligence Community and its role in the collection and analysis of intelligence, how this intelligence is used by policymakers in pursuit of national security, and oversight of these powers to prevent abuses.

POLI 4730 ADVANCED POLITICAL SIMULATIONS (3) LEC. 2.5. Pr. POLI 1050 or POLI 1053 or POLI 1057 or POLI 1090 or POLI 1093 or POLI 1097. Exploration of core international relations concepts and processes through the team-based design and execution of a variety of advanced political simulations, games, and/or role-playing activities.

POLI 4740 COMPARATIVE CIVIL-MILITARY RELATIONS (3) LEC. Pr. POLI 1050 or POLI 1057. In-depth examination of the role of the military in different political systems and how governments control and manage relations with their militaries. Topics include the military in democracy, comparative military effectiveness, the military and regime transitions, and in-depth examinations of militaries and their roles in politics in historical great powers.

POLI 4890 LAWJ INTERNSHIP PREPARATION (1) LEC. 1. Pr. POLI 2300. This course prepares students for their Law and Justice internship. Students will learn how to bring the skills they have developed in the classroom into their internship. Pre-requisite for all LAWJ students taking POLI 4920.

POLI 4920 INTERNSHIP (1-6) AAB/INT. SU. Internship in selected areas of political science. Course may be repeated for a maximum of 6 credit hours.

POLI 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. POLI 1090 or POLI 1093 or POLI 1097. Directed study course in political science that allows students to explore concepts not covered in other courses. Course may be repeated with a change in topic. Course may be repeated with change in topics.

POLI 4940 LAW & JUSTICE INTERNSHIP (3-6) INT. SU. Pr. POLI 2300 and POLI 2310. Departmental approval. Law & Justice (LAWJ-BA) major only. Internship in a law-related setting. 3.0 major GPA required. Course may be repeated for a maximum of 6 credit hours.

POLI 4960 SPECIAL PROBLEMS (1-3) IND. Examination of a specific problem in political science, including topics such as American policies, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topic.

POLI 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 4997 HONORS THESIS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Course may be repeated for a maximum of 6 credit hours.

POLI 5150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 5160 RESILIENCY FOR PUBLIC AND NONPROFIT INSTITUTIONS: CONCEPTS AND METHODS (3) LEC. 3. This course is an introduction to theories, concepts, and methods of improving resiliency in nonprofit and public institutions. The course first covers the underlying vulnerabilities to which we apply resiliency and the broad theories and frameworks of resiliency from multiple perspectives. Next, the class covers methods of analyzing the resiliency of nonprofit and public institutions. Finally, the course covers how to apply the outcomes of resiliency analysis in public and nonprofit settings.

POLI 5170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not given for both POLI 5170 and POLI 6170.

POLI 5180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule-making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 5210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 5210 and POLI 6210.

POLI 5270 ELECTION ADMINISTRATION (3) LEC. 3. Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.

POLI 5280 ELECTION ADMINISTRATION REFORM POLICY (3) LEC. 3. Pr. POLI 1090 or POLI 1093. This course provides an advanced undergraduate-level introduction to current election administration reforms through policy and regulation at the national, state and local levels. Credit will not be given for both POLI 5280 and POLI 6280.

POLI 5340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Theoretical and comparative perspectives on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 5340 and POLI 6340.

POLI 5350 NONPROFIT LAW AND GOVERNANCE (3) LEC. 3. Introduction to the legal principles that apply to the governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 5360 NONPROFIT RESOURCE DEVELOPMENT (3) LEC. 3. Examination of important aspects of the fundraising process as carried out by nonprofit organizations.

POLI 5370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370, POLI 5373, and POLI 6370.

POLI 5380 INGOS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 3. Examines the size, scope, and role of global civil society, emphasizing organizations active in international development: grassroots NGOs, international nonprofits, and transnational aid agencies. Covers innovations in global philanthropy, and opportunities and challenges faced by global civil society.

POLI 5390 NGOS AND INTERNATIONAL DEVELOPMENT (3) LEC. 3. Examination of theories of development and practical strategies and approaches that NGO development practitioners take to improve the likelihood of development in the future.

POLI 5410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and government of the southern region of the United States. Credit will not be given for both POLI 5410 and POLI 6410.

POLI 5470 COMPARATIVE ELECTION ADMINISTRATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093. This course focuses on comparative election administration systems and electoral structures in western democracies and other countries that use elections in the selection of leaders and policy determinations. Credit will not be given for both POLI 5470 and POLI 6470.

POLI 5480 INFORMATION SECURITY AND RISK MANAGEMENT (3) LEC. 3. Pr. POLI 1090 or POLI 1093. Exploration of the concepts of information in public administration including the idea of public information, risk management and security. Credit will not be given for both POLI 5480 and POLI 6480.

POLI 5490 SURVEY RESEARCH METHODS (3) LEC. 3. Pr. POLI 3000. Examination of theoretical models of survey responses, as well as common approaches and best practices to survey design, recruitment, and analysis.

POLI 5510 ISSUES IN AMERICAN POLITICS (1-3) DSL/LEC. Pr. POLI 1090 or POLI 1093 or POLI 1097. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 5530 ISSUES IN INTERNATIONAL RELATIONS (1-3) AAB/LEC. Topics in international relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and POLI 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 5540 ISSUES IN POLITICAL THEORY (1-3) DSL/LEC. Topics in political theory. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and POLI 6540. Course may be repeated for a maximum of 6 credit hours.

POLI 5550 ISSUES IN PUBLIC ADMINISTRATION (1-3) DSL/LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 5560 ISSUES IN PUBLIC POLICY (1-3) DSL/LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 5570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) DSL/LEC. Topics in public law and conflict resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 5580 ISSUES IN POLITICAL METHODOLOGY (3) LEC. 3. Pr. POLI 3000. Topics in political methodology. Focus will vary according to the instructor. Credit will not be given for both POLI 5580 and POLI 6580. Course may be repeated for a maximum of 6 credit hours.

POLI 5610 WOMEN IN POLITICS (3) LEC. 3. Examination of the political role of women in American society. Credit will not be given for both POLI 5610 and POLI 6610.

POLI 5710 PERSIAN GULF POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097. Examination of the politics of the Persian Gulf. Credit will not be given for both POLI 5710 and POLI 6710.

POLI 6150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Graduate level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes, and emerging issues.

POLI 6160 RESILIENCY FOR PUBLIC AND NONPROFIT INSTITUTIONS: CONCEPTS AND METHODS (3) LEC. 3. This course is an introduction to theories, concepts, and methods of improving resiliency in nonprofit and public institutions.

POLI 6170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.

POLI 6180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 6210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 6210 and POLI 5210.

POLI 6270 SEMINAR IN ELECTION ADMINISTRATION (3) LEC. 3. This course provides a graduate-level introduction to election administration and the roles of, and relationships between American local, state, and federal governments.

POLI 6280 ELECTION ADMINISTRATION REFORM POLICY (3) LEC. 3. This course provides a graduate-level introduction to current election administration reforms through policy and regulation at the national, state and local levels.

POLI 6340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Theoretical and comparative perspective on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 6340 and POLI 5340.

POLI 6350 NONPROFIT LAW AND GOVERNANCE (3) LEC. 3. Introduction to the legal principles that apply to the formation, governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 6360 NONPROFIT RESOURCE DEVELOPMENT (3) LEC. 3. This course examines the important aspects of the fundraising process as carried out by nonprofit organizations—its value base, preparation of the case, implementation of relevant strategies and techniques, assessment of potential sources of support, utilization of human resources, and overall process management. The course will include theory to undergird practice, examination and analysis of current practice, proposal of practice standards, and discussion of ethical problems.

POLI 6370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370 and POLI 6370.

POLI 6380 INGOS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 3. Examines the size, scope, and role of global civil society outside of the US, with an emphasis on organizations active in international development, including international nonprofits, transnational aid agencies, and unilateral aid.

POLI 6390 NGOS AND INTERNATIONAL DEVELOPMENT (3) LEC. 3. This course combines theories of development, and academic and practitioner research on development, with practical strategies and approaches that NGO development practitioners have, can or should take to improve the likelihood of development in the future. It is intended to provide an overview of past and current approaches to development, which will help students develop knowledge and skills needed for a career in international development. The following questions form the basis of inquiry for this course: When we say “development” in the international context, what do we mean? How can we measure development? How have countries developed in the past, and what strategies can under-developed countries take to increase their level of political and economic development? How have our collective views on “how development happens” changed over time, and where do they stand currently? What role do donors, aid, and NGOs play in development? What do NGO development practitioners need to know in order to do their jobs well? Graduate students only, unless student is enrolled in the MPA's ABM program.

POLI 6410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and to a lesser extent government of the southern region of the United States. Credit will not be given for POLI 5410 and POLI 6410.

POLI 6470 COMPARATIVE ELECTION ADMINISTRATION (3) LEC. 3. This course focuses on comparative election administration systems and electoral structures in western democracies and other countries that use elections in the selection of leaders and policy determinations.

POLI 6480 INFORMATION SECURITY AND RISK MANAGEMENT (3) LEC. 3. Exploration of the concepts of information in public administration including the idea of public information, risk management and security. Credit will not be given for both POLI 5480 and POLI 6480.

POLI 6490 SURVEY RESEARCH METHODS (3) LEC. 3. Pr. POLI 7000. Examination of theoretical models of survey responses, as well as common approaches and best practices to survey design, recruitment, and analysis.

POLI 6510 ISSUES IN AMERICAN POLITICS (1-3) DSL/LEC. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 6520 ISSUES IN COMPARATIVE POLITICS (1-3) DSL/LEC. Topics in comparative politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and POLI 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 6550 ISSUES IN PUBLIC ADMINISTRATION (1-3) DSL/LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 6560 ISSUES IN PUBLIC POLICY (1-3) DSL/LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 6580 ISSUES IN POLITICAL METHODOLOGY (3) LEC. 3. Pr. POLI 7000. Topics in political methodology. Focus will vary according to the instructor. Credit will not be given for both POLI 5580 and POLI 6580. Course may be repeated for a maximum of 6 credit hours.

POLI 6610 WOMEN IN POLITICS (3) LEC. 3. A theoretical, historical, social, and political examination of the role of women in American society. Credit will not be given for both POLI 6610 and POLI 5610.

POLI 7000 RESEARCH METHODS FOR PUBLIC AND NONPROFIT ORGANIZATIONS (3) LEC. 3. Statistics and other quantitative techniques for the analysis of policy and for administrative decision making.

POLI 7050 STATE POLITICS (3) LEC. 3. Current and classical research on state government, politics, and policy. Students critique others' research and design their own for submission to a professional journal.

POLI 7140 FINANCIAL MANAGEMENT FOR PUBLIC AND NONPROFIT ORGANIZATIONS (3) LEC. 3. This course is designed to introduce both practical and theoretical principles utilized in public financial management.

POLI 7150 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Personnel policies, processes, and politics in American governments, including history, theory, and practice.

POLI 7160 FINANCIAL ADMINISTRATION (3) LEC. 3. Application of macroeconomic theory to public finance, with emphasis on capital budgeting, taxation, user charges, debt administration, cash management, and investment for small governments.

POLI 7260 ORGANIZATIONAL THEORY AND ADMINISTRATIVE BEHAVIOR (3) LEC. 3. Structure and functioning of government organizations, with an emphasis on applied management and on leadership techniques.

POLI 7330 SEMINAR IN ADMINISTRATIVE LEADERSHIP, RESPONSIBILITY, AND DEMOCRATIC GOVERNMENT (3) SEM. 3. Problems and ethics, democratic theory and leadership as they relate to public administration.

POLI 7350 FOUNDATIONS OF PUBLIC ADMINISTRATION AND PUBLIC SERVICE (3) SEM. 3. Introduction to public administration as practiced in the United States.

POLI 7360 FOUNDATIONS OF PUBLIC POLICY (3) DSL/SEM. 3. Formation, execution, and evaluation of public policy and an in-depth analysis of selected policy areas.

POLI 7520 PROGRAM EVALUATION (3) LEC. 3. This course provides a graduate-level focus on the theory and practice of program evaluation in the public sector with attention to program planning, process assessment, and impact assessment.

POLI 7630 DIVERSITY IN PUBLIC LIFE (3) LEC. 3. Developing and institutionalizing diversity in complex public organizations as a major part of organizational culture.

POLI 7700 ECONOMIC DEVELOPMENT AND COMPETITION (3) LEC. 3. Politics of economic development at the local, state, and national levels, especially the infrastructure offered by communities and the types of plans that might attract outside investment.

POLI 7920 MPA INTERNSHIP (3-6) DSL/INT. SU. Administrative experience in a governmental agency or nonprofit organization or participation in an approved public sector research or applied project. Course may be repeated for a maximum of 6 credit hours.

POLI 7930 MPA RESEARCH PROJECT (3-6) DSL/IND. SU. Completion and approval of a paper related to a policy or administrative issue or problem. Course may be repeated for a maximum of 6 credit hours.

POLI 7960 SPECIAL PROBLEMS (1-3) DSL/IND. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 7970 SPECIAL TOPICS (1-3) LEC. Selected topics in Political Science: 1) American Politics;2) Comparative Politics; 3) International Relations; 4)Political Theory; 5)Public Administration; 6) Public Policy; 7) Public Law; 8) Methodology. Credit will not be given for both POLI 7970 and POLI 4970. Course may be repeated with change in topics.

POLI 7AA0 MPA EPORTFOLIO (0) PR1. SU. The completion of an ePortfolio is required for all students in the Master of Public Administration (MPA) program. The ePortfolio is completed during the final semester of the MPA program. Course may be repeated for a maximum of 10 credit hours.

POLI 7AA1 INTENSIVE ECONOMIC DEVELOPMENT TRAINING COURSE (0) PR1. SU. The completion of week one of the Government and Economic Development Institute (GEDI) Intensive Economic Development Training Course is required for the completion of the Graduate Certificate in Economic Development. The intensive introduces students to all phases of economic development and provides an overview of economic development tools and principles. Course may be repeated with change in topics.

POLI 8000 DOCTORAL SEMINAR IN PUBLIC ADMINISTRATION (3) LEC. 3. Nature of public administration as a field of study and different theoretical perspectives as reflected in current research.

POLI 8010 RESEARCH DESIGN AND ANALYSIS (3) LEC. 3. Development and testing of causal models in political and social science. Students will develop a complex research design under the close supervision of the instructor.

POLI 8020 DOCTORAL SEMINAR IN PUBLIC POLICY (3) SEM. 3. Advanced study of the nature of public policy development and implementation.

POLI 8120 QUALITATIVE RESEARCH METHODS (3) SEM. 3. In-depth analysis of the use of qualitative methods in political science research.

POLI 8130 QUANTITATIVE METHODS (3) LEC. 3. Pr. POLI 8110. In-depth analysis of the use of quantitative methods in political science research.

POLI 8210 SEMINAR IN PROFESSIONAL DEVELOPMENT PART 1 (1) LEC. 1. Departmental approval. This course is the first of a two-part series of classes designed to introduce doctoral students to the academic profession and to provide them with experiences that reflect the types of tasks they will be required to carry out in a research position.

POLI 8220 SEMINAR IN PROFESSIONAL DEVELOPMENT PART 2 (2) LEC. 2. Pr. POLI 8210. Departmental approval. This course is the second in a two-part series of classes designed to introduce doctoral students to the academic profession and to provide them with experiences that reflect the types of tasks they will be required to carry out in a research position.

POLI 8450 COMPARATIVE POLITICS AND PUBLIC POLICY (3) LEC. 3. Theoretical approaches and important sub-field literatures. Applies insights and approaches to solving practical contemporary problems in public policy.

POLI 8650 POLITICAL THEORY AND PUBLIC POLICY (3) LEC. 3. Study of political theory in relation to issues of public policy.

POLI 8970 SPECIAL TOPICS (3) LEC. 3. Directed study of topics of interest. Course may be repeated for a maximum of 9 credit hours.

POLI 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Research related to writing the dissertation. Course may be repeated with change in topics.

Polymer & Fiber Engineering - PFEN

Courses

PFEN 2270 INTRODUCTION TO ENGINEERED FIBROUS MATERIALS (4) LEC. 4. Pr. ENGR 1110 or ENGR 1113. The fundamentals of chemistry and engineering applied to fibrous assemblies illustrated using the properties required by end-use. Topics will include biomedical materials, architectural applications cables, ropes, and tethers, composite materials, filtration fabrics, ballistic protection, and health-care products.

PFEN 3100 FUNDAMENTALS OF POLYMERS (3) LEC. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Fundamentals of polymers: terminology, synthesis, structure, molecular weight, transitions of state, structure and uses.

PFEN 3400 FUNDAMENTALS OF COLORATION (4) LEC. 3. LAB. 3. Pr. PFEN 3100. Fundamentals of aqueous chemistry, interfacial processes, interactions of chemicals and fibrous/polymeric materials, color perception and coloration of fiber/polymers.

PFEN 3500 STRUCTURE AND PROPERTIES OF POLYMERS AND FIBERS (3) LEC. 3. Pr. PFEN 3100. Exploration of the relationships between the chemical structure, properties and uses of polymers and fibers. Emphasis on the importance of judicious material selection for particular end use applications. Spring.

PFEN 4100 POLYMER CHARACTERIZATION (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (CHEM 2080 or CHEM 2087) and PFEN 3500. Study of the major techniques for the physical characterization of polymers. Topics to be covered include molecular weight determination, spectroscopy (light, vibrational, nuclear magnetic resonance, electron spin resonance), X-ray diffraction, microscopy (light, electron), optical methods, and thermal analysis.

PFEN 4300 ENGINEERED FIBROUS STRUCTURES (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Design and applications of high performance industrial fibrous structures for civil engineering, architecture and construction, filtration, medical, military and defense, pulp and paper industry, safety and protection, sports and recreation, transportation, agriculture and other industries. Fall.

PFEN 4400 MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and PFEN 2270. Analysis of mechanical behavior and physical properties of flexible structures such as fibers, yarns and fabrics.

PFEN 4500 FIBER REINFORCED MATERIALS (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and MATH 2660 and PFEN 2270. Material properties and manufacture of fiber reinforced materials; perform structures such as weaves and braids, analysis, design methodology and applications. Spring.

PFEN 4810 POLYMER AND FIBER ENGINEERING DESIGN I (3) LEC. 3, IND/LEC. 2. Pr. PFEN 3500. Departmental approval. Tools and skills needed to conduct an engineering design project.

PFEN 4820 POLYMER AND FIBER ENGINEERING DESIGN II (3) IND. 3. Undergraduate senior design project, second semester.

PFEN 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Reading course with varying emphasis to give opportunity for overview in specific areas of engineering and technology. Course may be repeated for a maximum of 12 credit hours.

PFEN 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Honors Thesis is a project-based course and may be presented in form of a written report or a conference-style presentation. Course may be repeated for a maximum of 6 credit hours.

PFEN 5200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and PFEN 6200.

PFEN 5300 RHEOLOGY (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and ENGR 2200 or MECH 3030. Departmental approval. Covers the most important aspects of elementary modern rheology, including elastic solids, viscoelastic behavior of polymeric systems, composite systems, concentrated solutions and suspension rheology.

PFEN 5510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, polymer characterizations, polymer classes, solubility and swelling, and structure/property relationships.

PFEN 6200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Departmental approval. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and FPFEN 6200.

PFEN 6250 ADVANCED ENGINEERING FIBROUS STRUCTURES (3) LEC. 3. Pr. PFEN 4300. Departmental approval. Application of advanced technology to the design, development and analysis of high performance industrial textiles.

PFEN 6510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, characterizations, classes, solubility and swelling, and structure/property relationships.

PFEN 7310 STRUCTURE AND PROPERTIES OF POLYMERS (4) LEC. 3. LAB. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. The inter-relationships between chemical structure of a polymer, polymer properties and uses. Plastics, elastomers and fibers-synthesis and property requirements.

PFEN 7620 ADVANCED MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. PFEN 4400. Recent advances in modeling and analysis of mechanical behavior of flexible structures. Spring.

PFEN 7700 ADVANCED METHODS IN POLYMER CHARACTERIZATION (4) LEC. 4. LAB. 3. Pr. PFEN 6510. Departmental approval. Important aspects and methods in polymer characterization.

PFEN 7770 INTRODUCTION TO CONDUCTING POLYMERS (3) LEC. 3. Pr. PFEN 6510. This "Introduction of Conducting Polymers" course covers the most up to date research and applications in the areas of conducting polymers. This course provides extensive background on: mechanism of electrical conductivity of conducting polymers, classification of conducting polymers, potential applications of conducting polymers, and recent advance of the researches in the fields of conducting polymers. For example, organic solar cells, and organic light emitting diodes.

PFEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Presentation of departmental research; practicing written and oral communication skills. Course may be repeated with change in topic. Fall.

PFEN 7960 SPECIAL PROBLEMS AND FIBER ENGINEERING (1-3) IND. Specialized project research with varying emphasis in particular areas of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7970 SPECIAL TOPICS (3) LEC. 3. Analysis of current issues in the area of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7980 GRADUATE PROJECT (1-3) IND. In-depth work in a particular project in polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Required of all students seeking an advanced degree in the department. Course may be repeated with change in topics.

PFEN 8990 RESEARCH AND DISSERTATION (1-10) DSR. PhD Research and Dissertation. Course may be repeated with change in topics.

Poultry Science - POUL

Courses

POUL 1000 INTRODUCTORY POULTRY SCIENCE (3) LEC. 3. Introduction to the poultry species and their commercial production, physiology, nutrition, and management.

POUL 2000 POULTRY AND EGG EVALUATION AND SELECTION (1) LAB. 1. A hands-on approach to poultry and egg evaluation based on the U.S. poultry and Egg guidelines and how to properly care for and handle the birds. Spring and Fall. Course may be repeated for a maximum of 4 credit hours.

POUL 2100 PROFESSIONAL DEVELOPMENT FOR ANIMAL AGRICULTURE, PRODUCTION, PROCESSING & FEED INDUSTRIES (1) LEC. 1. Development of professional skills and career preparation for students in animal agriculture.

POUL 3030 COMMERCIAL POULTRY PRODUCTION (4) LEC. 3. LAB. 3. The organization and management principles of the commercial poultry meat and egg production industries. Fall.

POUL 3060 POULTRY REPRODUCTION (3) LEC. 2. LAB. 2. Pr. POUL 3030. This course explores the reproductive physiology and endocrinology of poultry species, emphasizing genetics and management strategies impacting production, fertility, and hatchability in the industry. Students will also learn hatchery management and embryonic development of the chick.

POUL 3150 POULTRY PHYSIOLOGY (4) LEC. 3. LAB. 3. The physiological principles and anatomical characteristics of poultry species which directly interact with commercial management systems. Spring.

POUL 4920 POULTRY SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the poultry industry. Course may be repeated for a maximum of 9 credit hours.

POUL 4960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. 2.5 GPA or departmental approval. Individual or group projects with a faculty member in poultry science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

POUL 4970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Departmental approval. Instruction and discussion of selected current topics in poultry science. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

POUL 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

POUL 5020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 6020 or POUL 5020.

POUL 5030 ADVANCED COMMERCIAL POULTRY PRODUCTION (3) LEC. 3. Pr. POUL 3030 and POUL 3150 and POUL 5050 and POUL 5110. The course covers the major principles of the integrated poultry industry, including the interactions and interrelationships between business segments in the poultry industry.

POUL 5050 POULTRY FEEDING (3) LEC. 3. Pr. ANSC 3410. The application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 and POUL 6050.

POUL 5070 ANIMAL WELFARE (3) LEC. 3. Pr. (POUL 1000 or ANSC 1000) and (POUL 3150 or ANSC 3600). This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, wildlife, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

POUL 5080 POULTRY HEALTH (3) LEC. 3. Pr. BIOL 3200 and POUL 3150. Study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. May count either POUL 5080 or POUL 6080.

POUL 5110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Pr. POUL 3030 and (CHEM 1110 or CHEM 1030). The course focuses on poultry processing and related aspects. Students will learn the effects of live production, feed withdrawal and haul on poultry processing and quality as well as pre- and post-harvest food safety, USDA regulations, Halal and Kosher standards. May count either POUL 5110 or POUL 6110.

POUL 5140 POULTRY FURTHER PROCESSING AND PRODUCTS (3) LEC. 2. LAB. 3. Pr. CHEM 1110 or CHEM 1030. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. May count either POUL 5140 or POUL 6140.

POUL 5160 PRINCIPLES OF FOOD SAFETY (3) LEC. 3. Pr. BIOL 3200. Study of the identification and control of physical, chemical, and microbiological hazards in the food industry. Introduction to Hazard Analysis and Critical Control Points (HACCP). May count either POUL 5160 or POUL 6160.

POUL 6020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 5020 or POUL 6020.

POUL 6030 ADVANCED COMMERCIAL POULTRY PRODUCTION (3) LEC. 3. The course covers the major principles of the integrated poultry industry, including the interactions and interrelationships between business segments in the poultry industry. Graduate student standing.

POUL 6050 ADVANCED POULTRY FEEDING (3) LEC. 3. An advanced study and review of the literature on the application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 or POUL 6050.

POUL 6070 ANIMAL WELFARE (3) LEC. 3. This course covers the key principles and application of animal welfare, and concepts will be applied to livestock, companion animals, wildlife, animals in research, and animals in entertainment. May count either POUL/ANSC 5070 or POUL/ANSC 6070.

POUL 6080 ADVANCED POULTRY HEALTH (3) LEC. 3. Departmental approval. An advanced study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. May count either POUL 5080 or POUL 6080.

POUL 6110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Students will acquire strong knowledge on each step of poultry processing from hanging to chilling and transportation. The course will cover topics on food safety (pre- and post-harvest), spoilage, antimicrobial interventions, USDA regulations as well as Halal and Kosher standards. May count either POUL 5110 or POUL 6110.

POUL 6140 POULTRY FURTHER PROCESSING AND PRODUCTS (3) LEC. 2. LAB. 3. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. May count either POUL 5140 or POUL 6140.

POUL 6160 ADVANCED PRINCIPLES OF FOOD SAFETY (3) LEC. 3. Advanced study of the identification and control of physical, chemical, and microbiological hazards in the food industry. Introduction to Hazard Analysis and Critical Control Points (HACCP). May count either POUL 5160 or POUL 6160.

POUL 7100 SUPERVISED INVESTIGATION (1-4) IND. Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either FDSC 7950 or POUL 7950. Course may be repeated for a maximum of 3 credit hours.

POUL 7960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. Critical analysis of classic and current research in poultry science, including literary research and/or data analysis. Course may be repeated for a maximum of 6 credit hours.

POUL 7970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Instruction and discussion of current advanced topics associated with poultry science. Course may be repeated for a maximum of 8 credit hours.

POUL 7980 NON-THESIS RESEARCH (1-4) RES. Departmental approval. enrolled as POUL MAg student. Research conducted as part of the Master of Agricultural degree.

POUL 7990 RESEARCH AND THESIS (1-10) MST. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

POUL 8100 GI SYSTEMS AND NUTRIENT UTILIZATION (3) LEC. 3. Pr. POUL 5050. Structure of feedstuffs and strategy in nutrient recovery from the gastrointestinal systems of fowl, swine, and ruminants.

POUL 8960 SPECIAL PROBLEMS (1-4) IND. A) Nutrition, B) Physiology, C) Health, D) Microbiology, E) Processing, F) Product Safety and Quality, G) Teaching, H) Immunonutrition. Course may be repeated with change in topic. Departmental approval.

POUL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

Psychology - PSYC

Courses

PSYC 1010 NEUROSCIENCE SUCCESS STRATEGIES (2) LEC. 2. Introduction to the neuroscience major for new majors. Required of all majors and must be taken in the first year as a neuroscience major. Topics covered will be an overview of the neuroscience curriculum, course selection, faculty introduction, faculty expectations, student assessment, research opportunities, career planning and professional development, critical thinking, diversity, and ethics.

PSYC 2010 INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology. May count either PSYC 2010 or PSYC 2013.

PSYC 2017 HONORS INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Pr. Honors College. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology.

PSYC 2020 ORIENTATION TO PSYCHOLOGY MAJOR (1) LEC. 1. SU. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Orientation to the psychology major. Overview and design of psychology curriculum, faculty introduction, faculty expectations, student assessment, career development, study skills, diversity, and ethics.

PSYC 2130 ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. (MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH CORE). Introduces students to the cycle of collecting (using surveys and experiments), analyzing (using Excel) and reporting conclusions about psychological and other social and behavioral sciences data. The course provides a critical thinking approach for quantitative argumentation with data.

PSYC 2140 RESEARCH METHODS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2130 or PSYC 2133 or STAT 2510 or STAT 2513) and (PSYC 2017 or PSYC 2013 or PSYC 2010). Investigation of descriptive and experimental methods used in psychological research.

PSYC 2147 HONORS RESEARCH METHODS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2130 or PSYC 2133 or STAT 2510 or STAT 2513) and (PSYC 2017 or PSYC 2013 or PSYC 2010). Investigation of descriptive and experimental methods used in psychological research.

PSYC 2510 PSYCHOLOGY OF SEXUAL BEHAVIOR (3) LEC. 3. Biological, social, and psychological dimensions of human sexuality.

PSYC 3120 DEVELOPMENTAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 2010 or PSYC 2013 or PSYC 2017. Introduction to physical, cognitive, social and emotional development across the lifespan.

PSYC 3500 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Principles and procedures for management of human behavior. Fall, Spring.

PSYC 3510 BEHAVIORAL NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Exploration of the relationships between the brain and behavior.

PSYC 3520 PSYCHOLOGY OF LEARNING (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Phenomena involved in the acquisition of knowledge, skills, and patterns of action.

PSYC 3530 SENSATION AND PERCEPTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Study of perceptual phenomena and the structure and function of sensory systems.

PSYC 3540 COGNITIVE PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Phenomena involved with thinking and remembering.

PSYC 3550 PSYCHOLOGY AND CULTURE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Survey of the ways culture shapes, modifies and adds distinctiveness to human behaviors.

PSYC 3560 INTRODUCTION TO PSYCHOPATHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Exploration of our attempts to understand, explain, and classify abnormal behavior patterns.

PSYC 3570 THEORIES OF PERSONALITY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Survey of selected classical and contemporary theories of personality.

PSYC 3580 SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Scientific study of how people think about, influence, and relate to one another.

PSYC 3590 PSYCHOLOGY IN THE WORKPLACE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Application of basic psychological principles and theories in the workplace. May count either PSYC 3590 or PSYC 3593.

PSYC 3610 SPORTS PSYCHOLOGY (3) SEM. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Inquiry into how motivation, emotion, personality, and other mind-body variables influence physiology and athletic performance. Seminar class includes applied exercises in emotional expression, stress and pain management, hypnosis, and diet and exercise challenges.

PSYC 3620 COGNITIVE NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Exploration of how mental functions are linked to neural processes to enable the mind.

PSYC 3640 MOTIVATION AND EMOTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Overview of historical and contemporary perspectives on human motivation and emotion.

PSYC 3650 DRUGS AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Introduction to the behavioral effects of drugs, including drug abuse and its treatment.

PSYC 3660 PSYCHOLOGY OF GOOD AND EVIL (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). This class looks at the reasons why humans can act negatively against other people while maintaining a sense of their personal "normalcy".

PSYC 3670 PSYCHOLOGY OF SLEEP (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). This course will cover several topics pertaining to the psychology and physiology of sleep including circadian rhythms, the neuroscience of sleep, how sleep differs across the lifespan and across cultures, sleep quality, and sleep disorders. Students will also gain a deeper understanding of research methods in the field of sleep science and various theories that address why we sleep.

PSYC 3680 PSYCHOLOGY AND LAW (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). How psychological theories and research can inform civil and criminal legal practice, including psychological evaluations, jury selection, and predictions of violent behavior among other possible topics.

PSYC 3690 PSYCHOLOGICAL TRAUMA AND RESILIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). This course will provide an introduction to the field of trauma psychology, specifically focusing on definition, epidemiology, and consequences of psychological trauma, risk and protective factors for trauma exposure and outcomes, evidence-based trauma prevention and intervention strategies.

PSYC 3710 INTERGROUP PROCESSES: STEREOTYPING, PREJUDICE AND STIGMA (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). In this course, we will examine stereotyping, prejudice and stigma from a Social Psychological perspective. We will cover a wide variety of topics related to intergroup cognition and behavior (e.g., social cognitive approaches to stereotyping, stereotype threat, intergroup prejudice, and avenues to reduce intergroup biases).

PSYC 3910 SUPERVISED RESEARCH EXPERIENCE (3) LEC. 3. SU. Pr., Departmental approval. Supervised experience in research settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 3940 EXPERIENTIAL LEARNING (3) PRA. 3. SU. Pr., Departmental approval. Supplementary instruction concurrent with job or volunteer experience involving the application of psychological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

PSYC 3970 SPECIAL TOPICS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Theories, research and issues in contemporary psychology on selected topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 4010 CLINICAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Introduction to clinical psychology focusing on techniques of assessment and intervention.

PSYC 4080 HEALTH PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Psychological principles in health maintenance and health problems.

PSYC 4220 CHILD PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Child psychology from a life-span developmental perspective, emphasizing social-emotional development in infancy.

PSYC 4260 PSYCHOLOGY OF ADDICTIVE BEHAVIORS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Overview of various psychological features of addictive behaviors including alcohol and drug abuse, eating disorders, gambling and excessive sexual behavior.

PSYC 4910 HUMAN SERVICE PRACTICUM (3) PRA. 3. SU. Pr., Departmental approval. Supervised experience in service-delivery settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. In-depth study of a psychological topic under the direction of a faculty member. Only 6 credit hours may be applied to the psychology major. Course may be repeated for a maximum of 9 credit hours.

PSYC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. 2.30 GPA. STAT 2010. Course may be repeated for a maximum of 3 credit hours.

PSYC 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. STAT 2010. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 5020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Description, etiology, and treatment of psychological disturbances in children and adolescents.

PSYC 5610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Laboratory, occupational and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 5620 NEUROPHARMACOLOGY AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and PSYC 3510. Formerly Drugs, Brain, and Behavior. A review of drugs affecting nervous system function and behavioral or neural mechanisms that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Course meets APA criteria for Level 1. May count either PSYC 5620 or PSYC 6620.

PSYC 5690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. PSYC 2130. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count PSYC 5960 or PSYC 6960.

PSYC 5960 SEMINAR IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Seminar in research and theory on psychological topics. Course may be repeated with changes in topic. Course may be repeated for a maximum of 6 credit hours.

PSYC 6610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Laboratory, occupational, and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental exposures; and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 6620 NEUROPHARMACOLOGY AND BEHAVIOR (3) LEC. 3. Formerly Drugs, Brain, and Behavior. Review of drugs affecting nervous system function and behavioral or neural mechanisms that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Course meets APA criteria for Level 1 training in psychopharmacology.

PSYC 6690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count either PSYC 5690, PSYC 6690 or PSYC 6696.

PSYC 6960 SPECIAL PROBLEMS (3) LEC. 3. Pr., Departmental approval. Seminar in research and theory on psychological topics. Course may be repeated for a maximum of 18 credit hours.

PSYC 7100 HISTORY OF IDEAS IN PSYCHOLOGY (3) LEC. 3. Historical developments in psychology with emphasis on the major theories and systems.

PSYC 7110 ETHICS AND PROBLEMS OF SCIENTIFIC AND PROFESSIONAL PSYCHOLOGY (1) LEC. 1. Survey of ethical issues and current problems in psychology.

PSYC 7120 TEACHING OF PSYCHOLOGY (3) LEC. 3. Problems and practices of teaching psychology at the college level. In addition to seminar meetings, students work with faculty in appropriate courses.

PSYC 7140 LEARNING AND CONDITIONING (3) LEC. 3. Respondent conditioning and operant behavior, including acquisition of language and other forms of individual and environmental interactions.

PSYC 7150 BIOLOGICAL PSYCHOLOGY (3) LEC. 3. Behavior from a biological perspective, including theory and research from the neurosciences and biopsychology.

PSYC 7160 HUMAN DEVELOPMENT (3) LEC. 3. Introduction to conceptual and substantive issues of developmental psychology from a life-span developmental perspective.

PSYC 7170 THEORIES OF PERSONALITY (3) LEC. 3. Analysis of current issues in personality theory.

PSYC 7180 SOCIAL PSYCHOLOGY (3) LEC. 3. Topics and literature on the social foundations of behavior.

PSYC 7190 COGNITIVE PSYCHOLOGY (3) LEC. 3. Survey of the nature of human intellectual functioning, including pattern recognition, memory, problem solving, reasoning, and language comprehension and generation.

PSYC 7200 ANIMAL COGNITION (3) SEM. 3. Experimental analysis of the mechanisms that underlie animal cognition, including attention, concept formation, counting, language, memory, perception, timing, and problem solving.

PSYC 7220 BEHAVIORAL PRINCIPLES (3) LEC. 3. Concepts and principles of operant and respondent conditioning and their relevance to changing and interpreting human behavior.

PSYC 7230 PSYCHOMETRIC THEORY (3) LEC. 3. Pr. P/C PSYC 7270 and P/C PSYC 7280. Introduction to basic quantitative theory behind the construction and interpretation of test scores and scales.

PSYC 7240 METHODS FOR STUDYING INDIVIDUAL BEHAVIOR (3) LEC. 3. Examination of strategies for measuring individual and environment interaction, using environmental interventions and identifying behavior change and its causes.

PSYC 7250 CLINICAL RESEARCH METHODS AND ETHICS (3) LEC. 3. Introduction to research methods and ethics in clinical psychology, with an emphasis on critical analysis of the scientific literature.

PSYC 7260 ETHICAL AND PROFESSIONAL ISSUES IN BEHAVIOR ANALYSIS (3) LEC. 3. Ethical and professional issues relevant to the practice of applied behavior analysis.

PSYC 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Introduction to the analysis of data collected under various different experimental designs. Credit will not be given for both PSYC 7270 and STAT 7270.

PSYC 7280 EXPERIMENTAL DESIGN IN PSYCHOLOGY II (4) LEC. 3. LAB. 2. Pr. PSYC 7270. and Enrollment in Psychology PhD program. Correlational and regression models. Matrix based multiple and logistic regression, moderation and mediation, and introduction to path models.

PSYC 7310 AUTISM AND INTELLECTUAL DISABILITIES (3) LEC. 3. Survey of the definitions, terms, epidemiology, etiologies, and current issues in autism and intellectual disabilities.

PSYC 7320 CLINICAL PSYCHOPHARMACOLOGY (3) LEC. 3. The basic principles of psychopharmacology with special attention given to drugs used in applied or therapeutic settings, their effects, and their potential interactions with behavioral interventions.

PSYC 7400 COGNITIVE NEUROSCIENCE (3) LEC. 3. Exploring how mental functions are linked to neural processes to enable the mind.

PSYC 7700 FOUNDATIONS IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (3) DSL/SEM. 3. This course is designed to be an advanced survey of the Industrial and Organizational Psychology field.

PSYC 7710 TRAINING AND DEVELOPMENT IN ORGANIZATIONS (3) DSL/SEM. 3. A graduate seminar that focuses on critical conceptual and empirical issues facing training and development in the workplace.

PSYC 7720 PERSONNEL SELECTION (3) DSL/SEM. 3. Analysis of classical, contemporary, theoretical, and practical issues related to personnel selection. May count either PSYC 7720, PSYC 7726, PSYC 8720 or PSYC 8726.

PSYC 7730 RESEARCH METHODS IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) DSL/SEM. 3. An overview of basic research methodology applicable to the investigation of organizational phenomena.

PSYC 7740 ORGANIZATIONAL CULTURE (3) SEM. 3. Gain an understanding of organizational culture and provides the context in which organizational behavior may be understood.

PSYC 7750 ETHICS AND PROFESSIONAL ISSUES IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) DSL/SEM. 3. An introduction to issues faced in professional practice and importance of ethical behavior in the practice of Industrial/Organizational Psychology.

PSYC 7760 OCCUPATIONAL HEALTH PSYCHOLOGY (3) DSL/SEM. 3. Occupational health psychology (OHP) is an emerging interdisciplinary field concerned with psychological factors in employee health, safety, and well-being.

PSYC 7780 WORK MOTIVATION (3) SEM. 3. Analysis of historical and contemporary theories of work motivation and related research.

PSYC 7790 WORKFORCE MANAGEMENT (3) SEM. 3. A comprehensive course that explores the principles and practices of human resource management within organizational settings, emphasizing the application of psychological theories to enhance employee well-being and organizational effectiveness. Students will learn about talent acquisition, development, compensation, and strategic HR planning through a psychological lens.

PSYC 7800 LEADERSHIP (3) SEM. 3. Analysis of historical and contemporary theories of leadership and related research.

PSYC 7910 PRACTICUM IN APPLIED PSYCHOLOGY (1-10) DSL/PRA. Supervised practicum in applied psychology. A maximum of 12 hours will apply toward degree. Department approval. Course may be repeated for a maximum of 30 credit hours.

PSYC 7930 DIRECTED STUDIES (1-3) DSL/IND. Pr., Departmental approval. Work under the direction of a faculty member on a psychological topic of mutual interest. No more than 3 hours count toward major. Course may be repeated for a maximum of 9 credit hours.

PSYC 7970 RESEARCH IN SPECIAL TOPICS (3) IND. 3. Pr., Departmental approval. Supervised scholarly activity related to student's field of study. Course may be repeated with change in topics.

PSYC 7980 APPLIED BEHAVIOR ANALYSIS CAPSTONE PROJECT (1-10) DSL/PRA. Pr., Departmental approval. Supervised practicum in applied psychology behavior analysis project involving delivery of services to a consumer. Maximum of 6 credit hours will count toward degree. Course may be repeated for a maximum of 30 credit hours.

PSYC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Pr., Course may be repeated with change in topics.

PSYC 8180 ADVANCED SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 7180. Departmental approval. Theories, research and issues in contemporary social psychology.

PSYC 8240 STRUCTURAL EQUATION MODELING FOR APPLIED RESEARCHERS (3) LEC. 3. This course is to provide an overview and introduction to the use of structural equation modeling in applied research, utilizing Mplus software. This course will be taught from an applied and pragmatic perspective. There will be a particular focus on data analytic issues that are especially relevant to clinical researchers.

PSYC 8250 MULTIVARIATE METHODS (4) LEC. 3. LAB. 2. Pr. PSYC 7270 and PSYC 7280. Introduction to the theory behind multivariate analyses and the statistical programs that support them.

PSYC 8270 FACTOR ANALYSIS (3) SEM. 3. Theoretical and statistical applications of exploratory and confirmatory factor analysis.

PSYC 8280 META-ANALYSIS (3) DSL/SEM. 3. Meta-analysis is a quantitative analysis using techniques to analyze and integrate effect sizes that accrue from research studies.

PSYC 8300 DEVELOPMENTAL PSYCHOPATHOLOGY (3) LEC. 3. Introduction to contemporary concepts, constructs, and controversies in developmental psychopathology.

PSYC 8310 INTRODUCTION TO CLINICAL METHODS AND ETHICS (3) LEC. 3. Enrollment in Clinical Psychology Program. Interviewing introduction to interviewing skills, behavioral assessment, crisis intervention, professional and ethical issues in providing clinical services.

PSYC 8330 COGNITIVE BEHAVIOR THERAPY (3) LEC. 3. Conceptual and applied issues related to behavioral principles of assessment and treatment.

PSYC 8350 APPLIED PSYCHOMETRIC PRINCIPLES (3) LEC. 3. Analysis of classical and modern test theory, with an emphasis on applied psychometric principles.

PSYC 8360 ASSESSMENT OF COGNITIVE ABILITIES AND ACHIEVEMENT (3) LEC. 2. LAB. 2. Theories and techniques for the assessment of cognitive abilities and academic achievement.

PSYC 8370 FOUNDATIONS OF PSYCHOLOGICAL ASSESSMENT (3) LEC. 3. Enrollment in Clinical Psychology program. Measurement theory and introduction to widely used objective personality and behavioral checklists with attention to ethics and diversity.

PSYC 8460 ASSESSMENT AND TREATMENT OF ALCOHOL AND DRUG PROBLEMS (3) LEC. 3. Pr., Departmental approval. Conceptual and empirical bases of clinical assessment and intervention for alcohol and drug problems.

PSYC 8500 COGNITIVE AND BEHAVIORAL SCIENCES SEMINAR (1) SEM. 1. SU. Pr., Enrollment in Cognitive and Behavioral Sciences PhD program. Examination of professional preparation issues and recent scientific developments relevant to careers in the cognitive and behavioral sciences. Course may be repeated for a maximum of 3 credit hours.

PSYC 8510 CONTEXT AND CONSEQUENCES OF BEHAVIOR (3) LEC. 3. Pr. PSYC 7140. Advanced survey of the role that consequences play in acquisition, maintenance, and structure of behavior, and the methods by which this role is studied.

PSYC 8540 BEHAVIORISM (3) LEC. 3. Exploration of the philosophical and theoretical underpinnings of behavior analysis.

PSYC 8550 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. PSYC 7140. and Departmental approval. Scientific and conceptual foundations of applied behavior analysis and its strategies of intervention and evaluation.

PSYC 8570 APPLIED BEHAVIOR ANALYSIS 2 (3) LEC. 3. Applications of behavioral principles to the assessment and treatment of problem behavior.

PSYC 8700 ADVANCED INDUSTRIAL PSYCHOLOGY (3) LEC. 3. Analysis of methods and content of industrial psychology.

PSYC 8710 ADVANCED ORGANIZATIONAL PSYCHOLOGY (3) LEC. 3. Departmental approval. Analysis of major issues in organizational psychology.

PSYC 8730 PERFORMANCE APPRAISAL (3) LEC. 3. Analysis of classical, contemporary, theoretical, and practical issues related to the appraisal of employee work performance.

PSYC 8760 DECISION MAKING IN THE WORKPLACE AND ORGANIZATIONS (3) SEM. 3. The application of behavioral decision theory and research to problems in Industrial/Organizational Psychology.

PSYC 8770 ORGANIZATIONAL CHANGE (3) DSL/SEM. 3. A conceptual overview of organizational change and organizational transformation and related specific topics.

PSYC 8780 WORK AND FAMILY (3) SEM. 3. A survey of research and theory in work and family, a content area of organizational psychology.

PSYC 8790 SEMINAR IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (1) SEM. 1. SU. Examination of professional preparation issues and recent scientific developments relevant to careers in Industrial and Organizational Psychology. Enrollment in the Industrial and Organizational Psychology PhD program. Course may be repeated for a maximum of 3 credit hours.

PSYC 8910 CLINICAL PRACTICUM (1-4) DSL/PRA. Supervised practicum experience in clinical assessment and intervention techniques. Course may be repeated for a maximum of 30 credit hours, with 24 counting toward the degree.

PSYC 8920 INTERNSHIP (0) INT. Pr., PhD candidacy. Enrollment in full-time APA-approved 1-year pre-doctoral internship required for the PhD in Clinical Psychology. Student may not enroll in other course work.

PSYC 8930 DIRECTED STUDIES IN PSYCHOLOGY (3) IND. Pr., Approved PhD plan of study. Review of literature leading to the writing and defense of the Major Area Paper (written portion of the general PhD examination). Course may be repeated for a maximum of 9 credit hours.

PSYC 8970 SPECIAL TOPICS (1-3) DSL. Departmental approval. In-depth study of issues related to selected specializations in psychology. Course may be repeated for a maximum of 18 credit hours.

PSYC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Pr., Course may be repeated for a maximum of 98 credit hours.

Public and One Health - PAOH

Courses

PAOH 2100 INTRODUCTION TO PUBLIC HEALTH (3) LEC. 3. Public Health is the science of preventing disease and promoting health in populations through research, policy development, education, provision of health services, and response to disease outbreaks. This course provides an overview of foundational concepts in public health and One Health, featuring lectures by the primary instructor and guest experts on a variety of topics.

PAOH 2107 HONORS INTRODUCTION TO PUBLIC HEALTH (3) LEC. 3. Pr. Honors College. Public Health is the science of preventing disease and promoting health in populations through research, policy development, education, provision of health services, and response to disease outbreaks. This course provides an overview of foundational concepts in public health and One Health, featuring lectures by the primary instructor and guest experts on a variety of topics. Students will attend the same lectures as PAOH 2100 as well as a small number of additional honors meetings.

PAOH 3010 INTRODUCTION TO EPIDEMIOLOGY (3) LEC. 3. Epidemiology is the study of the distribution, determinants, and dynamics of disease or health events in a population. This course introduces the basic principles and methods of epidemiology with an emphasis on prevention and control of diseases of humans and other animals.

PAOH 3017 HONORS INTRODUCTION TO EPIDEMIOLOGY (3) LEC. 3. Pr. Honors College. Epidemiology is the study of the distribution, determinants, and dynamics of disease or health events in a population. This course introduces the basic principles and methods of epidemiology with an emphasis on prevention and control of diseases of humans and other animals. Students will attend the same lectures as PAOH 3010 as well as a small number of additional honors meetings.

PAOH 4830 GLOBAL AND COMPARATIVE HEALTH SYSTEMS (3) LEC. 3. Departmental approval. Different national approaches to providing health care for the population will be compared to the US system.

PAOH 4837 HONORS GLOBAL AND COMPARATIVE HEALTH SYSTEMS (3) LEC. 3. Pr. Honors College. Departmental approval. Different national approaches to providing health care for the population will be compared to the US system.

PAOH 4910 OBSERVING NEEDS IN PUBLIC HEALTH (3) LEC. 3. Through volunteer service to an agency or organization addressing public health needs, students will develop an understanding of the importance for volunteers to support community needs. Additionally, there will be lectures and class discussions on various topics addressing needs of underserved populations.

PAOH 4920 INTERNSHIP IN PUBLIC & ONE HEALTH (1-6) INT. Departmental approval. Application of concepts and skills in public health or One Health in a professional internship experience. Course may be repeated for a maximum of 6 credit hours.

PAOH 4970 SPECIAL TOPICS IN PUBLIC & ONE HEALTH (1-4) LEC. 1-4. Topics of special interest in Public and One Health. May be repeated with change of topic. Course may be repeated for a maximum of 8 credit hours.

PAOH 4980 UNDERGRADUATE RESEARCH IN PUBLIC & ONE HEALTH (1-3) RES. Departmental approval. Directed, supervised undergraduate research in public health, health, or One Health. Course may be repeated for a maximum of 9 credit hours.

PAOH 5100 ZOONOSES AND INFECTIOUS DISEASES (3) LEC. 3. Pr. BIOL 3200. This course presents a comparative approach to infectious disease in humans and animals, while specifically highlighting zoonoses (diseases shared between humans and animals). Students will learn infectious disease epidemiologic concepts, as well as delve into foodborne, vaccine-preventable, sexually transmitted, and vector-transmitted pathogens, as well as common systems-associated infections in both animals and humans.

PAOH 5200 PROGRAM PLANNING AND THEORIES OF HEALTH PROMOTION (3) LEC. 3. This course provides the fundamentals of health promotion and behavior, including theories of change in health behavior and program implementation (planning, marketing, assessment, evaluation). By the end of the course, students should be equipped to initiate a program implementation aimed at improving health.

PAOH 5400 ENVIRONMENTAL HEALTH (3) LEC. 3. Environmental Health serves as an introduction to the effects and regulation of chemical, physical and biological factors in the environment that affect the health of individuals, communities, and ecosystems.

PAOH 5950 ONE HEALTH SEMINAR (2) LEC. 2. This course will explore public health topics relevant to populations of humans, animals, and the environment through guest seminars, large and small group discussion, and student presentations.

PAOH 6100 ZOONOSES AND INFECTIOUS DISEASES (3) LEC. 3. Pr. BIOL 3200. This course presents a comparative approach to infectious disease in humans and animals, while specifically highlighting zoonoses (diseases shared between humans and animals). Students will learn infectious disease epidemiologic concepts, as well as delve into foodborne, vaccine-preventable, sexually transmitted, and vector-transmitted pathogens, as well as common systems-associated infections in both animals and humans.

PAOH 6200 PROGRAM PLANNING AND THEORIES OF HEALTH PROMOTION (3) LEC. 3. This course provides the fundamentals of health promotion and behavior, including theories of change in health behavior and program implementation (planning, marketing, assessment, evaluation). By the end of the course, students should be equipped to initiate a program implementation aimed at improving health.

PAOH 6400 ENVIRONMENTAL HEALTH (3) LEC. 3. Environmental Health serves as an introduction to the effects and regulation of chemical, physical and biological factors in the environment that affect the health of individuals, communities, and ecosystems.

PAOH 6950 ONE HEALTH SEMINAR (2) LEC. 2. This course will explore public health topics relevant to populations of humans, animals, and the environment through guest seminars, large and small group discussion, and student presentations.

Public Relations Communication - PRCM

Courses

PRCM 1000 PR AND MEDIA RELATIONS FUNDAMENTALS (3) DSL/LEC. Introduction to the public relations discipline, including its history, theory, ethics and its relationship to media relations, with an emphasis on developing fundamental public relations writing skills.

PRCM 2400 FOUNDATIONS OF PUBLIC RELATIONS (3) LEC. 3. This course is designed to be an overview of the functions, practices and growing application of public relations in both private industry and the public sector.

PRCM 2500 PUBLIC RELATIONS CASE STUDIES & ETHICS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. This is a course designed to provide Public Relations students with an understanding of both effective and ineffective methods of PR through studying actual cases from the field itself with special attention given to the ethical aspect of decision making.

PRCM 3000 MULTIMEDIA WRITING FOR PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2500 or PRCM 2503) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). PRCM or AGCO major only. This course will have an emphasis on communication tactics; plan, write and produce public relations tools; audience and media selection; print and electronic media.

PRCM 3080 INTERNATIONAL PUBLIC RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Exploration of public relations theory, research, and practice in an international context.

PRCM 3090 PUBLIC RELATIONS IN POLITICAL PROCESSES (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Surveys of the intersection of politics and public relations, emphasizing theoretical and practical principles in political processes.

PRCM 3260 STRATEGIC COMMUNICATION IN PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or PRCM 1000 or JRNL 1103 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). PRCM or AGCO majors only. Framework for the strategy and integration of messages within public relations.

PRCM 3270 PUBLIC RELATIONS IN THE NOT-FOR-PROFIT ARENA (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Nonprofit organizations and foundations and the role of public relations within those organizations.

PRCM 3280 SOCIAL MEDIA AND PUBLIC RELATIONS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). Declared major in AGCO or PRCM. Examination of how new social media impact public relations strategies.

PRCM 3450 DIGITAL MEDIA ANALYTICS (3) LEC. 3. Pr. (PRCM 2400 or PRCM 2403). This course prepares students with essential skills and knowledge to understand the power of digital media analytics in today's digital landscape.

PRCM 4020 DIGITAL STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503). PRCM or AGCO major only. Introduction to the use of style and design in public relations messages. Departmental approval or Declared major in AGCO or PRCM.

PRCM 4400 PUBLIC RELATIONS RESEARCH (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 2500 or PRCM 2503) and (PRCM 2400 or PRCM 2403). PRCM or AGCO major only. Identifying, characterizing and evaluating stakeholder groups and alternative channels of communication; formal research procedures including sampling, instrument design, information gathering, data processing, analysis and reporting.

PRCM 4500 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (PRCM 2500 or PRCM 2503) and (PRCM 2400 or PRCM 2403) and PRCM 3000 and PRCM 4400. Application of theory, research data, and problem-solving techniques in the development of comprehensive public relations strategies.

PRCM 4920 INTERNSHIP (3) AAB/INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 3000 or PRCM 3003). Opportunity to apply classroom experience in career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

PRCM 4930 DIRECTED STUDIES IN PUBLIC RELATIONS (3) LEC. 3. Pr. (JRNL 1100 or JRNL 1103 or PRCM 1000 or JRNL 1000 or JRNL 1AA0) and (CMJN 2100 or CMJN 2103) and (PRCM 3040 or PRCM 3043 or PRCM 2400 or PRCM 2403). Independent Study on a specific topic of interest not already addressed in any regular PRCM course.

PRCM 4970 SPECIAL TOPICS IN PUBLIC RELATIONS (3) LEC. 3. Pr. (PRCM 2500 or PRCM 2503). Focus on narrowly defined PRCM topics not already covered in the current PRCM curriculum. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

Reading Education - CTRD

Courses

CTRD 3000 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION I (3) LEC. 3. LAB. 0, LEC. 0. Research-based theory and teaching strategies to meet the language and literacy needs of all children, especially those at risk of reading difficulties. Includes a practicum teaching experience.

CTRD 3001 PRACTICUM IN FOUND OF LANG LITERACY INSTRUCTION I (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTRD 3000. Admission to Teacher Education. This course is designed to provide 15 clock hours of teaching and experiences in Literacy Instruction in K-3 It is an intensive, interactive experience at a strategically selected school site.

CTRD 3010 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION II (3) LEC. 3. LAB. 0, LEC. 0. Provides a scientifically based reading research foundation essential for understanding student reading development and informing explicit, systematic instruction in the core aspects of reading. Topics include understanding reading research, cognitive processes involved in reading, language development, and effective reading instruction and assessment for students in PK-6. Additionally, the course emphasizes the theoretical foundations of literacy development in children and its implications for teaching. Includes a practicum teaching experience.

CTRD 3011 PRACTICUM IN FOUND OF LANG LITERACY INSTRUCTION II (1) LEC. 0. LAB. 2, PRA. 0. SU. Pr. P/C CTRD 3010. Admission to Teacher Education. This course is designed to provide 30 clock hours of teaching and experiences in Language and Literacy Instruction II in intermediate grades. It is an intensive, interactive experience at a strategically selected school site.

CTRD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTRD 5000 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. LAB. 0. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000, or CTRD 6006.

CTRD 5030 THE READING OF ADOLESCENTS (3) LEC. 3. Admission to Teacher Education. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 5700 DEVELOPMENTAL READING K-12 (3) LEC. 3. Admission to Teacher Education. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 6000 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000, or CTRD 6006.

CTRD 6030 THE READING OF ADOLESCENTS (3) LEC. 3. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 6700 DEVELOPMENTAL READING K-12 (3) LEC. 3. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 6710 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3. Strategies to enhance literacy and inquiry for students' content-area learning in the middle and secondary school. May count CTRD 5710, CTRD 6710, or CTRD 6716.

CTRD 7400 ASSESSMENT AND INSTRUCTION FOR READING INTERVENTION (3) LEC. 3. Research-based analysis of causal factors in reading difficulties, assessment strategies, and effective teaching with delayed readers. Includes practicum.

CTRD 7510 RESEARCH STUDIES IN READING EDUCATION (3) DSL/RES. 3. Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.

CTRD 7520 CURRICULUM AND TEACHING IN READING EDUCATION (3) LEC. 3. Teaching practices and reappraisal of selected experiences and content for curriculum improvement.

CTRD 7530 ORGANIZATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Program, organization, and development of basic and supplementary materials for guiding teachers, faculties, and school systems in the continuous improvement of curriculum and teaching practices.

CTRD 7540 EVALUATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness with attention to the utilization of human and material resources and the coordination of areas of specialization.

CTRD 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study directed toward desired objectives related to respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTRD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) DSL/PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTRD 7920 CLINICAL RESIDENCY (1-9) DRD. SU. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Departmental approval. May count either CTRD 7920 or CTRD 7926. Course may be repeated for a maximum of 9 credit hours.

CTRD 7970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 6 credit hours.

CTRD 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

CTRD 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTRD 8980 FIELD PROJECT (1-10) FLD. SU. Course may be repeated for a maximum of 10 credit hours.

CTRD 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with change in topics.

Real Estate Development - RDEV

Courses

RDEV 7120 FIELD STUDIES (1-3) LEC. 1-3. This course provides students with the opportunity to visit real estate development firms and ongoing projects. Course may be repeated for a maximum of 6 credit hours.

RDEV 7130 PRINCIPLES OF REAL ESTATE DEVELOPMENT (3) LEC. 3. An introduction to theory and practice as applied to fundamental topics in real property law, real estate markets, valuation, investment analysis and property financing as they effect various topics in real estate development.

RDEV 7140 REAL PROPERTY ANALYSIS (3) LEC. 3. This is a case study course, providing an overview of key concepts in real estate development and real property analysis.

RDEV 7230 REAL ESTATE MARKET ANALYSIS (3) LEC. 3. This class will provide concentrated study in real estate markets. Critical components of the course will include the study of the link between the Property and Asset Markets.

RDEV 7240 BUILDING DESIGN AND CONSTRUCTION PRINCIPLES (3) LEC. 3. This course will illustrate some of the building design and construction principles that real estate development professions engage in their practice every day.

RDEV 7340 SITE PLANNING AND INFRASTRUCTURE DEVELOPMENT (3) LEC. 3. This course examines the role that site selection and infrastructure development play in the sustainable conceptualization, feasibiltiy, and implementation of a real estate development project.

RDEV 7350 REAL ESTATE INVESTMENT ANALYSIS (3) LEC. 3. This class will provide concentration study in real estate investment.

RDEV 7430 REAL ESTATE PROJECT MANAGEMENT (3) LEC. 3. This course examines the real estate development process from conceptualization to actualization.

RDEV 7440 REAL ESTATE CONTRACT NEGOTIATIONS (1) LEC. 1. This course will teach the basic skills necessary to become an effective negotiator. The course will include planning and preparing necessary elements for contract negotiation. Additionally, the communications skills necessary to forward the negotiation agenda will be addressed.

RDEV 7530 REAL ESTATE CAPITAL MARKETS (3) LEC. 3. This class will provide an in-depth look at the fundamental principles and practices as applied to the financing of residential and commercial real estate.

RDEV 7540 REAL ESTATE DEVELOPMENT LAW (3) LEC. 3. This course examines the legal issues related to acquisition, planning, design, entitlement, construction, development financing, property management, accounting, taxation, reversion, and estate planning.

RDEV 7630 REAL ESTATE DEVELOPMENT CAPSTONE PROJECT (5) DSL. 5. This Capstone Project seeks to develop an appreciation of real estate development process and the critical roles played by the design, planning, and construction industries

Rehabilitation & Special Education - RSED

Courses

RSED 2000 DISABILITY AWARENESS AND MENTORSHIP (3) LEC. 3. LAB. 3. Overview of disabilities and strategies to address disparities in society through awareness, advocacy, and international PEER certified educator/mentorship. EAGLES counselors and WINGS peer mentor requirement.

RSED 3000 DIVERSITY AND EXCEPTIONALITY OF LEARNERS (3) LEC. 3. Exploration of philosophical, social, cultural, and legal factors, and individual characteristics shaping education for individuals with disabilities; and roles/responsibilities of educators in inclusive settings. May count either RSED 3000 or RSED 3003.

RSED 3010 INTRODUCTION TO SPECIAL EDUCATION (3) LEC. 3. Orientation to special education profession including history, philosophy, federal legislation, contemporary issues and national organizations. Only CMDS Majors may take this course. Departmental approval for all other majors.

RSED 3020 INTRODUCTION TO REHABILITATION (3) LEC. 3. Orientation to the profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3110 ASSESSMENT: ELIGIBILITY FOR SPECIAL EDUCATION (3) LEC. 3. Selection, administration, scoring and interpretation of standardized aptitude and educational tests used in the field of special education. May count either RSED 3110 or RSED 3113.

RSED 3120 ASSESSMENT IN REHABILITATION (3) LEC. 3. Selection, administration, scoring and interpretation of work sample systems and standardized tests of intelligence, aptitude, achievement, interest, and dexterity used in the field of rehabilitation.

RSED 4010 BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Skills to manage the behavior of special education students including behavioral assessment, selection criteria for appropriate intervention strategies and evaluation of intervention effectiveness.

RSED 4100 PROFESSIONAL COMMUNICATION IN REHABILITATION (3) LEC. 3. Theoretical and practical aspects of written and oral communication with rehabilitation and other professionals, clients, and family members.

RSED 4120 INDEPENDENT LIVING SERVICES IN REHABILITATION (3) LEC. 3. The history, legislation and philosophy of the independent living movement and its impact on the quality of life for people with severe disabilities.

RSED 4130 ETHICAL PRACTICES IN REHABILITATION (3) LEC. 3. Departmental approval. Ethical dilemmas that are routinely faced by practitioners in human service occupations.

RSED 4140 ASSESSMENT: PROGRAM PLANNING IN SPECIAL EDUCATION (3) LEC. 3. Pr. P/C RSED 4920 or P/C RSED 4923. A framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on application assessment of students with disabilities, and how to use assessment data to inform instructional planning and IEP goal development.

RSED 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Emphasis on exceptional learners. Course may be repeated for a maximum of 3 credit hours.

RSED 4910 PRACTICUM (1-6) DSL. SU. Departmental approval. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 4911 PRACTICUM ELEMENTARY I LITERACY & NUMERACY (1-3) LEC. 2. LAB. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4920 CLINICAL RESIDENCY (9) AAB. 9. SU. Comprehensive supervised on-the job experience in a school, college or community-based setting serving individuals with disabilities. Departmental approval or admission to internship.

RSED 4931 PRACTICUM ELEMENTARY II LITERACY & NUMERACY (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4941 PRACTICUM SECONDARY I (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4951 PRACTICUM PRE-K – SECONDARY II (1-3) LEC. 2. LAB. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 4970 SPECIAL TOPICS (1-3) DR4/ST1. Seminar in which upper-level students and professors engage in critical thinking regarding selected concepts, theories, research, and issues germane to the field of disabilities. Course may be repeated for a maximum of 9 credit hours.

RSED 5000 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 5010 MEDICAL ASPECTS OF DISABILITY (3) LEC. 3. Medical terminology, basic body systems, common malfunctions, therapeutic services, restorative techniques, and disability evaluation for different disability groups and the vocational implications of each. May count RSED 5010, RSED 5013, RSED 6010, or RSED 6016.

RSED 5020 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment. May count RSED 5020, RSED 5023, RSED 6020, or RSED 6026.

RSED 5070 MILD DISABILITIES (3) LEC. 3. The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. May count either RSED 5070 or RSED 6070.

RSED 5100 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 3010. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 5110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION: LITERACY AND DEVELOPMENTAL DOMAINS (3) LEC. 3. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. Admission to Teacher Education. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 5120 CURRICULUM IN ELEMENTARY: LITERACY AND MATHEMATICS IN SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum activities for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 5130 CURRICULUM IN LITERACY FOR STUDENTS WITH DISABILITIES (3) LEC. This course is designed to provide students with the understanding of language development, development of early literacy, and screening for early literacy deficits. This class will introduce language systems (orthography, phonetics, phonology, morphology, syntax, and semantics) and their role in the development of literacy. The course will provide opportunities for implementation of assessment and explicit system instruction in oral language, phonemic awareness, letter/sound correspondence, and basic reading. May count RSED 5130 or RSED 6130.

RSED 5140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Pr. RSED 3010. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 5150 LITERACY METHODS IN SPECIAL EDUCATION (3) LEC. 3. Instructional strategies in reading for students with disabilities. May count RSED 5150 or RSED 6150.

RSED 5160 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Admission to Teacher Education. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 5163, RSED 6160, or RSED 6166.

RSED 5170 TRANSITION AND SECONDARY METHODS (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on best practices, secondary methods, programs, and services. May count RSED 5170 or RSED 6170.

RSED 5180 LITERACY AND INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the understanding of literacy development and the practical application and management of interventions to support written language, vocabulary, and reading comprehension. The focus of this class will be to discuss proactive approaches to supporting students' literacy development. Students will be introduced to applied and research readings related to instructional management. These research findings will be integrated into discussions on the practical aspects of developing effective programs. After completing this class, students will be able to design and implement effective literacy and instructional strategies. May count RSED 5180 or RSED 6180.

RSED 5190 FUNCTIONAL CURRICULUM AND TRANSITION (3) LEC. 3. This course prepares teachers to support students who follow an alternative curriculum in elementary and secondary settings. This includes teaching functional skills, community-based instruction and supports for transition to post-secondary settings. May count either RSED 5190 or RSED 6190.

RSED 5200 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3. Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. May count RSED 5200, RSED 5203, RSED 6200, or RSED 6206.

RSED 5210 OCCUPATIONAL INFORMATION (3) LEC. 3. Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities. May count RSED 5210, RSED 6210, or RSED 6216.

RSED 5220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. Theories, strategies, and techniques for job development, accommodation, modification, and placement of people with disabilities with application skills needed to facilitate employment. May count RSED 5220, RSED 5223, RSED 6220, or RSED 6226.

RSED 5230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 5300 TRANSITION AND EMERGING ADULTHOOD IN REHABILITATION SERVICES (3) LEC. 3. This course is an introduction to the transition process of youth with disabilities from school to adulthood and employment with an emphasis on the developmental stages of emerging adulthood and the services surrounding this specialized area for rehabilitation professionals.

RSED 5330 ASSESSMENT FOR ELIGIBILITY (3) LEC. 3. This course provides students with a framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on standardized assessments for evaluating students with disabilities. This course will include assessment processes for eligibility for each category of special education eligibility. The course provides opportunities for application of concepts in assessment in special education as well as administration, review, and interpretation of standardized assessment data. The course covers historical, ethical, practical, and theoretical perspectives on identifying disabilities and planning individualized instructional programs for students with special needs. May receive credit for RSED 5330 or RSED 6330.

RSED 5340 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 5420 SPECIALIZED CURRICULUM IN MATHEMATICS (3) LEC. 3. This course will provide learners with understanding of a functional/developmental approach to the selection, development, implementation, and evaluation of appropriate mathematics curriculum and activities for the instruction of students with high incidence disabilities in grades 3-5. Content includes extensive exploration of various curricular theories focusing on individual and group approaches in mathematics concepts. May count for RSED 5420 or RSED 6420.

RSED 6000 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 6010 MEDICAL VOC & PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. An introduction to medical terminology, body systems, common physical and cognitive conditions therapeutic/restorative services, and psychosocial & vocational considerations of various disabilities. May count RSED 6010 or RSED 6016.

RSED 6040 LEARNING DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5040, RSED 6040, or RSED 6046.

RSED 6100 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 6110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION: LITERACY AND DEVELOPMENTAL DOMAINS (3) LEC. 3. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 6120 CURRICULUM IN ELEMENTARY: LITERACY AND MATHEMATICS IN SPECIAL EDUCATION (3) LEC. 3. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 6130 CURRICULUM IN LITERACY FOR STUDENTS WITH DISABILITIES (3) LEC. 3. This course is designed to provide students with the understanding of language development, development of early literacy, and screening for early literacy deficits. This class will introduce language systems (orthography, phonetics, phonology, morphology, syntax, and semantics) and their role in the development of literacy. The course will provide opportunities for implementation of assessment and explicit system instruction in oral language, phonemic awareness, letter/sound correspondence, and basic reading. May count RSED 5130 or RSED 6130.

RSED 6140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 6150 LITERACY METHODS IN SPECIAL EDUCATION (3) LEC. 3. Instructional strategies in reading for students who have disabilities. May count RSED 5150 or RSED 6150.

RSED 6160 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 5163, RSED 6160, or RSED 6166.

RSED 6170 TRANSITION AND SECONDARY METHODS (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on best practices, secondary methods, programs, and services. May count RSED 5170 or RSED 6170.

RSED 6180 LITERACY AND INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the understanding of literacy development and the practical application and management of interventions to support written language, vocabulary, and reading comprehension. The focus of this class will be to discuss proactive approaches to supporting children’s literacy development. Students will be introduced to applied and research readings related to instructional management. These research findings will be integrated into discussions on the practical aspects of developing effective programs. After completing this class, students will be able to design and implement effective literacy and instructional strategies. May count RSED 5180, RSED 6180.

RSED 6190 FUNCTIONAL CURRICULUM AND TRANSITION (3) LEC. 3. This course prepares teachers to support students who follow an alternative curriculum in elementary and secondary settings. This includes teaching functional skills, community-based instruction and supports for transition to post-secondary settings. May count either as RSED 5190 or RSED 6190.

RSED 6220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. The course is designed to familiarize students with career theory and methods used by rehabilitation practitioners to analyze and apply vocational techniques to place individuals with disabilities. May count RSED 6220 or RSED 6226.

RSED 6230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 6330 ASSESSMENT FOR ELIGIBILITY (3) LEC. 3. This course provides students with a framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on standardized assessments for evaluating students with disabilities. This course will include assessment processes for eligibility for each category of special education eligibility. The course provides opportunities for application of concepts in assessment in special education as well as administration, review, and interpretation of standardized assessment data. The course covers historical, ethical, practical, and theoretical perspectives on identifying disabilities and planning individualized instructional programs for students with special needs. May receive credit for RSED 5330 or RSED 6330.

RSED 6340 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 6420 SPECIALIZED CURRICULUM IN MATHEMATICS (3) LEC. 3. This course will provide learners with understanding of a functional/developmental approach to the selection, development, implementation, and evaluation of appropriate mathematics curriculum and activities for the instruction of students with high incidence disabilities in grades 3-5. Content includes extensive exploration of various curricular theories focusing on individual and group approaches in mathematics concepts. May count for RSED 5420 or RSED 6420.

RSED 7010 REHABILITATION PROFESSIONS, PROGRAMS AND ETHICS (3) LEC. 3. This course exposes students to the ethics, history and development of the rehabilitation counseling movement inclusive of its legal base, philosophies, concepts, and current socio-political trends. May count either RSED 7010 or RSED 7016.

RSED 7110 ADVANCED ASSESSMENT AND INTERVENTION EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Assessment and intervention strategies for special needs children, pre-k through 3rd grade. Departmental approval. May count either RSED 7110 or RSED 7116.

RSED 7120 ADVANCED ASSESSMENT IN SPECIAL EDUCATION (3) LEC. 3. Advanced study of educational tests and procedures for diagnosing special training problems. Departmental approval. May count either RSED 7120 or RSED 7126.

RSED 7130 ADVANCED ASSESSMENT I IN REHABILITATION (3) LEC. 3. Principles, process and techniques used to diagnose vocationally-related assets and liabilities of the individual with disabilities. May count either RSED 7130 or RSED 7136.

RSED 7150 MULTICULTURAL ASPECTS OF DISABILITIES (3) LEC. 3. Study of three main areas relevant to multicultural competencies and standards for rehabilitation professionals: (a) acquisition of communication skills; (b) attitudes towards ethnic minorities, and (c) knowledge about minority populations. May count either RSED 7150 or RSED 7156.

RSED 7200 ADVANCED INTERVENTION WITH INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 7100 or RSED 7106. Administration and on-going management of early intervention programs and service coordination of individualized family service plans and family support. Departmental approval. May count either RSED 7200 or RSED 7206.

RSED 7210 ADVANCED INTERVENTION IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 7110 or RSED 7116. Curriculum methods, intervention plans, intervention methods, physical and medical management, environmental and behavioral management, and evaluation of child and family outcomes. Departmental approval. May count either RSED 7210 or RSED 7216.

RSED 7220 ADVANCED TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. This course presents principles and procedures associated with content enhancement, strategy instruction and universal design for learning. This course will emphasize research-supported strategies for individuals with high incidence disabilities. Students will engage in hands-on experiences and practice implementing instructional interventions appropriate for students with disabilities who participate in the general education curriculum.

RSED 7230 ADVANCED BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Provides skills necessary to direct academic and social performance and appropriately manage the behavior of students with special needs. Departmental approval. May count either RSED 7230 or RSED 7236.

RSED 7240 SENINAR IN REHABILITATION RESEARCH AND DESIGN (3) LEC. 3. Research in rehabilitation counseling, with focus on acquisition of knowledge about traditional and recent developments in research methods, and skill application. May count either RSED 7240 or RSED 7246.

RSED 7310 PROPRIETARY REHABILITATION (3) LEC. 3. Vocational rehabilitation in private sector including case management and expert witness for workers compensation, personal injury litigation, and social security.

RSED 7320 INDIVIDUAL COUNSELING APPROACHES IN REHABILITATION COUNSELING (3) LEC. 3. Survey of theoretical approaches involved in individual counseling with an emphasis on persons with disabilities using an eclectic point of view and psycho-educational approach. May count either RSED 7320 or RSED 7326.

RSED 7400 CURRICULUM AND TEACHING IN SPECIALIZATION (3) LEC. 3. Curriculum design, content, and materials selection related to teaching practices in areas of specialization (intellectual disability, learning disabilities, behavioral disorders, etc.). RSED 7400 and RSED 7406 may be repeated for a maximum combined total of 6 credit hours.

RSED 7410 PROGRAM IMPLEMENTATION IN SPECIALIZATION AUTISM (3) LEC. 3. This course presents principles and procedures for implementing educational programs for children and youth with autism spectrum disorders. Students will apply their knowledge of evidence-based practices for children and youth with ASD by planning and implementing accommodations, instructional methods, and behavioral supports.

RSED 7420 RESEARCH IN SPECIALIZATION (3) LEC. 3. Examination and interpretation of applied research in specialization area (intellectual disabilities, learning disabilities, behavioral disorders, etc.). Course may be repeated with a change in research area. May count either RSED 7420 or RSED 7426. Course may be repeated for a maximum of 6 credit hours.

RSED 7430 RESEARCH INTO PRACTICE (3) LEC. 3. Applied opportunities for translating instructional and behavioral research into practice. The course may be repeated with a change in research topic. Departmental approval. May count either RSED 7430 or RSED 7436. Course may be repeated for a maximum of 6 credit hours.

RSED 7440 SEMINAR IN SPECIALIZATION (3) DSL/SEM. 3. Departmental approval. Advanced students and professor(s) engage in critical thinking regarding selected concepts, theories, research and issues germane to the field of disabilities. Course may be repeated with change in topics.

RSED 7460 POSITIVE BEHAVIOR SUPPORTS (3) LEC. 3. Evaluating and implementing Positive Behavior Interventions and Supports (PBIS) for students grades PK through 12 in traditional and alternative educational settings. May count either RSED 7460 or RSED 7466.

RSED 7470 LEADERSHIP IN SPECIAL EDUCATION (3) LEC. 3. The goal of competent teacher leadership in special education is to provide the supports necessary to ensure effective instruction for all students in a variety of contexts. This course is designed to develop the knowledge, skills, understanding, and attitudes necessary to support special education leadership across an educational service delivery continuum.

RSED 7480 PROGRAM IMPLEMENTATION BIRTH TO AGE 5 (3) LEC. 3. This course provides advanced understanding of a family and child centered practices which include the development, implementation, and evaluation of appropriate routine based and curriculum activities for children ages birth to age 6 with mild learning/behavior disabilities and their families. Content also includes extensive exploration of various curricular and development theories, transition, assistive technology, assessment, and program planning.

RSED 7511 PRACTICUM PRE-K TRADITIONAL (1-3) LEC. 14. LAB. 2. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7531 PRACTICUM TRADITIONAL ELEMENTARY I (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7541 PRACTICUM ELEMENTARY II TRADITIONAL (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Departmental approval required. Course may be repeated for a maximum of 3 credit hours.

RSED 7551 PRACTICUM (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with advanced student learning guided by the instructor. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 3 credit hours.

RSED 7911 PRACTICUM ELEMENTARY I LITERACY & NUMERACY (1-3) LEC. 2. LAB. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7920 CLINICAL RESIDENCY (1-9) DSL. SU. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Course may be repeated for a maximum of 12 credit hours.

RSED 7931 PRACTICUM ELEMENTARY II LITERACY & NUMERACY (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7940 ADVANCED THEORIES IN REHABILITATION COUNSELING (3) LEC. 3. Intensive study of advanced theories within rehabilitation counseling, as well as an examination of outcome research relating to the use and application of these theories and techniques. May count either RSED 7940 or RSED 7946.

RSED 7941 PRACTICUM SECONDARY I LITERACY & MATH (1-3) LEC. 2, FLD. 14. SU. The practicum provides the candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7950 EMERGING ADULTHOOD AND TRANSITION IN REHABILITATION (3) LEC. 3. Introduction to the transition process of youth with disabilities from school to adulthood and employment with emphasis on the developmental stage emerging adulthood. May count either RSED 7950 or RSED 7956.

RSED 7951 PRACTICUM PRE-K – SECONDARY II (1-3) LEC. 2. LAB. 14. SU. The practicum provides the advanced candidate the opportunity during his or her career preparation to translate theory and research into practice in an educational or community service delivery setting aligned with degree program option. Department approval. Course may be repeated for a maximum of 3 credit hours.

RSED 7980 NON-THESIS PROJECT (1-3) DSL. SU. Course may be repeated for a maximum of 10 credit hours.

RSED 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. The content focus of the study area will be translated into specific objectives with the student learning toward that end, guided by the instructor. In addition to regular meetings with the instructor, the student will be evaluated and graded according to learning performance. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 10 credit hours.

RSED 8010 DISABILITIES AND RESEARCH METHODS (3) LEC. 3. Departmental approval. History, principles, and methodology of single subject research with emphasis on the various types of research designs applied in rehabilitation and special education.

RSED 8020 DISABILITIES AND APPLIED RESEARCH IN MEASUREMENT (3) LEC. 3. Departmental approval. Classical measurement theory, individual differences determination, constructs related to diagnostic labels, measurement bias and fairness, nature-nurture controversy, and clinical versus statistical inference.

RSED 8030 DISABILITIES AND PROFESSIONAL ISSUES (3) LEC. 3. Critical and contemporary issues regarding disability and its relationship to the leadership roles of professionals in special education and rehabilitation. May count either RSED 8030 or RSED 8036.

RSED 8040 DISABILITIES AND ASSISTIVE TECHNOLOGY (3) LEC. 3. Departmental approval. Adaptive technology for use by persons with disabilities and proficiency in the use of computers and the World Wide Web as they relate to disabilities.

RSED 8050 DISABILITIES AND THE LAW (3) LEC. 3. Departmental approval. Development of rehabilitation and special education laws from a historical, policy, leadership, and advocacy. perspective.

RSED 8060 DISABILITIES AND LIFE SPAN TRANSITIONS (3) LEC. 3. Departmental approval. Advanced study of historical, legal, legislative, philosophical, and service delivery issues and trends with emphasis on research studies and programs.

RSED 8070 PROFESSIONAL SEMINAR (3) LEC. 3. SU. Departmental approval. A series of doctoral seminars devoted to professional technical writing, grant writing, management, and research. Course may be repeated with change in topics.

RSED 8230 EXAMINING DISABILITY DATABASES (3) LEC. 3. Conducting descriptive and correlational research by using existing publicly available databases in the field of disabilities.

RSED 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Course may be repeated with change in topics.

RSED 8950 SEMINAR (1-3) DSL/SEM. Departmental approval. Provides an opportunity for advanced graduate students and professors to pursue cooperatively selected concepts and theoretical formulations. Course may be repeated for a maximum of 9 credit hours.

RSED 8980 NON-THESIS PROJECT (1-10) DSL/IND. SU. Departmental approval. May be repeated with change in topic. Provides an opportunity for advanced graduate students to pursue a project of interest. Course may be repeated with change in topics.

RSED 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated. Course may be repeated with change in topics.

Religion - RELG

Courses

RELG 1020 INTRODUCTION TO THE HEBREW SCRIPTURES (3) LEC. 3. Historical-critical study of the Hebrew scriptures in their cultural setting; emphasis on development of ancient Hebrew thought.

RELG 1030 INTRODUCTION TO THE NEW TESTAMENT (3) LEC. 3. Historical-critical study of the New Testament in its cultural setting; major issues in New Testament study.

RELG 1040 INTRODUCTION TO WESTERN RELIGIONS (3) LEC. 3. Introduction to Islam, Judaism, and Christianity, with attention to Druze religion and Bah'al. May count either RELG 1040 or RELG 3340.

RELG 1050 INTRODUCTION TO EASTERN RELIGIONS (3) LEC. 3. Introduction to Hinduism, Buddhism, and Confucianism, with secondary attention to other Asian religions. May count either RELG 1050 or RELG 3330.

RELG 4960 SPECIAL PROBLEMS IN RELIGIOUS STUDIES (3) LEC. 3. Independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.

RELG 4970 SPECIAL TOPICS (3) LEC. 3. Course may be repeated with change in topics.

Rural Sociology - RSOC

Courses

RSOC 2090 FOOD SYSTEMS: POLICY, PRODUCTION, AND PRACTICE (3) LEC. 3. Post farm gate transformation of raw commodities into edible food. Supply chain, policy, and consumption issues as they relate to processing, safety, nutrition, and waste in the U.S.

RSOC 3560 ENVIRONMENT, SOCIETY, AND JUSTICE (3) LEC. 3. The course focuses on micro and macro structures influencing environmental problems, and possible pathways for their resolution. The course introduces Environmental Sociology through an action-oriented approach to environmental problems.

RSOC 3620 COMMUNITY ORGANIZATION (3) LEC. 3. Analysis of social organization at the community level. Conceptual framework developed to examine both internal and external forces affecting urban as well as rural communities in the U.S., and to identify strategies to strengthen local capacity to adapt to changing social and economic environments.

RSOC 4910 DIRECTED FIELD EXPERIENCE (3) LEC. 3. Departmental approval. Structured intensive involvement within an agency or organization serving people in communities or rural areas. Supervision is shared between agency personnel and department faculty who plan, consult, discuss, and evaluate student activities and reports.

RSOC 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Individualized study of topics in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 4960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Departmental approval. Investigation of problems in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 5190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. Key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy). May count either RSOC 5190 or RSOC 6190.

RSOC 5410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. An introduction to the Cooperative Extension System and other forms of educational outreach. Application of techniques used in extension and outreach planning and programming.

RSOC 5510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or ECON 2020 or ECON 2023 or ECON 2027. Description for Bulletin: Measuring and explaining poverty inequality and their effects on families and society, analysis of anti-poverty programs.

RSOC 5610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes, and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 5640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3) LEC. 3. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; citizen participation in community affairs.

RSOC 5650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 6190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. This is an advanced course that will focus on key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy).

RSOC 6410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. An introduction to the Cooperative Extension System and other forms of educational outreach. Application of techniques used in extension and outreach planning and programming.

RSOC 6510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Description for Bulletin: Measuring and explaining poverty and inequality and their effects on families and society; analysis of anti-poverty programs.

RSOC 6610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 6650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 7620 SOCIOLOGY OF COMMUNITY (3) LEC. 3. Emphasis on theories, conceptual approaches and methods for studying communities and assessing developmental needs with attention to organizational structure, power structure, decision-making and linkage networks to societal units.

RSOC 7630 POLITICAL ECONOMY OF DEVELOPMENT (3) LEC. 3. Theories of societal development applied to contemporary issues associated with change in non-industrialized nations. Exploration of institutional, class, and state interests that guide development processes, as well as alternative participatory development strategies.

RSOC 7700 METHODS OF SOCIAL RESEARCH (3) LEC. 3. Problem identification, hypothesis development and empirical analysis. Quantitative and qualitative procedures for obtaining social data using surveys, direct observation and secondary sources.

RSOC 7960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Pr., departmental approval. Investigation of a problem in a particular area of interest involving an in-depth review of the literature, a research project, or an outreach education activity. Course may be repeated for a maximum of 6 credit hours.

RSOC 7970 SPECIAL TOPICS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (3) LEC. 3. Departmental approval. New topic in the area of rural sociology and community development.

RSOC 7990 RESEARCH AND THESIS (1-10) MST. In conjunction with the preparation of a thesis. Course may be repeated with change in topics.

Sciences & Math - SCMH

Courses

SCMH 1010 CONCEPTS OF SCIENCE (4) LEC. 3. LAB. 2. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. After taking SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science Core. May count either SCMH 1010 or SCHM 1013 or SCHM 1017.

SCMH 1017 HONORS CONCEPTS OF SCIENCE (4) LEC. 3. LAB. 2. Pr. Honors College. Interdisciplinary course for Honors students which presents major scientific concepts in physical and biological sciences. After taking SCMH 1017, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, GEOL 1107, PHYS 1000, or PHYS 1150. Science core. Credit will not be given for both SCMH 1017 and SCMH 1010.

SCMH 1100 COSAM ORIENTATION (1) LEC. 1. Introduction to the College of Sciences and Mathematics and its resources, exploration of STEM careers, orientation to campus resources and facilities, and assistance with academics and transition to Auburn.

SCMH 1890 PRE-HEALTH PROFESSIONS ORIENTATION (1) LEC. 1. SU. Orientation and guidance tailored for non-freshmen and transfer students planning to seek admission into health professions schools and programs such as dentistry, medicine, optometry, pharmacy, physician assistant, and physical therapy.

SCMH 1897 HONORS PRE-HEALTH PROFESSIONS ORIENTATION (1) LEC. 1. SU. Pr. Honors College. Orientation and guidance tailored for non-freshmen and transfer students planning to seek admission into health professions schools and programs such as dentistry, medicine, optometry, pharmacy, physician assistant, and physical therapy.

SCMH 1950 COSAM MAJOR AND CAREER EXPLORATION (1) LEC. 1. Introduction to majors offered by the College of Sciences and Mathematics, motivation and skills for academic success, departmental resources and facilities, and exploration of careers in Sciences and Mathematics.

SCMH 3010 INQUIRY EXPERIENCES FOR SCIENCE TEACHERS (3) LEC. 2. LAB. 2, LLB. 0. This course introduces students to the nature and process of science through project-based instruction. It highlights experimental design, data analysis, and presenting scientific work both orally and in writing. This is a writing enriched course in the required AUTeach course sequence.

SCMH 3050 SERVICE-LEARNING EXPERIENCES IN UNDERSERVED POPULATIONS (3) LEC/PRA. 2. Service learning with a focus on underserved populations. Students engage in experiential learning to meet community needs, enhancing their cultural competence and civic responsibility. Ideal for those in helping professions, STEM, and Pre-Health, it strengthens community partnerships and understanding of complex social issues. Departmental approval required.

SCMH 3810 PRE-PHYSICAL THERAPY PRACTICUM (1) PRA. 2. SU. Departmental approval. Direct observation of physical therapists at an approved facility in the Auburn-Opelika area.

SCMH 3890 PRE-MEDICAL PRECEPTORSHIP (1) LAB. 2. SU. Departmental approval. Direct observation and interaction with physicians at East Medical Center and in individual medical offices.

SCMH 3950 SEMINAR ON MCAT AND DAT SCIENTIFIC FOUNDATIONS (2) LEC. 2. SU. Pr. SCMH 1890 and BIOL 1030 and CHEM 2070. A deep dive into the foundational scientific concepts required for the Medical College Admission Test (MCAT) and the Dental Admission Test (DAT). The course emphasizes interactive discussions and practice of the core science subjects pertinent to the tests, supplemented by problem-solving sessions and mock exams to ensure comprehensive preparation. Department approval.

SCMH 4700 PEDAGOGY OF PEER-LED INSTRUCTION (1) LEC. 1. Pedagogical training course on effective instructional strategies in the STEM disciplines integrating educational theory, pedagogy, content, and practice. Departmental approval required.

SCMH 4920 SCIENCES AND MATHEMATICS INTERNSHIP (1-4) DSL. 8-16. SU. Practical on-the-job training in some area related to Sciences and Mathematics. Course may be repeated for a maximum of 6 credit hours.

SCMH 4970 UNDERGRADUATE SPECIAL TOPICS IN SCIENCES AND MATHEMATICS (1-4) LEC. 1-4. Undergraduate study of specialized topics related to Sciences and Mathematics. Departmental approval required. Course may be repeated for a maximum of 8 credit hours.

SCMH 4980 SCIENCES AND MATHEMATICS UNDERGRADUATE RESEARCH (1-5) IND/RES. Departmental approval. Directed research in an area of specialty within Sciences and Mathematics and interdisciplinary fields. Course may be repeated for a maximum of 6 credit hours.

SCMH 5010 CLINICAL APPLICATIONS I (3) LEC. 2. A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 5020 CLINICAL APPLICATIONS II (3) LEC. 2, CLN/LEC. 1. Pr. SCMH 5010. A continuation of SCMH 5010.

SCMH 5050 PHYSICAL EXAMINATION TECHNIQUES FOR CLINICAL APPLICATIONS (1) LEC. 1. Undergraduate-level course focused on mastering physical examination techniques for medical clinic applications; enhances students' understanding of anatomy and physiology through hands-on patient interactions; develops critical professionalism and communication skills necessary for effective patient care. Departmental approval required.

SCMH 5940 GLOBAL STUDY/TRAVEL IN SCIENCES AND MATHEMATICS (1-12) AAB. Departmental approval. Application required. Students international study travel on topics relevant to Sciences and Mathematics. Course may be repeated for a maximum of 12 credit hours.

SCMH 5970 ADVANCED SPECIAL TOPICS IN SCIENCES AND MATHEMATICS (1-3) LEC. 1-3. Advanced study of specialized topics related to Sciences and Mathematics. Departmental approval required. Course may be repeated for a maximum of 6 credit hours.

SCMH 6010 CLINICAL APPLICATIONS I (3) LEC. 2, CLN/LEC. 2. Departmental approval. A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 6020 CLINICAL APPLICATIONS II (3) LEC. 2, CLN/LEC. 2. Pr. SCMH 6010. Departmental approval. A study of the clinical/societal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 6050 PHYSICAL EXAMINATION TECHNIQUES FOR CLINICAL APPLICATIONS (1) LEC. 1. Graduate-level course focused on mastering physical examination techniques for medical clinic applications; enhances students' understanding of anatomy and physiology through hands-on patient interactions; develops critical professionalism and communication skills necessary for effective patient care. Departmental approval required.

SCMH 6970 ADVANCED SPECIAL TOPICS IN SCIENCES AND MATHEMATICS (1-3) LEC. 1-3. Departmental approval. Advanced study of specialized topics related to Sciences and Mathematics. Course may be repeated for a maximum of 6 credit hours.

SCMH 8150 DOCTORAL SEMINAR ON CURRENT TOPICS IN SCM RESEARCH (3) LEC. 3. The class is a rigorous, seminar style course on Current Topics in SCM Research. Each class will familiarize you with the key insights in a current research topic (i.e., the “hot topics”) in the SCM area. The instructor has chosen to cover a broad range of active research to give you an overview of topics that people are working on currently and are likely to work on in the future.

Secondary Education - CTSE

Courses

CTSE 1000 INQUIRY APPROACHES TO SCIENCE TEACHING: STEP 1 (1) LEC. 1. LAB. 2. This course allows students to explore teaching as a career. Following an introduction to the theory and practice behind excellent inquiry-based science instruction, candidates teach lessons in elementary classrooms to obtain firsthand experience in planning and implementation. An elementary school placement is chosen to help the AUTeach student connect with youth who are moving into the targeted grade band. Master teachers in AUTeach are instructors and are chosen for their experience and success in secondary classrooms. They provide candidates direct exposure to people who love teaching and view it as a rewarding career choice. Mentor teachers at the schools where candidates teach their prepared lessons demonstrate effective teaching techniques and classroom management skills, giving the future teachers a true taste of working in a supportive, diverse educational setting. The course emphasizes using the 5E Learning Cycle instructional model.

CTSE 2000 INQUIRY APPROACHES TO SCIENCE TEACHING: STEP 2 (1) LEC. 1. LAB. 2. This course allows students to continue developing the lesson planning and teaching skills explored in CTSE 1000 (Step 1). After observing a lesson being taught in a local school district classroom, students (in pairs) plan and teach two inquiry-based lessons to sixth, seventh, or eighth graders. Middle school science classrooms are selected both for the diversity of the student body and the quality of the classroom teachers, who serve as mentors for the Step 2 students assigned to them. For their final product, Step 2 students analyze and modify one of the lessons they taught, taking into account the results of the assessments, their reflection on how successful the lesson was, and feedback from observers (Mentor Teacher, Instructor, or Teaching Assistant). By the end of Step 2, students are usually able to make a decision about whether to pursue teacher certification through the AUTeach program. In addition to the unique Core Components and Course Objectives listed below, all AUTeach courses are designed in accordance with the AUTeach Course Design Principles. The course emphasizes using the 5E Learning Cycle instructional model.

CTSE 2500 INQUIRY APPROACHES TO SCIENCE TEACHING: COMBINED STEP 1 AND 2 (2) LEC. 2. LAB. 4. This course allows students to explore teaching as a career, learn the theory and practice behind excellent inquiry-based science instruction, and teach lessons in elementary and middle school classrooms in order to plan and implement lessons. This course replaces CTSE 1000 and CTSE 2000. It's a combined course. After observing lessons being taught in local school districts, students work in pairs to plan and teach two lessons in elementary classrooms, and two inquiry-based lessons to sixth, seventh, or eighth graders. Elementary and middle school science classrooms are selected both for the diversity of the student body and the quality of the classroom teachers, who serve as mentors for the students assigned to them. For their final product, Step 1/2 students analyze and modify one of the lessons they taught, taking into account the results of the assessments, their reflection on how successful the lesson was, and feedback from observers (Mentor Teacher, Instructor, or Teaching Assistant). By the end of this class, students are usually able to make a decision about whether to pursue teacher certification through the AUTeach program.

CTSE 4050 CURRICULUM AND TEACHING I: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4210. Admission to Teacher Education. Application of current educational research and instructional strategies to the design of meaningful social studies instruction and assessment.

CTSE 4060 CURRICULUM AND TEACHING II: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4050 and CTSE 4210. Admission to Teacher Education. Curriculum decision making and planning for instruction, evaluation, and classroom management.

CTSE 4070 CURRICULUM AND TEACHING I: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Admission to Teacher Education. Strategies for teaching foreign language students with a special emphasis on developing good instruction for comprehensible input and emerging speech tasks. May count either CTSE 4070 or CTSE 4073.

CTSE 4080 CURRICULUM AND TEACHING II: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Pr. CTSE 4070 or CTSE 4073. Admission to Teacher Education. Teaching strategies based on language acquisition theories that are appropriate for teaching foreign language students. May count either CTSE 4080 or CTSE 4083.

CTSE 4150 CURRICULUM AND TEACHING I: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTSE 5010 and CTSE 5020. Admission to Teacher Education. Teaching the expressive English language arts, writing and speaking, in middle and high school classrooms.

CTSE 4160 CURRICULUM AND TEACHING II: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTSE 4150. Admission to Teacher Education. Teaching the receptive English language arts; reading, listening, and viewing; in middle and high school classrooms. Admission to Teacher Education required.

CTSE 4210 SOCIAL SCIENCE CONCEPTS AND METHODS (3) LEC. 3. For pre-service teachers. Organizing social science disciplinary knowledge into an integrated framework that is meaningful, useful, and relevant to high school students. 15 hours in social sciences (2000 level or above).

CTSE 4900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTSE 4910 PRACTICUM (1-6) DSL/PRA. SU. Departmental approval. Admission to Teacher Education. Cooperatively selected field experience. Course may be repeated for a maximum of 6 credit hours.

CTSE 4920 CLINICAL RESIDENCY (11) AAB/DSL. 40. SU. Pr. P/C CTSE 5210 or P/C CTSE 5213 or P/C CTSE 5220 or P/C CTSE 5223 or P/C CTSE 5230 or P/C CTSE 5233 or P/C CTSE 5240 or P/C CTSE 5243 or P/C CTSE 5250 or P/C CTSE 5253 or P/C CTSE 5410. Admission to Clinical Residency. Supervised teaching in a public secondary school abroad accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTSE 4920 or CTSE 4923.

CTSE 4930 AUTEACH CLINICAL RESIDENCY (8) DSL/FLD. 30. SU. Pr. P/C CTSE 5240 or P/C CTSE 5243. Departmental approval. Supervised science teaching in a public secondary school accompanied by scheduled discussions to analyze and evaluate the clinical resident's experience.

CTSE 4970 SPECIAL TOPICS (1-4) DSL. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 4 credit hours.

CTSE 5000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000, CTSE 5003, CTSE 6000 or CTSE 6006.

CTSE 5010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. Junior standing. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 5020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020 or CTSE 6020.

CTSE 5030 TEACHING MATHEMATICS: HIGH SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Strategies for teaching and evaluating high school mathematics to promote the learning of all students.

CTSE 5031 PRACTICUM IN HIGH SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 5030. Admission to Teacher Education. This course is designed to provide 36 clock hours of teaching and experience in High School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTSE 5040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (3) LEC. 3. LAB. 0, LEC/LLB. 0. Pr. MATH 2660. Admission to Teacher Education. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 5041 PRACTICUM IN SECONDARY MATHEMATICS TECHNOLOGY (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 5040. Admission to Teacher Education. This course is designed to provide 18 clock hours of teaching and experience in Secondary Mathematics Technology. It is an intensive, interactive experience at a strategically selected school site.

CTSE 5050 ANALYZING PERSISTENT ISSUES IN HISTORY AND GEOGRAPHY (3) LEC. 3. This course will engage students in inquiry-based and Persistent Issues in History units of content instruction with selected topics that integrate history and geography content and then deconstruct those units to examine the research-based learning and assessment principles that underlie their design.

CTSE 5060 ANALYZING PERSISTENT ISSUES IN POLITICAL ECONOMY (3) LEC. 3. This course integrates moral philosophy, political science, and economics into an exploration of persistent issues in political economy. Students will metacognitively analyze their own learning as they investigate and propose a policy solution to a political economy problem.

CTSE 5090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2. LAB. 4. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 5100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4090. Admission to Teacher Education. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approaches. May count either CTSE 5100 or CTSE 6100.

CTSE 5110 PERSPECTIVES IN SCIENCE (3) LEC. 3. Perspectives on Science is an overview and introduction to the scholarly field of science history with applications for embedding historical stories and discoveries into today’s secondary science classrooms.

CTSE 5210 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) LEC. 1. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 5220 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1-2) AAB. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220 or CTSE 6220. Course may be repeated for a maximum of 2 credit hours.

CTSE 5230 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB/DSL. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 5240 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB/DSL. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 5250 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 5830 STATISTICS AND PROBABILITY FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. STAT 2010 or STAT 3010. Admission to Teacher Education. Connections of college-level mathematics with the secondary mathematics curriculum, focusing on statistics and probability, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving.

CTSE 5840 NUMBER SYSTEMS AND ALGEBRA FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MATH 1620. Admission to Teacher Education. Connections of college-level mathematics with the secondary mathematics curriculum, focusing on number systems, algebra, and functions, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving.

CTSE 5850 FUNCTIONS AND MATHEMATICAL MODELING FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MATH 2630. Admission to Teacher Education. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on functions and mathematical modeling, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving.

CTSE 5860 GEOMETRY FOR SECONDARY MATHEMATICS TEACHERS (3) LEC. 3. LAB. 0, LEC. 0. Pr. MATH 1610. Admission to Teacher Education. Connections of college-level mathematics with the secondary mathematics curriculum, focusing on geometry, to develop mathematical knowledge relevant to teaching. The contents include axiomatic development of geometry, transformational geometry, and similarity. Appropriate technology and mathematics problem solving skills will be introduced.

CTSE 6000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000, CTSE 5003, CTSE 6000 or CTSE 6006.

CTSE 6010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 6020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020, CTSE 6020 or CTSE 6026.

CTSE 6030 TEACHING MATHEMATICS: HIGH SCHOOL (3) LEC. 3. LAB. 0, LEC. 0. Strategies for teaching and evaluating high school mathematics to promote the learning of all students.

CTSE 6031 PRACTICUM IN HIGH SCHOOL MATHEMATICS (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 6030. This course is designed to provide 36 clock hours of teaching and experience in High School Mathematics. It is an intensive, interactive experience at a strategically selected school site.

CTSE 6040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (3) LEC. 3. LAB. 0, LEC. 0. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 6041 PRACTICUM IN SECONDARY MATHEMATICS TECHNOLOGY (1) LEC. 0. LAB. 1, PRA. 0. SU. Pr. P/C CTSE 6040. This course is designed to provide 18 clock hours of teaching and experience in Secondary Mathematics Technology. It is an intensive, interactive experience at a strategically selected school site.

CTSE 6050 ANALYZING PERSISTENT ISSUES IN HISTORY AND GEOGRAPHY (3) LEC. 3. This course will engage students in inquiry-based and Persistent Issues of History units of content instruction with selected topics that integrate history and geography content and then deconstruct those units to examine the research-based learning and assessment principles that underlie their design.

CTSE 6060 ANALYZING PERSISTENT ISSUES IN POLITICAL ECONOMY (3) LEC. 3. This course integrates moral philosophy, political science, and economics into an exploration of persistent issues in political economy. Students will metacognitively analyze their own learning as they investigate and propose a policy solution to a political economy problem.

CTSE 6090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2. LAB. 4. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 6100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC/LLB. 6. Pr. CTSE 4090. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approches. May count either CTSE 5100 or CTSE 6100.

CTSE 6210 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) AAB. 1. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 6220 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1) AAB. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220, CTSE 5223, CTSE 6220 or CTSE 6226.

CTSE 6230 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB. 15. Pr. (P/C CTSE 7920 or P/C CTSE 7926). Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 6240 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 6250 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 6710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. May count either CTSE 5710, CTSE 6710, or CTSE 6716.

CTSE 7000 ORIENTATION TO TEACHING AND LEARNING (1) LEC. 1. Skills, dispositions, community, and research planning for graduate students including preparation of a research proposal. May count either CTSE 7000 or CTSE 7006.

CTSE 7490 THE SECONDARY SCHOOL PROGRAM (3) LEC. 3. Departmental approval. Implications of research and theory for the total secondary school program.

CTSE 7510 RESEARCH STUDIES IN AREA OF SPECIALIZATION (3) LEC. 3. Research methodology, landmark studies, critique and application of research in the area of specialization.

CTSE 7520 CURRICULUM AND TEACHING IN AREA OF SPECIALIZATION (3) LEC. 3. Nature of learners and of knowledge and implications for for building curricula and planning instruction in the area of specialization. May count either CTSE 7520 or CTSE 7526.

CTSE 7530 ORGANIZATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Program models, components, and standards in the area of specialization. May count either CTSE 7530 or CTSE 7536.

CTSE 7540 EVALUATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Theoretical perspectives of evaluation and methods of evaluating learners, teachers, and curricula. May count either CTSE 7540 or CTSE 7546.

CTSE 7560 EQUITY ISSUES IN MATHEMATICS EDUCATION (3) LEC. 3. Theories, issues, and pedagogy related to achieving equity in mathematics education.

CTSE 7800 CAPSTONE IN TEACHING AND LEARNING (2) LEC. 2. Development of a unique portfolio based on professional interest and demonstration the ability to foster student achievement through the design, implementation, and assessment of learning activities. May count either CTSE 7800 or CTSE 7806.

CTSE 7900 DIRECTED STUDIES (1-6) DSL/IND. SU. Departmental approval. Independent study directed toward desired objectives related to their respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTSE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTSE 7920 CLINICAL RESIDENCY (8-11) AAB. 40. SU. Pr. P/C CTSE 6210 or P/C CTSE 6216 or P/C CTSE 6220 or P/C CTSE 6226 or P/C CTSE 6230 or P/C CTSE 6236 or P/C CTSE 6240 or P/C CTSE 6246 or P/C CTSE 6250 or P/C CTSE 6256. Admission to Clinical Residency. Supervised clinical residency experiences in a school, college or other appropriate setting. Evaluation and analysis of the clinical residency experinece. Departmental approval. May count either CTSE 7920 or CTSE 7926. Course may be repeated for a maximum of 11 credit hours.

CTSE 7970 SPECIAL TOPICS (1-6) DFL. Departmental approval. Provides an opportunity for the graduate student and professor to pursue selected topics in depth. Course may be repeated for a maximum of 6 credit hours.

CTSE 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTSE 8950 SEMINAR (1-3) DSL/SEM. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTSE 8980 FIELD PROJECT (1-3) DSL/FLD. SU. Departmental approval. Students review literature pertaining to a problem they have identified in their own practice, form hypotheses, plan intervention, collect data, analyze and interpret results, write summary of the project following approved guidelines, and orally defend the results of their project. Course may be repeated for a maximum of 3 credit hours.

CTSE 8990 RESEARCH AND DISSERTATION (1-10) DSL/DSR. Course may be repeated with change in topics.

Social Work - SOWO

Courses

SOWO 2000 INTRODUCTION TO SOCIAL WORK (3) LEC. 3. Introduction to social work practice, examining career opportunities, history of the profession, practice settings, values, ethics, and types of clientele.

SOWO 2650 HISTORY OF SOCIAL WELFARE (3) LEC. 3. Development of social welfare policies and programs in the United States, analysis of political, economic, and social factors involved.

SOWO 3500 CHILD WELFARE (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007 or SOWO 2000 or SOWO 2003. Social work practice in settings dealing with child abuse and neglect, foster care, child care, and adoption.

SOWO 3600 AGING ISSUES AND SERVICES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Introduction to social services and social work with the elderly, considering socio-cultural issues and impact on the elderly.

SOWO 3700 ADDICTIONS (3) LEC. 3. Pr. PSYC 2010 or PSYC 2017 or PSYC 2013. Addictions, theories of causality, social impact, and treatment approaches in today's society. Experiential component included.

SOWO 3800 HUMAN BEHAVIOR IN SOCIAL ENVIRONMENT I (3) LEC. 3. Pr. SOWO 2000 or SOWO 2003. Lifespan developmental approach to biopsychosocial examination of human behavior and development, emphasizing the diversity of human experience related to gender, social class, race, ethnicity, sexual orientation, and disability. Experiential component included.

SOWO 3850 HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT II (3) LEC. 3. Pr. SOWO 3800. Social systems approach to examination of human behavior and development as influenced by groups, organizations, and communities, emphasizing the forms and mechanisms of oppression and discrimination as well as strategies to advance social and economic justice. Experiential component included.

SOWO 3910 FIELD PRACTICUM SEMINAR (3) PRA. Pr. SOWO 2000 or SOWO 2003. Introduction to fields and settings of social work practice via placement in a selected social service agency. Includes a concurrent integrative seminar to analyze the experience.

SOWO 4060 SOCIAL WORK PRACTICE METHODS I (3) LEC. 3. Pr. (SOWO 2000 or SOWO 2003) and SOWO 3800 and SOWO 3910 and (SOCY 1000 or SOCY 1003 or SOCY 1007). Introduction to generalist practice methods and skills in engagement, assessment, and goal setting with individual clients. Experiential component included.

SOWO 4070 SOCIAL WORK PRACTICE METHODS II (3) LEC. 3. Pr. SOWO 4060. Practice skills and perspectives required for work with families and groups. Experiential component included.

SOWO 4080 SOCIAL WORK PRACTICE METHODS III (3) LEC. 3. Pr. SOWO 4060. Generalist practice theory and skills as applied to communities, organizations, and oppressed populations, emphasizing issues of social justice and social action. Experiential component included.

SOWO 4090 SOCIAL WELFARE POLICY (3) LEC. 3. Pr. SOWO 2650 or SOWO 2653. Critical analysis of policy issues and proposals in selected social welfare programs and their impact upon current social problems and social work values and ethics.

SOWO 4920 INTERNSHIP IN SOCIAL WORK (9) FLD. 9. SU. Pr. SOWO 4080. 480-hour field experience under joint supervision of agency and university. Application of generalist practice skills and research project required.

SOWO 4950 SENIOR INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 4080. Coreq. SOWO 4920. and Enrollment in SOWO 4920. Integrating theory with practice through analysis of behavior and evaluation of practice skills.

SOWO 4970 SOCIAL WORK SPECIAL TOPICS (3) LEC. 3. Timely and/or controversial topics related to social work. Course content will depend upon the designated topic.

SOWO 7000 INTRODUCTION TO SOCIAL WORK AND SOCIAL WELFARE (3) LEC. 3. This course provides a review of the social work profession, history, and values and ethics. An overview of theory, practice, policy, and research are integrated in exploring the knowledge, values, and skills base of the social work profession.

SOWO 7010 ADVANCED CLINICAL PRACTICE (3) LEC. 3. Pr. SOWO 7020. This course provides intensive study on clinical interventions with individuals, families, and small groups across various fields of practice.

SOWO 7020 PSYCHOPATHOLOGY (3) LEC. 3. This advanced practice course teaches students to recognize selected major mental health disorders in adults, children, and youth and to become familiar with social work practice approaches used in the treatment of these disorders.

SOWO 7030 EVALUATION IN SOCIAL WORK PRACTICE (3) LEC. 3. This course examines quantitative and qualitative evaluation of agency programs and individual practice. Students will engage in hands-on individual and/or small-group research projects to experience all phases of the research process.

SOWO 7040 SOCIAL WORK PRACTICE IN THE HEALTH CARE FIELD (3) LEC. 3. This course will focus on the development of social work practice skills relevant to health care settings, including assessment of the impact of illness, disability, treatment, and hospitalization on patients and families.

SOWO 7050 MENTAL HEALTH (3) LEC. 3. Pr. SOWO 7020. This course focuses on mental health social work practice with children, adolescents and adults, covering assessment and several theoretically based interventions with an emphasis on gaining practice skills. Special attention is given to strengths-based, evidence-based, and recovery-oriented practice models.

SOWO 7060 SOCIAL WORK PRACTICE WITH INDIVIDUALS AND FAMILIES (3) LEC. 3. This foundation course prepares students to apply a generalist perspective and systems framework to social work practice with individuals and families. It emphasizes the basics of communication, interviewing, relationship building, and practice skills essential to effective assessment, intervention, and evaluation.

SOWO 7070 SOCIAL WORK WITH GROUPS AND COMMUNITIES (3) LEC. 3. Pr. SOWO 7060. This macro social work course provides an advanced examination of social work practice in groups and larger systems. Students will develop knowledge, values, and skills in areas of: group practice, community assessment, social planning, community organization, and political strategies.

SOWO 7080 POLICY PRACTICE AND SOCIAL JUSTICE (3) LEC. 3. This course will critically apply conceptual frameworks and empirical research in the examination of social issues, policies, and services, focusing on how policies affect marginalized, oppressed and disadvantaged populations.

SOWO 7090 ADVANCED SOCIAL WELFARE POLICY (3) LEC. 3. The course will review the historical development of social welfare and social policies in the United States and explore their context and underlying values. This course builds knowledge and skills to analyze and make changes in social welfare policy.

SOWO 7100 GERONTOLOGY (3) LEC. 3. The course provides a clinical foundation for clinical work practice with older adults and their families. Primary focus will be on understanding how diversity factors into the physiological, psychological, and social aspects of later life.

SOWO 7110 TRAUMA INFORMED PRACTICE (3) LEC. 3. This course examines social work practice theories and intervention approaches as they apply to practice with survivors of crisis and trauma. The course will focus on engagement, assessment, planning, intervention, evaluation and follow up on all social work practice levels.

SOWO 7120 PSYCHOSOCIAL CONTEXT OF DISABILITY (3) LEC. 3. Prepares the social worker to be an effective practitioner for persons with disabilities by exploring the psychosocial context of the lives and experiences of persons with disabilities and their families from various perspectives.

SOWO 7130 SOCIAL WORK PRACTICE WITH CHILDREN AND ADOLESCENTS (3) LEC. 3. This course develops advanced clinical social work practice knowledge and skills to engage and intervene with children and adolescents with health and mental health risk and provides knowledge for community social workers serving children who are exposed to stress.

SOWO 7140 DIVERSITY AND DIFFERENCE IN PRACTICE (3) LEC. 3. Students must be admitted to the Masters of SocialWork Program to enroll in this course.

SOWO 7600 VETERINARY SOCIAL WORK PRACTICE (3) DSL. This course reviews research, practice settings, and policy needs in the four areas of veterinary social work: the link between human and animal violence, animal assisted interventions, animal related grief and bereavement, and compassion fatigue. Students will be expected to become knowledgeable about research findings and apply them to social work practice skills and policy advocacy.

SOWO 7700 FOUNDATIONS OF SOCIAL WORK RESEARCH (3) LEC. 3. This course provides a study of quantitative and qualitative research methods in order to build knowledge for social work practice. Students will be prepared to develop, implement and communicate ethical, empirically-based scientific knowledge.

SOWO 7800 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT (3) LEC. 3. This graduate-level foundation course covers theories, themes, and issues that influence individual and group and development across the life span- in interaction with the environment- as it underlies social work practice and research.

SOWO 7920 GENERALIST FIELD (10) INT. 10. SU. This course prepares students for responsible, competent entry into the profession by providing opportunities to practice social work with a generalist perspective in agency settings under educational supervision. This course requires completion of 432 total hours in an agency setting.

SOWO 7930 ADVANCED FIELD (12) INT. 12. SU. Pr. SOWO 7920. Coreq. SOWO 7950. This course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students complete 512 hours in an approved agency during this field experience. Course may be repeated for a maximum of 18 credit hours.

SOWO 7940 ADVANCED FIELD PLACEMENT I (6) INT. SU. This is the first course in a sequence of two field placement courses that are taken successively. The course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students complete 256 hours in an approved agency in one semester during this field experience.

SOWO 7950 INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 7020 and P/C SOWO 7930. This seminar course assists students in integrating and applying classroom learning with the advanced field placement. Opportunities are provided for case presentation, discussion and peer consultation.

SOWO 7960 ADVANCED FIELD PLACEMENT II (6) INT. SU. This is the second course in a sequence of two field placement courses that are taken successively. The course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students must successfully complete SOWO 7940 Advanced Field I to enter this course. Students complete 256 hours in an approved agency in one semester during this field experience.

SOWO 7970 SPECIAL TOPICS IN SOCIAL WORK (3) LEC. 3. Study of a topic of special interest in professional social work practice beyond current departmental course offerings. Course may be repeated for a maximum of 6 credit hours.

Sociology - SOCY

Courses

SOCY 1000 SOCIOLOGY: GLOBAL PERSPECTIVE (3) LEC. 3. Social Science I Core. Introduction to the study of social and cultural patterns of society.

SOCY 1007 HONORS SOCIOLOGY (3) LEC. 3. Pr. Honors College. Social Science I Core. Introduction to the study of social and cultural patterns in society.

SOCY 1050 AUBURN IN THE WORLD: SOCIETY AND CULTURE (4) LEC. 4. Auburn Global students. Part of the Auburn Global International Accelerator Program. The course will introduce students to American society and culture through core sociological concepts. May count either SOCY 1050 or HIST 1000.

SOCY 1100 CURRENT ISSUES IN RACE AND ETHNICITY (3) LEC. 3. An exploration of how race and ethnicity shape our daily lives and the world around us.

SOCY 2000 SOCIAL ISSUES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Exploration of the claims and conflicts of public issues and moral apprehensions, including crime, the environment, gender and racial inequality, various syndromes.

SOCY 2050 CRIME AND JUSTICE IN AMERICA (3) LEC. 3. Distribution and measurement of crime, different variations in criminal behavior, and handling crime in the American criminal justice system.

SOCY 2100 POPULATION AND SOCIETY (3) LEC. 3. Survey of theories and research of demographic processes and their interaction with the economy, education, family, medicine, science, and technology.

SOCY 2200 SOCIAL PSYCHOLOGY: SOCIOLOGICAL PERSPECTIVES (3) LEC. 3. Examination of collective influences on the person and the role the person plays in sustaining collective conditions.

SOCY 3000 CRIMINOLOGY (3) LEC. 3. Examination of etiological issues related to crime; major theories of crime causation from a wide variety of perspectives.

SOCY 3100 POLICE AND SOCIETY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007 or Departmental approval. Sociological overview of policing and current issues that relate to the police.

SOCY 3200 SPORTS IN AMERICA (3) LEC. 3. Sociological perspectives on sports in the social system; organization and culture of sports in relationship to social class, race, and gender; and the interconnections between sports and society.

SOCY 3250 SENTENCING AND CORRECTIONS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007 or Departmental approval. In-depth analysis of sentencing policies and the correction system.

SOCY 3300 SOCIOLOGY OF THE FAMILY (3) LEC. 3. Family as a major social institution, with emphasis on the American family; cross-cultural comparisons for perspective.

SOCY 3500 SOCIAL INEQUALITIES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Exploration of the sources and uses of minority representations in the United States addressing inequalities such as race, ethnicity, gender, and sexual orientation.

SOCY 3550 DELINQUENCY AND JUVENILE JUSTICE (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Nature and distribution of delinquency in the United States, as well as the various components of the juvenile justice system.

SOCY 3600 UNDERSTANDING NATURE, SELF, AND SOCIETY (3) LEC. 3. The course examines the intersection between nature, self, and society, and draws on sociological scholarship and nature writing. Through readings, class conversations, imaginative writing reflections, and short field trips, students will be able to critically interrogate our social relationship with nature and study the social dynamics that shape the meanings we attach to nature. Credit will not be given to both SOCY 3600 and SUST 3600.

SOCY 3700 METHODS OF SOCIAL RESEARCH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1003 or SOCY 1007. Methodological approaches to data collection used by social scientists including logic of science, hypothesis formation, and research design.

SOCY 4000 SOCIALIZATION (3) LEC. 3. Examination of mind, self, society, and interaction as symbolic phenomena grounded in social process; covers major intellectual influences, concepts, and figures.

SOCY 4100 DEVIANCE (3) LEC. 3. Analysis of creation and reaction to deviance through theoretical approaches; examines several deviant groups.

SOCY 4200 HEALTH AND SOCIETY (3) LEC. 3. Nature and organization of medical practice and health delivery systems with special attention to the role of physicians, patients, and disease and to the relationship between culture, politics, and health.

SOCY 4300 FIELD INSTRUCTION (3) LEC. 3. Pr., Departmental approval. Supplementary instruction concurrent with experience in some field of work involving application of sociological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

SOCY 4400 CONTEMPORARY THEORY (3) LEC. 3. Survey of theorists from Comte to the present, emphasizing theory construction, theoretical analysis, and differences in theoretical approaches.

SOCY 4700 THEORIES OF CRIME AND CRIMINALITY (3) LEC. 3. Theories of crime causation with emphasis on theory construction, theory analysis, and differences in theoretical approaches.

SOCY 4920 APPLIED SOCIOLOGY: INTERNSHIP (3) INT/LEC. Pr. SOCY 3500 or SOCY 3700 or ANTH 2000. Departmental approval. Internship in an organization or agency with the goal of learning how to use sociological knowledge in an applied setting. Course may be repeated for a maximum of 6 credit hours.

SOCY 4960 SPECIAL PROBLEMS IN SOCIOLOGY (3) AAB/IND. 3. Pr., Departmental approval. Independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 6 credit hours.

SOCY 4970 SPECIAL TOPICS IN SOCIOLOGY (3) LEC. 3. Junior standing. Advanced topics in population and ecology, social structure, social institutions, socialization, religion, or other timely topics related to sociology. Course may be repeated for a maximum of 6 credit hours.

SOCY 5120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis.

SOCY 5200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective.

SOCY 5300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors.

SOCY 5310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Application of methods and techniques of information analysis and related report writing.

SOCY 5400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit with not be given for both SOCY 5400 and SOCY 6400.

SOCY 5500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit will not be given for both SOCY 5500 and SOCY 6500.

SOCY 5600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit will not be given for both SOCY 5600 and SOCY 6600.

SOCY 5650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit will not be given for both SOCY 5650 and SOCY 6650.

SOCY 5670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit will not be given for both SOCY 5670 and SOCY 6670.

SOCY 5680 SOCIAL MOVEMENTS (3) LEC. Pr. P/C SOCY 1000 or P/C SOCY 1007. Exploration of social movements as collective action leading to different forms of social change. Topics covered include the origins, dynamics and consequences of major social movements, including movements for civil rights, women's rights, disability access, sustainability, etc.

SOCY 5690 SOCIOLOGY OF EMOTIONS (3) LEC. 3. Pr. P/C SOCY 1000 or P/C SOCY 1007. Examination of the social dimensions of emotions. The emotional phenomena covered include love, empathy, anger, sadness, shame, fear, joy, happiness, and gratitude.

SOCY 5970 SPECIAL TOPICS IN SOCIOLOGY (3) LEC. 3. Pr., Departmental approval. Study of substantive areas sociology. Credit will not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 6120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis. Credit will not be given for both SOCY 5120 and SOCY 6120.

SOCY 6200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective. Credit will not be given for both SOCY 5200 and SOCY 6200.

SOCY 6300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors. Credit will not be given for both SOCY 5300 and SOCY 6300.

SOCY 6310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Application of methods and techniques of information analysis and related report writing. Credit will not be given for SOCY 5310 and SOCY 6310.

SOCY 6400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit will not be given credit for both SOCY 5400 and SOCY 6400.

SOCY 6500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit will not be given for both SOCY 5500 and SOCY 6500.

SOCY 6600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit will not be given for both SOCY 5600 and SOCY 6600.

SOCY 6650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit will not be given for both SOCY 5650 and SOCY 6650.

SOCY 6670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit will not be given for both SOCY 5670 and SOCY 6670.

SOCY 6680 SOCIAL MOVEMENTS (3) LEC. Exploration of social movements as collective action leading to different forms of social change. Topics covered include the origins, dynamics and consequences of major social movements, including movements for civil rights, women's rights, disability access, sustainability, etc.

SOCY 6690 SOCIOLOGY OF EMOTIONS (3) LEC. Examination of the social dimensions of emotions. The emotional phenomena covered include love, empathy, anger, sadness, shame, fear, joy, happiness, and gratitude.

SOCY 6970 SOCIOLOGY SPECIAL TOPICS (3) LEC. 3. Study of substantive areas of sociology. Credit will not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 7000 ADVANCED SOCIOLOGICAL THEORY (3) LEC. 3. Pr. SOCY 4400 or Departmental approval. Review of major types of sociological theory within the context of theoretical paradigms and significant theoretical issues that face the discipline.

SOCY 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE, AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017 or Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for both SOCY 7100 and STAT 7100.

SOCY 7200 SEMINAR IN SOCIAL BEHAVIOR (3) SEM. 3. Research and theory concerning social and group influences on behavior.

SOCY 7250 SOCIOLOGY OF VIOLENCE (3) LEC. 3. In-depth coverage of various forms of violence from the sociological perspective.

SOCY 7850 TECHNOLOGY AND TEACHING IN SOCIOLOGY (1) LEC. 1. SU. Pr., Departmental approval. Technology as a teaching tool sociology classes.

SOCY 7930 DIRECTED STUDIES (3) IND. 3. Pr., Departmental approval. Independent reading course under the supervision of a department faculty member. Course may be repeated for a maximum of 6 credit hours.

SOCY 7990 RESEARCH AND THESIS (1-10) MST. Preparation of a thesis. Course may be repeated with change in topics.

Space Systems - SPCE

Courses

SPCE 6000 INTRODUCTION TO SPACE STUDIES (3) LEC. 3. An introduction to the space environment, operating in space, satellite design, and applying satellite technology to provide services and capabilities to a variety of user groups.

SPCE 6100 SPACE SYSTEMS OPERATIONS (3) LEC. 3. Pr. (SPCE 6000). An overview of space systems operations, operational orbits, orbital maneuver, station keeping, different stakeholders' mission operations, avoiding on-orbit crisis, and satellite/constellation end of life.

SPCE 6200 SPACECRAFT AND SATELLITE ARCHITECTURE DESIGN AND INTEGRATION (3) LEC. 3. Pr. (SPCE 6100). An overview of spacecraft and satellite architecture design followed by a practicum to apply lessons learned to create a space mission design that provides services and capabilities to a specific user group.

Speech, Language, and Hearing Sciences - SLHS

Courses

SLHS 1110 EAGLES SOCIAL SKILLS INSTRUCTION I (1) LEC. 1. Departmental approval. This course offers social skills instruction and introduces topics including basic conversational requirements, electronic communication, non-verbal communication, and miscellaneous social skills.

SLHS 1120 EAGLES SOCIAL SKILLS INSTRUCTION II (1) LEC. 1. Pr. SLHS 1110. Departmental approval. This course offers social skills instruction to EAGLES students and introduces topics including basic conversational requirements, electronic communication, non-verbal communication, and good sportsmanship.

SLHS 1130 EAGLES SOCIAL SKILLS INSTRUCTION III (1) LEC. 1. Pr. SLHS 1120. Departmental approval. This course offers social skills instruction to EAGLES students and introduces topics including get-togethers, handling arguments, and miscellaneous social skills.

SLHS 1140 EAGLES SOCIAL SKILLS INSTRUCTION IV (1) LEC. 1. Pr. SLHS 1130. Departmental approval. This course offers social skills instruction to EAGLES students and introduces topics including basic conversational requirements, handling bullying, minimizing rumors and gossip, and miscellaneous social skills.

SLHS 2500 COMMUNICATION DISORDERS IN SOCIETY (2) LEC. 2. Information on stuttering, speech, language, voice disorders and hearing impairment and how to interact with individuals with communication disorders.

SLHS 3000 INTRODUCTION TO SPEECH, LANGUAGE, AND HEARING SCIENCES (3) LEC. 3. Survey of the field of speech pathology-audiology. Includes history of the profession, the inter-relatedness of the various pathologies, general principles of evaluation and therapy and the profession itself.

SLHS 3100 LINGUISTICS IN SLHS (2) LEC. 2. Pr. SLHS 4520. This course will use a basic linguistic framework of typical development of language from which to study developmental and acquired disorders of language.

SLHS 3400 ANATOMY AND PHYSIOLOGY OF SPEECH (3) LEC. 3. The study of anatomy and physiology of speech production including respiratory, laryngeal and articulatory-resonance systems and the process swallowing. Speech acoustics will be introduced.

SLHS 3410 ARTICULATORY PHONETICS AND PHONOLOGICAL DEVELOPMENT (3) LEC. 3. Pr. SLHS 3400 and P/C SLHS 4520. Principles of phonetics and their application to speech.

SLHS 3550 SPEECH AND HEARING SCIENCE (3) LEC. 3. Pr. SLHS 3400 and SLHS 4600 and SLHS 3410. The acoustic properties of speech, their relationship to perceptual and physiological phonetics, and instrumentation used in speech science.

SLHS 3560 NEUROANATOMY FOR COMMUNICATION DISORDERS (3) LEC. 3. Pr. SLHS 3400 and SLHS 4600. Anatomy and physiology of the central nervous system as it relates to speech, language, hearing and swallowing function and disorders.

SLHS 4100 LANGUAGE DISORDERS ACROSS THE LIFESPAN (3) LEC. 3. Pr. SLHS 4520. Introduction to developmental language impairment from infancy through adolescence as well as acquired language impairment in adulthood with focus on the nature of language impairment, assessment of language disorders, and treatment of language disorders.

SLHS 4200 SPEECH DISORDERS ACROSS THE LIFESPAN (3) LEC. 3. Pr. SLHS 3400 and SLHS 4600 and SLHS 3410. This is one of two courses offered in the area of speech and language disorders. This course reviews the typical acquisition of the speech sound system and reviews basic articulation, phonological, fluency, voice, and motor speech disorders.

SLHS 4300 CRITICAL THINKING AND EVIDENCE-BASED PRACTICE: AN INTRODUCTION (2) LEC. 2. Pr. SLHS 3000 and P/C SLHS 4520. Explores the decision making process in assessment and treatment of individuals with communication disorders. Emphasis on a scientific framework integrating research evidence and critical thinking.

SLHS 4500 SPECIAL OBSERVATION (1) DSL. Pr. (SLHS 4520 or CMDS 4520) and (SLHS 4100) and (SLHS 3410 or CMDS 3410). This course will provide foundational knowledge in treatment methods and guided observation of 25 hours in speech, language, and cognitive-communication evaluation and treatment.

SLHS 4520 LANGUAGE ACQUISITION (3) LEC. 3. First language acquisition in childhood and its change throughout the life span.

SLHS 4580 INTRODUCTION TO CLINICAL PROCEDURES IN SPEECH-LANGUAGE PATHOLOGY (3) LEC. 3, CLN/LEC. 30. Pr. SLHS 4520. Orientation to clinical activities, management methods and preparation of professional reports.

SLHS 4600 AUDIOLOGY AND HEARING SCIENCE (3) LEC. 3. Principles of auditory reception and the problems involved in measuring, evaluating and conserving hearing.

SLHS 4620 HEARING REHABILITATION (3) LEC. 3. Pr. SLHS 4600. Rehabilitation problems of children and adults in the area of auditory training, speech reading and speech conservation; includes clinical practice.

SLHS 4650 INTRODUCTION TO CLINICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Pr. SLHS 4600. Audiological instrumentation and test procedures.

SLHS 4930 DIRECTED STUDY IN SPEECH, LANGUAGE & HEARING SCIENCES (1-3) IND. Pr. SLHS 3000 and SLHS 3400 and SLHS 4600. Departmental approval. Directed learning experience in speech, language, or hearing sciences involving literature review and writing related to a topic specific to the student. Course may be repeated for a maximum of 6 credit hours.

SLHS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Credit hours that apply towards fulfilling Honors requirement. Course may be repeated for a maximum of 3 credit hours.

SLHS 4980 UNDERGRADUATE RESEARCH (1-3) LAB. 2-9. Pr. P/C SLHS 3000. Departmental approval. This course is designed for active research engagement within a mentor's laboratory or the research implementation phase of an undergraduate research fellowship. Course may be repeated for a maximum of 3 credit hours.

SLHS 4997 HONORS THESIS (1-3) RES. Pr. Honors College. Departmental approval. Credit hours that apply towards Honor thesis requirements, the topic of which determined by the Honor's thesis faculty advisor and the student advisee. Course may be repeated for a maximum of 6 credit hours.

SLHS 5000 STUDY ABROAD IN SPEECH-LANGUAGE PATHOLOGY (3) AAB. Pr. CMDS 3000 or SLHS 3000. Survey of current international research and educational/clinical practices in the field of speech-language pathology. Course may be repeated for a maximum of 6 credit hours.

SLHS 5100 MOTOR LEARNING, GENERALIZATION, AND ADHERENCE FOR SPEECH LANGUAGE PATHOLOGY (2) LEC. 2. Pr. SLHS 3400 and SLHS 4200. Motor learning, generalization, and adherence knowledge and skills required for speech-language therapist assistants and speech-language pathologists use in therapy.

SLHS 5200 CULTURAL ASPECTS IN APPLIED HEALTH SCIENCES (2) LEC. 2. Pr. SLHS 3000. This course is designed to provide undergraduate students in speech, language, and hearing sciences, and other applied health disciplines the opportunity to broaden their knowledge of and implementation of culturally responsive practices when working with patients/clients and team members.

SLHS 5300 COGNITIVE AND LINGUISTIC ASPECTS OF AGING (2) LEC. 2. Pr. SLHS 3560. Explores the age-related changes in cognitive-linguistic decline including the mechanisms of this decline; external factors such as physical exercise, pharmacology, and cognitive rehabilitation; and suggestions for prevention of cognitive decline and dementia.

SLHS 5400 ISSUES IN SPEECH (2) LEC. 2. Pr. SLHS 3400 and SLHS 4200. Current issues related to aspects of development, habilitation, and/or rehabilitation of articulation, voice, or fluency disorders will be explored. Course may be repeated for a maximum of 4 credit hours.

SLHS 5500 ISSUES IN AUDIOLOGY (2) LEC. 2. Pr. SLHS 3400 and SLHS 4600. Current issues related to research methodologies and clinical care of auditory and vestibular development, psychoacoustics, and pathologies of the auditory system will be explored.

SLHS 5960 SPECIAL PROBLEMS IN LANGUAGE (2) LEC. 2. Pr. SLHS 4520. This Special Problems Seminar is a two hour per week meeting for study of topics in language. Topics will include aspects of language acquisition , including autism spectrum disorder and literacy, that are clinically relevant for speech language pathologists. Course may be repeated for a maximum of 8 credit hours.

SLHS 7500 CLINICAL PRACTICUM IN SLP (1-2) PRA. 1-2. Clinical practicum in evaluation and treatment of individuals with speech-language disorders. Course may be repeated for a maximum of 7 credit hours.

SLHS 7510 ADVANCED SPEECH SOUND DISORDERS (3) LEC. 3. Empirical and theoretical bases for speech sound disorders.

SLHS 7520 LANGUAGE DISORDERS: BIRTH TO FIVE (3) LEC. 3. Empirical and theoretical bases for evaluation and treatment of language disorders for the birth to five population.

SLHS 7530 STUTTERING (3) LEC. 3. Empirical and theoretical bases for stuttering, including assessment and intervention.

SLHS 7540 VOICE & UPPER AIRWAY DISORDERS (3) DSL/LEC. Empirical and theoretical bases for voice pathologies, diagnoses and therapies.

SLHS 7550 ADULT APHASIA (3) LEC. 3. Empirical and theoretical bases for adult language disorders associated with CNS pathologies, diagnoses and therapies.

SLHS 7560 CRANIOFACIAL ANOMALIES (3) LEC. 3. A review of syndromic and non-syndromic craniofacial disorders including cleft lip/palate. Assessment and treatment of speech and language problems associated with these anomalies is emphasized.

SLHS 7570 RESEARCH METHODS IN SPEECH-LANGUAGE PATHOLOGY (2) LEC. 2. Survey of experimental designs and statistical procedures used in the speech-language pathology literature for consumers of research.

SLHS 7580 COGNITION ACROSS THE LIFESPAN (3) LEC. 3. Advanced review of concepts and trends associated with cognitive functions. The assessment and intervention of cognitive communication disorders will be discussed.

SLHS 7590 LANGUAGE DISORDERS: SCHOOL-AGE (3) LEC. Empirical and theoretical bases for evaluation and treatment of language disorders for school-age children through adolescence.

SLHS 7600 CLINICAL PROBLEMS IN HEARING (2) LEC. 2. Pr. (CMDS 4650 or SLHS 4650) and (CMDS 4600 or SLHS 4600) and (CMDS 4620 or SLHS 4620). Topics chosen to address topics and problems in hearing. Course may be repeated for a maximum of 12 credit hours.

SLHS 7700 CLINICAL PROBLEM SOLVING I (2) LEC. 2. This course will help students develop problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

SLHS 7720 CLINICAL PROBLEM SOLVING II (2) LEC. 2. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

SLHS 7740 CLINICAL PROBLEM SOLVING III (2) LEC. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

SLHS 7800 PROFESSIONAL PRACTICE IN SLP (1) LEC. 1, PRA. 1-3. This course provides specific opportunities and experiences to build and demonstrate clinical knowledge and skills outside the traditional clinical practicum experience. Experiences cross settings and modalities and may include interprofessional team members. Course may be repeated for a maximum of 3 credit hours.

SLHS 7810 MOTOR SPEECH DISORDERS (3) LEC. 3. Empirical and theoretical bases for motor speech disorders, diagnoses and therapies.

SLHS 7820 DYSPHAGIA (3) LEC. 3. The role of speech-language pathology in diagnosing and treating swallowing disorders in children and adults. Emphasis will be placed upon clinical and instrumental assessment and treatment strategies.

SLHS 7840 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (3) LEC. Process and specific equipment involved in assessment, prescription and intervention with adults and children who are unable to use traditional communication modes.

SLHS 7880 SPECIAL POPULATIONS IN SLHS (2) LEC. 2. This course is intended to engage students in developing practical and clinically applicable knowledge about special populations that are not directly addressed in other courses in the SLHS SLP master’s program.

SLHS 7890 COUNSELING IN SPEECH-LANGUAGE PATHOLOGY (2) LEC. 2. This course is designed to provide students with an overview of counseling skills that they can apply to clinical practice with people with communication disorders.

SLHS 7920 INTERNSHIP IN SPEECH-LANGUAGE PATHOLOGY (5) LEC. 5. SU. Completion of all academic course work. Successful completion of comprehensive exams or enrollment in graduate thesis. Course may be repeated for a maximum of 10 credit hours.

SLHS 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research or reports in a specialized area of communication disorders. Course may be repeated for a maximum of 3 credit hours.

SLHS 7970 SPECIAL TOPICS SEMINAR (2) SEM. Advanced treatment of contemporary topics and trends, as well as current research aspects of audiology and speech-language pathology. Course may be repeated for a maximum of 4 credit hours.

SLHS 7990 RESEARCH AND THESIS (1-5) MST. Credit hours to fulfill thesis requirements. Course may be repeated with change in topics.

SLHS 8000 PROFESSIONAL DEVELOPMENT FOR RESEARCH CAREERS IN HEALTH SCIENCES (1-2) LEC. 1-2. SU. In-depth survey of professional aspects relevant to research careers in health sciences fields (e.g., ethical research practices, professional communication of scholarly work, employment readiness). Course may be repeated for a maximum of 5 credit hours.

SLHS 8100 HEARING SCIENCE (3) LEC. 3. Introduction to instrumentation and calibration of audiometric equipment. Auditory perception in normal-hearing and hearing impaired listeners.

SLHS 8110 AUDITORY PHYSIOLOGY (3) LEC. 3. Detailed study of the anatomy and physiology of the human auditory, and vestibular system over the lifespan.

SLHS 8120 AUDIOLOGY CLINICAL METHODS (3) LEC. 3. Use of audiometric equipment, administering audiological tests, recording test results, and interpreting test findings, including otoscopy, and cerumen management.

SLHS 8200 DIAGNOSTIC AUDIOLOGY (3) LEC. 3. Basic and advanced audiometric techniques to assess auditory system's site of lesion, including otoscopy, cerumen management, otoacoustic emissions and immittance.

SLHS 8210 MEDICAL ASPECTS OF HEARING DISORDERS (3) LEC. 3. Study of the disorders of hearing including their medical diagnosis, evaluation, and treatment.

SLHS 8220 AMPLIFICATION I (3) LEC. 3. Background and development of hearing aids and other amplification systems; performance standards and measurement techniques; selection, fitting and dispensing procedures

SLHS 8300 CENTRAL AUDITIORY PROCESSING (3) LEC. Selected clinical procedures in audiology, including electrophysiologic and behavioral tests of central auditory functioning.

SLHS 8310 AURAL REHABILITATION (3) LEC. Psychosocial aspects on hearing loss; clinical and therapeutic management of older persons with hearing disorders including counseling of the hearing-impaired and their families.

SLHS 8320 CLINICAL APPLICATIONS OF AMPLIFICATION (2) LEC. Didactic and practical training in use of instrumentation for testing, programming, fitting and verifying amplification.

SLHS 8400 PEDIATRIC AUDIOLOGY (3) LEC. 3. Normal development of speech, language and hearing losses' effect on communication, etiologic factors, screening, audiologic assessment, differential diagnosis and clinical management.

SLHS 8410 AURAL HABILITATION (3) LEC. 3. The parameters involved in the management of hearing-impaired school-aged children.

SLHS 8420 AMPLIFICATION II (3) LEC. 3. Pr. CMDS 8220 or SLHS 8220. Review of recent trends in hearing aid technology including digital and Programmable instruments.

SLHS 8430 CLINICAL APPLICATION OF DIAGNOSTIC AUDIOLOGY (2) LEC. Pr. CMDS 8320 or SLHS 8320. Didactic and practical training for selection, administration, and interpretation of behavioral and electrophysiologic tests, including auditory processing disorders.

SLHS 8500 ELECTROPHYSIOLOGICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Selected neurophysiological clinical procedures in audiology, including electronystagmography and auditory evoked potentials.

SLHS 8510 CLINICAL APPLICATION OF BALANCE ASSESSMENT (2) LEC. Pr. (CMDS 8230 and CMDS 8320 and CMDS 8430) or (SLHS 8230 and SLHS 8320 and SLHS 8430). Didactic and practical training for selecting, conducting, and interpreting tests to identify disorders of balance and other auditory related systems.

SLHS 8520 HEARING CONSERVATION (3) LEC. Pr. CMDS 8310 or SLHS 8310. Studies the effects of noise on auditory system and implementation of hearing conservation programs in industry, schools and the military.

SLHS 8570 EVALUATION OF RESEARCH IN AUDIOLOGY (3) LEC. Survey of experimental designs and statistical procedures used in audiology research.

SLHS 8600 BALANCE DISORDERS (3) LEC. 3. Detailed coverage of the assessment and treatment of patients with balance disorders using nystagmography and other techniques.

SLHS 8610 IMPLANT TECHNOLOGY (3) LEC. Detailed study of the assessment and treatment of patients with cochlear implants.

SLHS 8620 OUTCOME MEASURES IN AUDIOLOGY (3) LEC. Application of research methodology to demonstrate efficacy in clinical service delivery in all areas of audiologic practice.

SLHS 8630 COUNSELING IN AUDIOLOGY (3) LEC. 3. Advanced course in the counseling component of rehabilitative audiology.

SLHS 8650 ADVANCED AUDIOMETRY (2) LEC. 2. Pr. (CMDS 8120 and CMDS 8320 and CMDS 8430 and CMDS 8510) or (SLHS 8120 and SLHS 8320 and SLHS 8430 and SLHS 8510). Didactic and practical training for selection, administration, scoring, and interpretation of behavioral audiometric tests and electrophysiologic procedures.

SLHS 8700 PROFESSIONAL ISSUES (3) LEC. 3. Legal and ethical issues in clinical audiology.

SLHS 8800 THE NEUROLOGICAL BASES OF COMMUNICATION DISORDERS (3) LEC. 3. Anatomy and physiology of the central nervous system as it relates to speech, language and hearing function and disorders.

SLHS 8810 PRIVATE PRACTICE (3) LEC. 3. Concepts and strategies for private practice in the areas of clinical and industrial audiology.

SLHS 8850 GRANT PROPOSAL PREPARATION IN HEALTH SCIENCES (3) LEC. 3. Overview of the grant proposal preparation process, from identifying an appropriate funding mechanism to developing the materials for a grant proposal (e.g., specific aims, research plan, budget).

SLHS 8910 CLINICAL PRACTICE IN AUDIOLOGY (2) DSL/LEC. Clinical practicum involving evaluation and management of patients of all ages with disorders of auditory, vestibular, and other auditory related systems.

SLHS 8920 CLINICAL INTERNSHIP (5) INT. SU. Pr. CMDS 8910 or CMDS 8916 or SLHS 8910 or SLHS 8916. Intensive clinical experience at off-campus setting up to 20 hours per week of supervised practicum. Course may be repeated for a maximum of 15 credit hours.

SLHS 8940 CLINICAL RESIDENCY (6) INT. SU. Pr. CMDS 8920 or SLHS 8920. A full time, supervised, nine month residency at an off-campus facility that provides audiological services. Fall, Spring.

SLHS 8950 AUDIOLOGY GRAND ROUNDS (3) LEC. Discussion/Seminar in timely clinical issues in audiology, clinical problem solving and case studies in contemporary audiologic service delivery.

SLHS 8980 CAPSTONE PROJECT (1) IND. A project involving applied clinical research or development of an innovative clinical procedure.

Statistics - STAT

Courses

STAT 1010 DATA EPISTEMOLOGY (3) LEC. 3. This course will provide the basic tools to understand, interpret and reason with data in order to critically think about data-driven knowledge. Acquiring notions of logical reasoning and data literacy, the students will know how to analyze and ask the correct questions regarding data collection, representation and interpretation.

STAT 2010 STATISTICS FOR SOCIAL AND BEHAVIOR SCIENCES (4) LEC. 3. LAB. 2. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617. Introduction to basic principles of statistical reasoning and statistical procedures used in data analysis in the social and behavioral sciences.

STAT 2017 HONORS STATISTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (4) LEC. 3. LAB. 2. Pr. Honors College. Introduction to statistical data analysis, statistical packages, and APA-style statistical reporting use in research in Psychology and other social and behavioral sciences.

STAT 2510 STATISTICS FOR BIOLOGICAL AND HEALTH SCIENCES (3) LEC. 3. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683. Introduction to statistical concepts, reasoning and methods used in data analysis, descriptive statistics, sampling distributions, statistical inference, confidence intervals, regression or correlation, contingency tables. Students who have previous credit in any higher-numbered math course may not receive credit.

STAT 2600 BUSINESS ANALYTICS I (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or P/C COMP 1000 or COMP 1003. Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results. Minimum 2.0 overall cumulative undergraduate GPA.

STAT 2610 STATISTICS FOR BUSINESS AND ECONOMICS (3) LEC. 3. Pr. MATH 1690. Introduction to statistical analysis, theory, and interpretation used in business and economics.

STAT 2710 STATISTICAL COMPUTING (1) LEC. 1. Pr. (P/C STAT 2010 or P/C STAT 2017) and (P/C STAT 2510 or STAT 2513) and P/C STAT 2610 and P/C STAT 3010. Introduction to basic statistical computing programs and methods..

STAT 3010 STATISTICS FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr. MATH 1610 or MATH 1613 or MATH 1617 or MATH 1710. Introduction to statistical methods and analysis used in engineering and science.

STAT 3600 PROBABILITY AND STATISTICS I (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Calculus-based introduction to probability and statistics with an emphasis on practical problem-solving.

STAT 3610 PROBABILITY AND STATISTICS II (3) LEC. 3. Pr. STAT 3600. Departmental approval. Continuation of STAT 3600.

STAT 3611 PROBABILITY AND STATISTICS II LABORATORY (1) LAB. 2. Departmental approval. Coreq. STAT 3610. The application of statistical techniques from STAT 3610.

STAT 4000 INTRODUCTION TO DATA SCIENCE (3) LEC. 3. Pr. STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2600 or STAT 3010 or STAT 3600 or STAT 3603. Departmental approval. This course will provide an entry level introduction to the field of data science. The course will cover the essential statistical and computational tools including programming and analytical models, as well as teamwork, communication, and critical thinking.

STAT 4610 APPLIED REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 3610 or STAT 3010. Least squares estimation, hypothesis testing and confidence interval estimation in regression; simple, polynomial and multiple linear regression; residual and lack-of-fit analysis; use of dummy variables; multiple and partial correlation analysis; model building algorithms and model comparisons; transformations.

STAT 4620 APPLIED NONPARAMETRIC STATISTICS (3) LEC. 3. Review of elementary probability; goodness-of-fit tests; for singles and several location parameters; tests for scale parameters; distribution tests; measures of association; bootstrap and permutation tests.

STAT 4630 APPLIED TIME-SERIES ANALYSIS (3) LEC. 3. ARIMA models: the autoregressive process, the moving average process, and the ARMA process; forecasting, errors and confidence intervals, updating forecast models; estimation; model building and assessment; applications in econometrics.

STAT 4650 INTRODUCTION TO BAYESIAN STATISTICS (3) LEC. 3. LAB. 0. Pr. STAT 3610. This course will develop an introduction to the Bayesian thinking and the Fundamental Concepts in Bayesian Statistics.

STAT 4970 SPECIAL TOPICS IN STATISTICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interest of students. Course may be repeated for a maximum of 6 credit hours.

STAT 4980 UNDERGRADUATE RESEARCH IN STATISTICS AND DATA SCIENCE (1-3) IND/RES. Directed research in Statistics and Data Science. Departmental Approval. Course may be repeated for a maximum of 3 credit hours.

STAT 5000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT3610 or STAT3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time dependent data with a focus on Data Science.

STAT 5110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 5210 R PROGRAMMING FOR DATA SCIENCE (3) LEC. 3, LEC. 3. Pr. STAT 2510 or STAT 3010 or STAT 3610. Fundamental concepts on R programming language and popular R packages. Topics include basic syntax, R objects, control flow, file input and output, building R packages, data manipulation, visualization, interface to C, parallel computing, building web apps.

STAT 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/ 6336.

STAT 5600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or (STAT 3010 and MATH 1620) or (STAT 3010 and MATH 1627). Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, maximum likelihood estimation, Bayesian statistics, hypothesis testing, prediction, sampling and resampling methods, multivariate statistics.

STAT 5610 FUNDAMENTALS OF STATISTICAL INFERENCE I (3) LEC. 3. Pr. STAT 3600 and STAT 3610. Probability and independence; discrete and continuous distributions, random variable, moments; joint, marginal, conditional distributions; exponential families; bivariate transformations, covariance and correlation; multivariate distributions, sums of random variables, sampling distributions for normal data, order statistics; convergence of random variables, principles of data reduction; the likelihood principle.

STAT 5620 FUNDAMENTALS OF STATISTICAL INFERENCE II (3) LEC. 3. Pr. STAT 5610. Properties of random samples; generating a random sample; point and interval estimation; hypothesis testing; Analysis of Variance: one-way ANOVA, multi-way ANOVA and ANCOVA; linear regression, multiple regression and GLM methods, logistic regression.

STAT 5630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling, systematic sampling ratio estimations.

STAT 5650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 5000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT 5670 and MATH 5670.

STAT 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 5670 or MATH 5670. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 5680 and MATH 5680.

STAT 5690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 5690 and MATH 5690.

STAT 6000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT 3610 or STAT 3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time-dependent data.

STAT 6110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610 or P/C STAT 7000. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 6210 R PROGRAMMING FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 2510 or STAT 3010 or STAT 3610. Fundamental concepts on R programming language and popular R packages. Topics include basic syntax, R objects, control flow, file input and output, building R packages, data manipulation, visualization, interface to C, parallel computing, building web apps.

STAT 6330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/ 6336.

STAT 6600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or (STAT 3010 and MATH 1620) or (STAT 3010 and MATH 1627). Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, Maximum Likelihood Estimation, Bayesian statistics, hypothesis testing, prediction, Sampling and Resampling methods, multivariate statistics.

STAT 6610 FUNDAMENTALS OF STATISTICAL INFERENCE I (3) LEC. 3. Pr. STAT 3600 and STAT 3610. This class is first of a two-semester sequence in probability and statistics taught at a calculus-based level. Students should gain an understanding of probability and random variables in order to have the foundation to conduct statistical inference in STAT 5620/6620.

STAT 6620 FUNDAMENTALS OF STATISTICAL INFERENCE II (3) LEC. 3. Pr. STAT 6610. This class is second of a two-semester sequence in probability and statistics taught at a calculus-based level. Students should gain an understanding of inference for the practice of statistics.

STAT 6630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling systematic sampling ratio estimations.

STAT 6650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 6000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 6670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT and MATH 6670.

STAT 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 6680 and MATH 6680.

STAT 6690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 6690 and MATH 6690.

STAT 6830 STATISTICS AND PROBABILITY FOR TEACHERS (3) LEC. 3. Pr. STAT 3010 or STAT 3600 or STAT 3603. Connections of advanced college-level mathematics with the secondary mathematics curriculum, focusing on statistics and probability, to develop mathematical knowledge relevant to teaching. Includes appropriate uses of technology and non-routine mathematics problem solving. Admission to a program in Secondary Mathematics Education or department approval required.

STAT 7000 EXPERIMENTAL STATISTICS I (4) LEC. 4. Departmental approval. Paired and independent sample t-tests, ANOVA, F-tests, contrasts, tests for trends, multiple comparisons, CR and RCB designs of experiments, regression.

STAT 7010 EXPERIMENTAL STATISTICS II (3) LEC. 3. Pr. STAT 7000. Advanced topics in experimental design: writing linear models for experiment-expected mean squares, variance components, nested designs, Latin Square Designs, split plot designs, ANOVA and multiple regression.

STAT 7020 REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Introduction to the method of least squares as it applies to regression and analysis of variance. Simple linear regression, multiple regression, model selection and diagnostics.

STAT 7030 CATEGORICAL DATA ANALYSIS (3) LEC. 3. Pr. STAT 3600 or MATH 3600 or STAT 7000. Departmental approval. Methods for analysis or categorical response data. Topics include Chi-square tests, Likelihood Ratio tests, Logistic Regression, and Loglinear Modeling.

STAT 7040 BIOSTATISTICS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Epidemiology, biometry, methods of survival analysis.

STAT 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017. Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for STAT 7100 and SOCY 7100.

STAT 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 1. Pr. STAT 7020 or WILD 7150. Data from the life sciences and advanced statistical techniques for data analyses and computaMon are brought together through a cross-fertilization of graduate students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects.

STAT 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Pr. STAT 7000 and STAT 7020. Introduction to the analysis of data collected under differential experimental designs. Credit will not be given for both STAT 7270 and PSYC 7270.

STAT 7300 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Pr. STAT 3610. Departmental approval. Advanced concepts of experimental design including blocking, regression approach to analysis of variance, fractional factorials in base-2, and base-3 designs. Emphasis throughout is on improving industrial products and processes. Credit will not be given for both STAT 7300 and INSY 7300.

STAT 7310 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3. Pr. STAT 7300 or STAT 7306 or INSY 7300 or INSY 7306. Fractional factorial experimentation applied for the purpose of process and quality improvement and optimization, introduction to analysis of covariance, multiple regression analysis, and response surface analysis. Credit will not be given for both STAT 7310 and INSY 7310.

STAT 7600 STATISTICAL THEORY AND METHODS I (3) LEC. 3. Pr. STAT 3600. Departmental approval. Random variables, probability theory, random variables, probability distributions, sampling distributions, convergence.

STAT 7610 STATISTICAL THEORY AND METHODS II (3) LEC. 3. Pr. STAT 7600. Likelihood ratio, regression, ANOVA, categorical data, non-parametric methods, decision theory.

STAT 7620 NONPARAMETRIC STATISTICS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Distribution-free methods of statistical inference. Sign, Wilcoxon signed-rank, and Mann-Whitney tests for location, the Chi-Square and Kolmogorov-Smirnov tests for goodness-of-fit. Measures of association.

STAT 7630 BAYESIAN STATISTICS (3) LEC. 3. LAB. 0. Pr. STAT 6620 or STAT 7610. This course will develop an understanding of Bayesian principles and methodologies and cover the modeling and computation required to perform advanced data analysis from the Bayesian perspective.

STAT 7650 COMPUTATIONAL STATISTICS (3) LEC. 3. Pr. STAT 7020 and STAT 7610. This course covers the theory and practice of common algorithms used for simulation, computing, and optimization in Statistics.

STAT 7670 APPLIED LONGITUDINAL DATA ANALYSIS (3) LEC. 3. To introduce students to statistical models and methods for the analysis of longitudinal date, i.e. data collected repeatedly on individuals (humans, animals, etc) over time (or other conditions).

STAT 7700 GENERALIZED LINEAR MODELS (3) LEC. 3. Pr. STAT 7600. Departmental approval. Exponential families and links functions, model fitting, likelihood methods, residual diagnostics, count data, estimating equations.

STAT 7780 SURVIVAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Kaplan-Meier estimator, log-rank tests, Cox proportional hazard model, fully parametric models.

STAT 7800 LINEAR MODELS (3) LEC. 3. Pr. STAT 7610 and MATH 2660. Departmental approval. A rigorous development of some of the important topics of applied statistics: the multivariate normal distribution analysis of variance, regression, aspects of experimental design.

STAT 7810 MODERN STOCHASTIC PROCESSES I (3) LEC. 3. Pr. (MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676) and MATH 6210. Classical and Modern Topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both STAT 7810 and MATH 7810.

STAT 7820 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 7810 or MATH 7816 or STAT 7810 or STAT 7816. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion.) Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances). Credit will not be given for both STAT 7820 and MATH 7820.

STAT 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 7810 or STAT 7816.

STAT 7840 APPLIED MULTIVARIATE STATISTICAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Multivariate normal distribution, Hotelling's T2, MANOVA, discriminate analysis, principal components.

STAT 7850 THEORY OF STATISTICAL INFERENCE (3) LEC. 3. Pr. STAT 7610. Central limit theorem, Convergence, M-estimate, Statistical functional, U-statistics

STAT 7860 APPLIED TIME SERIES ANALYSIS (3) LEC. 3. Pr. STAT 3610. Departmental approval. Autoregressive and moving average models, differencing, estimation and forecasting, spectral theory.

STAT 7930 STATISTICAL CONSULTING PRACTICUM (3) PRA. 3. Pr. STAT 7000 and STAT 7010 and STAT 7020. This is a course in applied statistics, providing training in statistical consulting. Applications of commonly encountered statistical methods are explored in the consulting environment. Written and oral communication skills are emphasized, and ethical aspects of consulting are introduced. This course provides students with an opportunity to gain practical experience in consulting through various projects with clients, through the AU Statistical Consulting Center.

STAT 7940 CAPSTONE PROJECT (3) LEC. 3. Discuss various topics while working on an industry-level project. Students will complete a semester-long project under the supervision of instructors.

STAT 7950 SEMINAR (1) SEM. SU. Exploration of statistical concepts, fostering active learning through presentations, guest lectures, discussions, and student-led research presentations. Course may be repeated for a maximum of 2 credit hours.

STAT 7960 SPECIAL PROBLEMS IN STATISTICS (1-10) RES. Credit will not be given for both MATH 7960 and STAT 7960. Course may be repeated for a maximum of 10 credit hours.

STAT 7970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interests of students. Course may be repeated for a maximum of 6 credit hours.

STAT 7980 SPECIAL PROJECT (3) LEC. 3. SU. Departmental approval. Non-thesis project in Statistics for Master's degree in Statistics (non-thesis option).

STAT 7990 RESEARCH AND THESIS (1-10) DSR. Research for Master's thesis in Statistics. Course may be repeated with change in topic.

STAT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (3) LEC. 3. Pr. STAT 7000. or approved equivalent. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models.

STAT 8410 ADVANCED QUANTITATIVE METHODS MANAGEMENT II (3) LEC. 3. or approved equivalent. Introduction to multivariate techniques in business research. Study of the theory and applications of ANOVA, ANCOVA, MANOVA, MANCOVE, Discriminate Analysis & Polytomous Logistic Regression.

STAT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3. Pr. STAT 7100 and STAT 8400 and STAT 8410. or approved equivalent. Third course in statistical modeling. Emphasis on applications of Principal Components Analysis, and Structural Equation Modeling to management research.

STAT 8990 RESEARCH AND DISSERTATION (1-10) LEC. 1-10. Individual doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics. Course may be repeated for a maximum of 30 credit hours.

Supply Chain Management - SCMN

Courses

SCMN 2150 PRINCIPLES OF SUPPLY CHAIN MANAGEMENT (2) LEC. 2. Fundamental concepts, activities, and tools of supply chain management.

SCMN 3100 FOUNDATIONS OF BUSINESS LOGISTICS (3) LEC. Pr. SCMN 2150. The course provides an introduction to logistics activities and processes from a supply chain perspective. Foundational concepts, current issues, and strategies used to obtain competitive advantage in a global business environment will be addressed. For Non-SCM Majors and Non-SCM Minors only. Credit will not be given for both SCMN 3710 and SCMN 3100.

SCMN 3710 LOGS: MNGT OF FULFILLMENT PROC (3) LEC. 3. Pr. SCMN 2150 or SCMN 2153 or SCMN 3150 or SCMN 3153. SCMN 2150/2153 requires a grade of 'C' or better. Management of logistics processes involved in meeting customer demand, including inventory, transportation, distribution, and related activities. Fall, Spring, Summer.

SCMN 3720 TRANSPORTATION AND ORDER FULFILLMENT (3) LEC. 3. Pr. SCMN 2150. Pre-requisite requires a grade of 'C' or better. Management of transportation and distribution activities involved in the order fulfillment process. Fall, Spring.

SCMN 3730 STRATEGIC SOURCING (3) LEC. 3. Pr. SCMN 2150. Pre-requisite requires a grade of 'C' or better. Addresses the scope of activities and various roles of the procurement function within the organization and between firms. Fall, Spring.

SCMN 3740 SUPPLY & DEMAND INTEGRATION (3) LEC. 3. Pr. SCMN 2150. Credit will not be given for both SCMN 3710 and SCMN 3740. SCMN 3740 is a foundational supply chain course that is focused on the key concepts and decisions needed to align supply with demand. This course is designed to provide an overview of supply chain planning to achieve integration in all time horizons-short, intermediate, and long term.

SCMN 3810 PROFESSIONAL DEVELOPMENT IN SUPPLY CHAIN MANAGEMENT (1) LEC. 1. SU. Pr. SCMN 2150 and P/C BUSI 2010. SCMN majors only. Career planning and preparation for supply chain internships and professional experience opportunities. Credit will not be given for both SCMN 3810 and BUSI 3010 or SCMN 4810. Fall, Spring.

SCMN 3910 PRACTICUM IN SUPPLY CHAIN MANAGEMENT (1-3) PRA. 1-3. SU. Pr. (SCMN 2150 or SCMN 2153 or SCMN 3150) and (CTCT 3250 or CTCT 3253). Departmental approval. CTCT 3250/3253 requires a grade of 'C' or better. SCMN majors only. Cooperatively selected field activity to gain practical SCM experience. Course may be repeated for a maximum of 6 credit hours.

SCMN 3920 INTERNSHIP IN SUPPLY CHAIN MANAGEMENT (0-6) INT. SU. Pr. (SCMN 3720 or SCMN 3730 or SCMN 3740) and (CTCT 3250 or CTCT 3253) and SCMN 3810. Departmental approval. Prerequisites require a grade of 'C' or better. SCMN majors only. Professional work experience in a supply chain focused position. Course may be repeated for a maximum of 6 credit hours.

SCMN 4620 SUSTAINABLE SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Pr. SCMN 3730. Pressure from customers, policy makers and non-governmental organizations compels companies to address the environmental footprint of their operations and the social impact they have on local communities. This course focuses on the “triple bottom line,” which addresses how a company must strategically incorporate environmental, social and economic dimensions.

SCMN 4700 SUPPLY CHAIN PERFORMANCE MANAGEMENT (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3740) and SCMN 3720 and SCMN 3730 and CTCT 3250. Pre-requisites require a grade of 'C' or better. Understanding and managing supply chain performance through the use of metrics, analysis, and improvement strategies. Fall, Spring.

SCMN 4730 SUPPLY CHAIN TOOLS AND TECH (3) LEC. 3. Pr. SCMN 3730 and SCMN 3720. Tools, techniques and technologies of various supply chain processes.

SCMN 4750 ENTERPRISE SYSTEMS IN SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Pr. SCMN 4700 and SCMN 4730. This course provides detailed hands –on training on ERP systems using SAP. The course will cover end to end ERP operation, including procurement, manufacturing, sales & distribution, human resources, cost and management accounting, etc. At the end of this class, students who complete it with a B or above will automatically be eligible for their SAP Recognition Certificate provided they have also passed SCMN 4730 and SCMN 4700 with B or above.

SCMN 4770 SUPPLY CHAIN OPERATIONS MANAGEMENT (3) LEC. 3. Pr. SCMN 3730 and SCMN 3720. Review and application of current supply chain strategies processes and information technologies required to compete in today's global marketplace. The course will focus on presenting key manufacturing management techniques used to balance supply with demand to ensure customer satisfaction.

SCMN 4800 SUPPLY CHAIN STRATEGY: A GLOBAL PERSPECTIVE (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713 or SCMN 3740) and SCMN 3720 and SCMN 3730 and (CTCT 3250 or CTCT 3253). Pre-requisites require a grade of "C" or better. Capstone course providing an intensive study of strategies used to facilitate global flows of product, information, and payments. Fall, Spring, Summer

SCMN 4820 SUPPLY CHAIN CONSULTING (3) LEC. 3. Pr. (BUAL 2600 or BUAL 2603 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3600) and BUAL 2650 and SCMN 3920. This special topic course is intended to help develop essential skills in planning and executing a company-focused consulting project.

SCMN 4900 DIRECTED STUDIES IN SUPPLY CHAIN MANAGEMENT (1-3) LEC/SEM. Departmental approval. Advanced individual research of SCM topic under direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

SCMN 4970 SPEC TOPS IN SUPPLY CHAIN MGNT (3-6) LEC. 3-6. Pr. SCMN 3720 and SCMN 3730. Current topics and issues related to the field of supply chain management. Course may be repeated for a maximum of 6 credit hours.

SCMN 5390 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713) and SCMN 3720. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. May count either SCMN 5390 or SCMN 6390.

SCMN 5500 INVENTORY AND WAREHOUSE MANAGEMENT (3) LEC. 3. Pr. SCMN 3710 and SCMN 3720. Departmental approval. Course focuses on issues related to managing inventories in a supply chain. Topics include: role of inventory in supply chains, inventory-related policies and decisions, and dealing with supply and demand uncertainty. Issues related to safety stock and replenishment planning, impact of lead times, and management of multi-echelon supply chains are covered. Additional issues related to warehousing inventory, such as storage and slotting policies, receiving and put away, order picking strategies and warehouse management are covered.

SCMN 5600 SUPPLY CHAIN PLANNING (3) LEC. 3. Pr. SCMN 3710 and SCMN 3720. Departmental approval. This course focuses on long-term and short-term planning of supply chains to provide a strategic fit with business objectives. Topics include: framework for supply chain planning and decision-making, distribution network designs and managing uncertainty, demand forecasting and aggregate planning. Issues related to supply chain coordination and planning for product availability under service levels are also covered. Additional issues related to sales and operations planning, managing economies of scale and revenue management are also covered.

SCMN 5720 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Pr. SCMN 2150 and (BUAL 2600 or BUAL 2603 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3600) and P/C BUAL 2650. Fundamentals of process improvement; techniques for performing quality control functions; quality management systems.

SCMN 6390 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. LAB. 0. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. Credit will not be given for both SCMN 5390 and SCMN 6390.

SCMN 6500 INVENTORY AND WAREHOUSE MANAGEMENT (3) LEC. 3. This course focuses on issues related to managing inventories in a supply chain. Topics include: role of inventory in supply chains, inventory-related policies and decisions, and dealing with supply and demand uncertainty. Issues related to safety stock and replenishment planning, impact of lead times, and management of multi-echelon supply chains are covered. Additional issues related to warehousing inventory, such as storage and slotting policies, receiving and put away, order picking strategies and warehouse management are covered.

SCMN 6600 SUPPLY CHAIN PLANNING (3) LEC. 3. This course focuses on long-term and short-term planning of supply chains to provide a strategic fit with business objectives. Topics include: framework for supply chain planning and decision-making, distribution network designs and managing uncertainty, demand forecasting and aggregate planning. Issues related to supply chain coordination and planning for product availability under service levels are also covered. Additional issues related to sales and operations planning, managing economies of scale and revenue management are also covered.

SCMN 6720 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Fundamentals of process improvement; techniques for performing quality control functions; quality management systems. Fall, Spring. Student should have completed a basic statistics course prior to enrolling in SCMN 6720.

SCMN 6900 DIRECTED STUDIES (3) IND. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 6960 SPECIAL PROBLEMS (3) IND. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 7600 SUPPLY MNGT AND MANUFACTURING (3) LEC. 3. Pr. P/C BUSI 7150. The management of purchasing, supply and materials management, manufacturing processes related to the fulfillment of supply chain requirements. Spring.

SCMN 7700 DEMAND MNGT & FULFILLMENT (3) LEC. 3. Pr. P/C BUSI 7150. The management of logistical processes related to the fulfillment of supply chain requirements. Primary topics include tin integrated planning, operations, and performance analysis of demand, inventory, transportation, distribution, and customer relationships. Summer.

SCMN 7770 SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Problems and analysis in the design and management of the retail, industrial and service supply chain.

SCMN 7800 SUPPLY CHAIN STRATEGY (3) LEC. 3. Pr. P/C BUSI 7150. Advanced study of integrated supply chain theory, strategy, and practice. Topics include network design, collaboration, inventory visibility, process synchronization, information management, and financial analysis. Fall.

SCMN 7900 DIRECTED STUDIES (3) IND. SU. Departmental approval. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 8150 DOCTORAL SEMINAR ON CURRENT TOPICS IN SCM RESEARCH (3) LEC. 3. LAB. 0, SEM. 0. The class is a rigorous, seminar style course on Current Topics in SCM Research. Each class will familiarize you with the key insights in a current research topic (i.e., the “hot topics”) in the SCM area. The instructor has chosen to cover a broad range of active research to give you an overview of topics that people are working on currently and are likely to work on in the future.

SCMN 8250 LSCM INTERORGANIZATIONAL THEORY SEMINAR (3) LEC. 3. LAB. 0, SEM. 0. This is an advanced theories seminar in logistics and supply chain management (LSCM). This seminar is designed to expose doctoral students to accepted research grounding in LSCM and train students to be successful researchers. Management history and ten core theories are covered. We will be discussing seminal articles in-depth with a connection to recent works. These articles are published in top journals in LSCM, Economics, International Business, Management, Marketing, and Sociology.

SCMN 8350 EMPIRICAL METHODS IN SUPPLY MANAGEMENT RESEARCH (3) LEC. 1.5. LAB. 1.5. This course provides students with an overview of quantitative empirical research in major supply chain journals. Students will read and synthesize articles in top SCM journals which employ a variety of quantitative, empirical strategies. They will be provided with instruction on the application of a variety of approaches in Stata to analyze data. Students will also perform their own quantitative analysis with data of their choice.

SCMN 8450 HISTORY OF SUPPLY CHAIN MANAGEMENT & OPERATIONS RESEARCH (3) LEC. 3. LAB. 0, SEM. 0. In this seminar, students should gain a broad understanding of SCM topics in which prior scholars have conducted academic research. A review of the key ideas and principles scholars have addressed is undertaken to critically assess how the primary research streams in SCM have developed. Understanding this development will require considerable reading and thoughtful analysis outside of class.

SCMN 8550 SEMINAR IN GLOBAL SUPPLY CHAIN MANAGEMENT (3) LEC. 3. LAB. 0, SEM. 0. In this seminar, students will gain a broad understanding of global topics connected with SCM. A review of the key ideas and principles in International Business, Cross Border Trade, and Customs Unions are discussed. The role of tariffs, import and export barriers, and free trade on local and global economies are discussed and debated in detail.

SCMN 8650 RESEARCH METHODS IN SUPPLY CHAIN MANAGEMENT - 2 (3) LEC. 0. LAB. 0, SEM. 0. In this seminar, students will gain a deep understanding of statistical and methodological issues in SCM scholarship (especially latent variables). A review of the advanced topics is offered including usage in STATA or SAS. Students may be expected to demonstrate hands on expertise in these topics including writing code, implementing the methods, interpreting results and understanding their implications.

SCMN 8750 EXPERIMENTAL METHODS IN SUPPLY CHAIN MANAGEMENT (3) LEC. 0. LAB. 0, SEM. 0. In this seminar, students will gain a deep understanding of statistical and methodological issues in SCM scholarship (with a focus on experiments). A review of the topics is offered including usage in STATA or SAS. Students may be expected to demonstrate hands on expertise in these topics including writing code, implementing the methods, interpreting results and understanding their implications.

SCMN 8900 DIRECTED STUDIES (3) IND. SU. Departmental approval. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Must be degree seeking PhD student in the Business with concentration in the Supply Chain Management program.

Sustainability Studies - SUST

Courses

SUST 2000 INTRODUCTION TO SUSTAINABILITY (3) LEC. 3. Introduction to the interdisciplinary study of sustainability. May count either SUST 2000 or HONR 1027/HONR 1037.

SUST 2007 HONORS INTRODUCTION TO SUSTAINABILITY (3) LEC. 3. Pr. Honors College. Introduction to the interdisciplinary study of sustainability. May count either SUST 2000 or HONR 1027/HONR 1037.

SUST 3600 UNDERSTANDING NATURE, SELF, AND SOCIETY (3) LEC. 3. The course examines the intersection between nature, self, and society, and draws on sociological scholarship and nature writing. Through readings, class conversations, imaginative writing reflections, and short field trips, students will be able to critically interrogate our social relationship with nature and study the social dynamics that shape the meanings we attach to nature. Credit will not be given to both SOCY 3600 and SUST 3600.

SUST 4900 DIRECTED STUDIES IN SUSTAINABILILITY (1-3) IND. Departmental approval. Advanced individual research and/or coursework in the field of sustainability studies. Course may be repeated for a maximum of 3 credit hours.

SUST 5000 SENIOR CAPSTONE IN SUSTAINABILITY (3) LEC. 3. Pr. SUST 2000. Capstone research seminar for students completing the Minor in Sustainability Studies.

Theatre - THEA

Courses

THEA 1010 INTRODUCTION TO THEATRE FOR MAJORS I (3) LEC. 2, LLB. 2. Overview of all areas of theatrical collaboration intended specifically for the incoming theatre majors. Introduces theatre majors to academic skills they will need to pursue the theatre major at Auburn University. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 1110 INTRODUCTION TO THEATRE FOR MAJORS II (3) LEC. 2, LLB. 2. Pr. THEA 1010. Introduction to a variety of perspectives regarding theatrical practices, theories, and texts. Focus on productive working relationships and collaborative skills necessary for a successful life in the theatre. Course culminates in the creation of a new performance piece. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 1190 INTRODUCTION TO READING MUSIC FOR THEATRE ARTISTS (1) LEC. 1. Departmental approval. Instruction in how to read music for theatre artists. Course covers reading vocal music, instrumental music, orchestral music, and lead sheets in a variety of musical styles. One 50-minute class per week.

THEA 1340 PERFORMANCE I (1) STU. 1. Pr., Departmental approval. Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

THEA 1440 PERFORMANCE II (1) STU. 1. Pr. THEA 1340 or MUAP 1530. Departmental approval. Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

THEA 1530 DANCE LAB 1 - TAP (1) LAB. 3. Introduction to traditional tap dance Exploration of technical concepts, rhythm combinations, and improvisations designed to test and develop tap dance skills. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1570 DANCE LAB 1 - BALLET (1) LAB. 4.5. Beginning studio introduction to ballet technique Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1670 DANCE LAB 1 - JAZZ (1) LAB. 3. Studio introduction to and exploration of jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1910 PRODUCTION PRACTICUM I (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2010 INTRODUCTION TO THEATRE (3) LEC. 3. Fine Arts Core. Appreciation of theatre arts including stage, television, and film. Development of sensitive and critical sophistication as articulate, discriminating theatre-goers. Play and film viewing, play-reading, critiques, and term projects. May count either THEA 2010 or THEA 2013.

THEA 2017 HONORS INTRODUCTION TO THE THEATRE (3) LEC. 3. Pr. Honors College. Fine Arts Core. Appreciation of theatre arts. Development of sensitivity and critical skills as theatre-goers. Play attendance, reading, critiques, and term projects.

THEA 2020 AESTHETICS OF ACTING (3) LEC. 3. Fine Arts Core. An orientation to acting aesthetics as a means of understanding and engaging the arte of theatre.

THEA 2080 PERFORMANCE TECHNIQUES FOR THE CAMERA (3) LEC. 1, LST. 3. Theory and practice of specialized performance techniques for television and film. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2110 VOICE AND MOVEMENT FUNDAMENTALS (3) STU. 4. Exploration and study of fundamental issues in vocal production, articulation, and movement. Introduction to vocal anatomy, breathing/relaxation/alignment techniques, and integrated vocal and movement exercises applied in a variety of texts. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2120 ACTING I (3) LEC. 2, LST. 2. Introduction to basic acting techniques, literature, and performance through improvisation, contemporary scene study and attendance at theatre performances. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2210 MUSIC FUNDAMENTALS FOR MUSIC THEATRE (3) LEC. 3. Fundamental study of music structural procedures, form, and style designed for students in the music theatre major.

THEA 2220 MT PERFORMANCE LAB (1) LAB. Departmental approval. Demonstration and exploration of singing and acting techniques through performance of music theatre repertoire. Course may be repeated for a maximum of 6 credit hours.

THEA 2300 STAGE MANAGEMENT (3) LEC. 3. Examination of the theories and techniques of stage management in the producing organization, including management, organization, auditions, rehearsal, safety practices, and production procedures. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2310 THEATRE TECHNOLOGY I (3) LEC. 3. A comprehensive introduction to the study of technical theatre; theoretical and practical applications of equipment, materials, and techniques used in technical theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2330 SCENE PAINTING (3) LEC. 2. LAB. 2. Departmental approval. Studio-oriented course introducing the principles, techniques, and media of the scenic artist. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2340 PERFORMANCE III (1) STU. 1. Pr. THEA 1440 or MUAP 1630. Departmental approval. Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

THEA 2400 DESIGN AESTHETICS (3) LEC. 3. An exploration of the fundamental elements and principles of design, pictorial composition, and design theory, and their relationships and potential for application in scenic, costume, and lighting design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2440 PERFORMANCE IV (1) STU. 1. Pr. THEA 2340 or MUAP 2530. Departmental approval. Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

THEA 2450 DRAFTING FOR THE THEATRE I (3) LEC. 2, LST. 2. Pr. P/C THEA 2310. Departmental approval. A comprehensive study of the techniques and methods used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2570 DANCE LAB 2 - BALLET (1) LAB. 4.5. Pr. THEA 1570. Intermediate studio training in ballet technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2610 COSTUME CONSTRUCTION (3) LEC. 1, LST. 3. Fundamentals of machine sewing techniques, pattern drafting and draping, fabric dyes, and craftwork as they relate to theatrical costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2650 STAGE MAKEUP (3) LEC. 1, LST. 3. Theories and techniques of stage makeup, practical design and execution of basic makeup techniques, special effects, and character makeups. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2670 DANCE LAB 2 - JAZZ (1) LAB. 3. Pr. THEA 1670. Intermediate studio training in jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2700 TEXT ANALYSIS (3) LEC. 3. Script Analysis provides students with the tools to read and interpret scripts from a variety of perspectives with a focus upon implications for production. Students will analyze plays for character, plot, theme, action, given circumstances, and production requirements.

THEA 2840 BEGINNING DANCE TECHNIQUES (3) LEC. 1, LST. 3. Beginning level dance technique and theory, focusing on dance as an art form, including a survey of dance in different cultural and historical contexts. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 2910 PRODUCTION PRACTICUM II (1) STU. 4. Pr. THEA 1910. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 2940 APPLIED THEATRE I: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3110 VOICE FOR THE ACTOR II (3) LEC. 2, LST. 2. Pr. THEA 2110. Continuing study of vocal production and articulation techniques in tests of increasing complexity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3120 ACTING II (3) LEC. 2, LST. 2. Pr. THEA 2120. Exploration of internal and external acting theory and techniques in modern and classical scene study. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3140 MUSIC THEATRE ACTING (3) LEC. 3. LAB. 3. Pr. THEA 1190. Pr., Admission into the (THMU major) or Departmental approval. Students registering for this course should have experience with reading music. Exploration of acting techniques and performance through music theatre scene and song study, analysis, and history of music theatre repertoire culminating in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3150 BFA PERFORMANCE STUDIO I (4) LEC. 3, LST. 5. Pr., Admission into the THPR or THMU majors. Intensive study and practice integrating advanced contemporary scene study, audition technique, and the Fitzmaurice Voicework system. Students who do not earn a grade of "C" or better must re-audition for the BFA program and repeat the course.

THEA 3160 BFA PERFORMANCE STUDIO II (4) LEC. 3, LST. 5. Pr. THEA 3150. Intensive study and practice integrating Shakespeare and scene study of poetic texts with continuing work in Fitzmaurice Voicework system. Must earn a grade of "C" or higher or re-audition for the BFA program and repeat THEA 3150 and THEA 3160.

THEA 3190 SINGING PRACTICUM (1) STU. 1. Group instruction in musical theatre singing. Students will be introduced to the primary principles of posture, breathing, resonance, vocal health, direction, interpretation, and repertoire selection. Theatre majors who do not earn a grade of "C" or higher must repeat. Course may be repeated for a maximum of 2 credit hours.

THEA 3210 THE BUSINESS OF THEATRE (3) LEC. 3. Pr. THEA 1010 and THEA 1110 and THEA 1910 and THEA 2310 and THEA 2910. Discussion, research, and implementation of the practices necessary to be successful as a freelance artist in the current performing arts field.

THEA 3220 ARTS MANAGEMENT (3) LEC. 3. Departmental approval. Exploration of arts organizational structures, budgeting for non-profit and for-profit arts organizations, basic business and marketing practices, historical principles and practices of arts and cultural organizations.

THEA 3320 THEATRE TECHNOLOGY II (3) LEC. 2, LST. 2. Pr. THEA 2310. Theoretical and practical applications of equipment and techniques in technical theatre. Topics include light, sound mechanics, theatre rigging, equipment, special effects, and computer applications. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3340 PERFORMANCE V (1) STU. 1. Pr. THEA 2440 or MUAP 2630. Departmental approval. Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

THEA 3350 PRODUCTION MANAGEMENT (3) LEC. 3. Departmental approval required. Exploration of the role and responsibilities of the production manager in the coordination and execution of production elements for projects in theatre, dance, opera, music, etc. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3400 RENDERING FOR THE THEATRE (3) LEC. 2. LAB. 2. Pr. THEA 2400 or Departmental approval. Traditional drawing and rendering techniques and medias that help the designer to communicate scenic, costume, and lighting designs. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3410 SCENE DESIGN I (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Discussion, research, and execution of theory and practices of designing scenery for the stage. Emphasis on traditional style and methods of design and presentation for the proscenium theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3420 PROPERTY DESIGN AND TECHNOLOGY (3) LEC. 2, LST. 2. Pr. THEA 3320 or Departmental approval. History, design, organization, application of materials, and techniques used in the design and construction of properties for the theatre, film, and television. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3440 PERFORMANCE VI (1) STU. 1. Pr. THEA 3340 or MUAP 3530. Departmental approval. Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

THEA 3460 AUTOCAD FOR PERFORMANCE DESIGN (3) DSL/LEC. Pr. THEA 3450. This course provides students with a broad knowledge of creating 2D drawings and 3D modeling using Computer-Aided Design software (AutoCAD). Students will learn how to use AutoCAD to present their designs, visually and distribute basic, industry-standard drawings.

THEA 3510 LIGHTING DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2310 or Departmental approval. Studio course that explores the theory, research, and practice of stage lighting, practical illumination, and effects lighting. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3520 SOUND DESIGN (3) LEC. 2, LST. 2. Departmental approval. Equipment and techniques used in sound design, as both a design and a technical medium. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3570 DANCE LAB 3 - BALLET (1) LAB. 4.5. Pr. THEA 2570. Intermediate advanced studio in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3610 ADVANCED COSTUME CONSTRUCTION (3) LEC. 2, LST. 2. Pr. THEA 2610 or Departmental approval. Historical pattern making and draping, millinery skills, and craft techniques, and their practical applications in theatre costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3640 COSTUME DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Costume design and rendering as it relates to historical and original design for the theatre. Exploration of design for television, commercials, and rock stars. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3670 DANCE LAB 3 - JAZZ (1) LAB. 3. Pr. THEA 2670. Intermediate advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3710 THEATRE HISTORY, THEORY AND CRITICISM II - BODY (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on the human body as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include such topics as historical and theoretical perceptions of the social status of the actor, the actor's body as a medium of representation, and theatrical representations of gender and ethnicity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3720 THEATRE HISTORY, THEORY AND CRITICISM III - SPACE (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on theatrical space as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include ritual landscapes as they pertain to the origin of drama, the development of the western playhouse, the avant-garde reconceptualization of theatre space, and the development of such spatially oriented American institutions as Broadway and regional theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3730 MUSIC THEATRE HISTORY (3) LEC. 3. Exploration of music theatre literature, performances, historical, analytical and critical trends from the early 20th century to the present day. Areas of exploration include music theatre as a work of art with unique conversations about aesthetics and form, as an entertainment media shaped by its historical and cultural context, and as a viable performance form for the 21st century. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3740 COSTUME HISTORY (3) LEC. 3. History of Western costume and its uses in the theatre from ancient times to the present. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3800 THEATRE EVENTS MANAGEMENT (3) SEM. 3. Pr. THEA 2300. THEA 2300 with a grade of "C" or higher. This course is an introduction to the researching, planning, coordinating, marketing, facilitation/management and assessment of special events, specifically as they relate to the performing arts. Through practical application, each student will gain experience in the basic entrepreneurial skills necessary to plan a public arts event.

THEA 3840 INTERMEDIATE DANCE TECHNIQUES I (3) LEC. 1, LST. 3. Pr. THEA 2840. Intermediate level dance technique and theory, with an emphasis on performance qualities including work on alignment, strength, flexibility, rhythm, musicality, and dynamics, as well as the study of select contemporary choreographers. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3850 INTERMEDIATE DANCE TECHNIQUES II (3) LEC. 1, LST. 3. Pr. THEA 2840. Further exploration into intermediate level dance technique and theory, with emphasis on aesthetics and contemporary topics in dance. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3860 MOVEMENT FOR THE ACTOR (3) STU. 4. Introduction to the basic concepts of movement as it relates to the actor. Integrative ways of connecting the body to text and space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3910 PRODUCTION PRACTICUM III (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 3940 APPLIED THEATRE II: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3950 DIRECTING SEMINAR (3) LEC. 2, LST. 2. Pr. THEA 2120. Study of fundamental skills and collaborative processes needed to direct live theatre, including blocking, script analysis, research methods, approaches to casting, and rehearsal techniques. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3960 DRAMATURGY SEMINAR (3) LEC. 3. Study of fundamental skills and collaborative processes needed to dramaturg a piece of live theatre including both production and new play dramaturgy, critical analysis, research, presentations, and performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4150 BFA PERFORMANCE STUDIO III (4) LEC. 3, LST. 5. Pr. THEA 3160. Professional preparation with particular focus on individual rehearsal and performance techniques covering a broad spectrum of periods and styles geared toward graduate acting program placement and professional employment. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, and THEA 4150.

THEA 4160 BFA PERFORMANCE STUDIO IV (4) LEC. 3, LST. 5. Pr. THEA 4150. Special problems and topics in performance. Intensive work integrating and applying acting, voice, and movement techniques in an ensemble capstone recital of work in an adjudicated public performance. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, THEA 4150 and THEA 4160.

THEA 4340 PERFORMANCE VII (1) STU. 1. Pr. THEA 3440 or MUAP 3630. Departmental approval. Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

THEA 4420 SCENE DESIGN II (3) LEC. 2, LST. 2. Pr. THEA 3410 or Departmental approval. Advanced course in theory and practice of scenic and lighting design for theatre. Emphasis on experimental and non-traditional staging in a variety of space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4440 PERFORMANCE VIII (1) STU. 1. Pr. THEA 4340 or MUAP 4530. Departmental approval. Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

THEA 4450 DRAFTING FOR THE THEATRE II (3) LEC. 2, LST. 2. Pr. THEA 3450. Comprehensive study of computer and digital techniques used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4510 LIGHTING DESIGN II (3) LEC. 3. LAB. 1. Pr. THEA 2400 and THEA 3510. Lighting Design II provides students with in-depth study of advanced stage lighting techniques, including integration of computer graphics and projections with conventional lighting instruments.

THEA 4570 DANCE LAB 4 - BALLET (1) LAB. 4.5. Pr. THEA 3570. Advanced studio training in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4650 ADVANCED STAGE MAKEUP (3) LEC. 1, LST. 3. Pr. THEA 2650 or Departmental approval. Comprehensive study of specialized makeup, including film and television makeup, mask making, prosthesis, facial hair design, and wig making. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4670 DANCE LAB 4 - JAZZ (1) LAB. 3. Pr. THEA 3670. Advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4690 ARTISTS AND COMMUNITIES (3) SEM. 3. An in-depth analysis and exploration of the role and responsibility of the artist and art within communities. We will explore this idea from multiple perspectives: marketing, general management, artistic direction, performance, urban planning/creative placemaking, fundraising, and nonprofit management.

THEA 4750 PLAYWRITING (3) LEC. 3. Discussion of the principles of play construction, playwriting exercises, and completion of a one-act play. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4770 CAPSTONE SENIOR DANCE LAB (1) LAB. 1. Pr. THEA 1530 and THEA 2570 and THEA 2670. Students must be in good standing in BFA Performance Program. Culminating exploration of, and enrichment in musical theatre dance technique ranging from Ballet to Jazz to Hip-hop. Course culminates in a public capstone dance outcome performance.

THEA 4840 ADVANCED DANCE TECHNIQUES (3) LEC. 1, LST. 3. Pr. THEA 3850. Intensive study of advanced dance techniques in theory and practice. Course often serves as a training and preparation for public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 12 credit hours.

THEA 4910 PRODUCTION PRACTICUM IV (1-4) STU. Pr. THEA 3910. Or Admission into the THDT or THMN program and two semesters of THEA 3910 or departmental approval. Leadership experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 4920 PROFESSIONAL INTERNSHIP (1-8) INT. Pr., Departmental approval. Internship with professional or community theatre in the student's field of specialization. Each 10-hour work week equals one hour of credit. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 8 credit hours.

THEA 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. Directed readings, creative and tutorial projects of interest to the advanced student. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4940 THEATRE SPECIAL PROJECTS (3) AAB/STU. 4. Pr., Departmental approval. Selected projects related to realizing a theatrical production in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 9 credit hours.

THEA 4950 THEATRE LITERATURE AND THEORY SEMINAR (3) LEC. 3. Thorough examination of dramatic literature and theory from a narrow perspective (such as genre, style, or era.) Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Subject areas to be determined between student and theatre instructor. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4970 SPECIAL TOPICS (3) LEC. 3. Special Topics in Theatre or Dance. Course may be repeated for a maximum of 9 credit hours.

THEA 4980 SENIOR CAPSTONE PROJECT (3) LEC. 3. Capstone course to aid senior theatre majors in their transition to the professional world and/or graduate studies. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Final projects of varying natures in theatre Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

Undergraduate Studies - UNDG

Courses

UNDG 4900 CLEARING FOR UNDERGRADUATE GRADUATION (0) LEC. 2.

University Courses - UNIV

Courses

UNIV 0110 IEP TERM I GRAMMAR/WRITING (0) LEC. 2. Administrative approval required.

UNIV 0120 IEP TERM I READING/VOCABULARY (0) LEC. 2. Administrative approval required.

UNIV 0130 IEP TERM I LISTENING/SPEAKING (0) LEC. 2. Administrative approval required.

UNIV 0210 IEP TERM II GRAMMAR/WRITING (0) LEC. 2. Administrative approval required.

UNIV 0220 IEP TERM II READING/VOCABULARY (0) LEC. 2. Administrative approval required.

UNIV 0230 IEP TERM II LISTENING/SPEAKING (0) LEC. 2. Administrative approval required.

UNIV 1000 THE AUBURN EXPERIENCE (1) LEC. 1. Surveys the history of the University, current student resources, and academic programs.

UNIV 1050 SUCCESS STRATEGIES (1) LEC. 1. An introduction to essential academic and personal skills for college success. Designed to familiarize students with university life and improve core academic skills.

UNIV 1060 SUCCESS STRATEGIES II (1-2) LEC. 1-2. Departmental approval required. Designed for those in academic jeopardy, this course assists students in identifying issues impacting academic success and developing strategies to affect positive change. Course may be repeated for a maximum of 4 credit hours.

UNIV 1067 HONORS SUCCESS STRATEGIES II (1-2) LEC. 1-2. Pr. Honors College. Honors College. Department approval required. Designed for those in academic jeopardy, this course assists students in identifying issues impacting academic success and developing strategies to affect positive change. Course may be repeated for a maximum of 2 credit hours.

UNIV 1100 FIRST YEAR SEMINAR (1-2) LEC/SEM. Introduce a topic of interest with contemporary importance to beginning college students. Course may be repeated for a maximum of 4 credit hours.

UNIV 1107 HONORS FIRST YEAR SEMINAR (1-2) LEC/SEM. Pr. Honors College. Introduce a topic of interest with contemporary importance to beginning college students. Course may be repeated for a maximum of 4 credit hours.

UNIV 1150 SPECIAL TOPICS WITH LEARNING STRATEGIES (1-2) LEC. 1-2. This course offers first-year students an opportunity to explore a topical area of interest while integrating related study skills. Course may be repeated for a maximum of 4 credit hours.

UNIV 1157 HONORS SPECIAL TOPICS WITH LEARNING STRATEGIES (1-2) LEC. 1-2. Pr. Honors College. This course offers first-year students an opportunity to explore a topical area of interest while integrating related study skills. Course may be repeated for a maximum of 4 credit hours.

UNIV 2100 PEER EDUCATION IN HIGHER ED (1) LEC. 1. This course provides both a theoretical and practical foundation for the role of peer educator. The course will focus on theories of student learning and development and the peer educational practices that enhance that development.

UNIV 2300 ABROAD TRANSFER-UG (0) AAB/IND. Completion of Office of International Programs-Auburn Abroad-Transfer application and Study Abroad Transfer Credit Form. Full time placeholder. Allows undergraduate students to obtain financial aid, some scholarships requires individual scholarship source approval).

UNIV 2710 THE HUMAN ODYSSEY I (3) LEC. 3. Examines the human endeavor from pre-history through the 17th century by exploring connections between the sciences and humanities.

UNIV 2720 THE HUMAN ODYSSEY II (3) LEC. 3. Examines the human endeavor from the l8th century through the present by exploring connections between the sciences and humanities.

UNIV 2940 AUBURN ABROAD (0) AAB. Pr. 2.25 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

UNIV 2945 AUBURN ABROAD (0) FLD. Pr. 2.25 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

UNIV 2960 SCHOOL OF RECORD TRANSIENT COURSE (0) AAB/FLD. Must be Auburn transient student. Auburn University is the "School of Record" for transient students seeking academic credit for international programs provided by independent vendors. Course content will vary by individual program.

UNIV 3000 AUBURN EXCHANGE_UNDERGRADUATE (1-12) IND. Office of International Programs - Auburn Abroad approval and approval of individual department sponsoring the exchange program. Full time 12 hour placeholder course for Undergraduate Exchange Students. Course may be repeated for a maximum of 12 credit hours.

UNIV 3510 EUROPEAN ODYSSEY (3) FLD. 2. Summer study-abroad program in Rome, Florence, Paris, London, Edinburgh; through visits to churches, historic sites, contemporary buildings, museums, galleries, parks, piazzas, rivers, trains, restaurants, theatres and stores, students will research selected aspects of Western mythology and religion, Roman Empire, society and culture, art and architecture, Renaissance, Enlightenment and Reformation, and industrial and scientific revolutions.

UNIV 3517 HONORS EUROPEAN ODYSSEY (3) FLD. 2. Summer study-abroad program in Rome, Florence, Paris, London, Edinburgh; through visits to churches, historic sites, contemporary buildings, museums, galleries, parks, piazzas, rivers, trains, restaurants, theatres and stores, students will research selected aspects of Western mythology and religion, Roman Empire, society and culture, art and architecture, Renaissance, Enlightenment and Reformation, and industrial and scientific revolutions.

UNIV 3900 AUBURN ABROAD (0) AAB. Study abroad office approval.Student must meet individual program requirements andcomplete a study abroad course approval form prior todeparture.

UNIV 4900 GENERIC EXTERNAL TRANSFER CREDIT (.67-13.34) LEC. 2. Course may be repeated for a maximum of 13.34 credit hours.

UNIV 4920 CURRICULAR PRACTICAL TRAINING (0) PRA. For international students and scholars on U.S. OS EV approved Academic Training. Office of International Education authorized enrollments only.

UNIV 4940 AUBURN ABROAD (0) AAB. Pr. 2.25 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

UNIV 4945 AUBURN ABROAD (0) AAB/FLD. Pr. 2.25 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

UNIV 4AA0 ACHIEVE THE CREED (0) LEC. n/a

UNIV 5940 AUBURN ABROAD (0) AAB. Pr. 3.00 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

UNIV 5945 AUBURN ABROAD (0) AAB/FLD. Pr. 3.00 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

UNIV 6000 AUBURN EXCHANGE_GRADUATE (1-9) IND. Office of International Programs - Auburn Abroad approval and approval of the individual department sponsoring the exchange program. Variable credit hour placeholder course (1-9 credit hours) based on courses taken by outging AU Exchange Students. This placeholder carries tuition cost based on outgoing AU student's residency.

UNIV 6300 ABROAD TRANSFER-GR (0) AAB/IND. Completion of Office of International Programs-Auburn Abroad-Transfer application and Study Abroad Transfer Credit Form. Full time placeholder, zero credit hours. Allows graduate students to obtain financial aid, some scholarships (requires individual scholarship source approval).

UNIV 6900 AUBURN ABROAD (0) AAB. Study abroad office approval.Student must meet individual program requirements andcomplete a study abroad course approval form prior todeparture.

UNIV 7000 INTERNATIONAL GRADUATE EXPERIENCE (0) LEC. 1. SU. This course is designed to provide new international graduate students with an orientation to academic and local culture in the United States.

UNIV 7010 RURAL STUDIO CERTIFICATE (0) LEC. 3.

UNIV 7020 RURAL STUDIO CERTIFICATE I (0) LEC. 3.

UNIV 7030 RURAL STUDIO CERTIFICATE II (0) LEC. 3.

UNIV 7940 AUBURN ABROAD (0) AAB. Pr. 3.00 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

UNIV 7945 AUBURN ABROAD (0) AAB/FLD. Pr. 3.00 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

UNIV 9AA0 ACHIEVE THE CREED (0) LEC.

Veterinary Medicine - VMED

Courses

VMED 9000 ORIENTATION TO VETERINARY MEDICINE (0) SEM. 1. SU. Overview of organized veterinary medicine, history of the profession, professional responsibilities and privileges, and career opportunities within the profession.

VMED 9009 PROFESSIONAL SELF CARE SKILLS (1) LEC. 1. SU. Departmental approval. This course will discuss the factors present within veterinary medicine that put us at risk for empathetic exhaustion, burnout, suicidal ideation and other issues, followed by sharing skills, thoughts and actions that will facilitate resiliency, well-being and fulfillment within the profession.

VMED 9010 VETERINARY JURISPRUDENCE (1) LEC. 1. Provide a foundation in veterinary medical ethics and legal issues associated with veterinary medicine.

VMED 9020 PROFESSIONAL COMMUNICATION SKILLS FOR VETERINARY MEDICINE (1) LEC. 1. LAB. 2. SU. Students will develop skills in communication with faculty, staff, colleagues, pet-owners, and the public sector through lecture and interactive laboratory sessions. These skills will be immediately implementable into everyday student/educational life, clinical practice, and team building settings. Topics include implementation of nonverbal and verbal communication skills during financial discussion, de-escalation, grief and empathy, creating safe spaces for collaborative decision making, and discussing medical errors.

VMED 9030 NATURAL HISTORY AND ANATOMY OF MARINE MAMMALS AND SEA TURTLES (1) LEC. 1, LAB. 0-2. SU. The course will be divided into nine hours of lectures and six hours of labs evenly divided between odontocetes (toothed whales), Pinnipeds (seals, sea lions and walruses) and sea turtles. Lecture topics will include natural history and anatomy of each group. Three fresh tissue wet labs will include dissections of one dolphin (Bottlenose or Spotted), one California Sea Lion and one sea turtle (one of several species found in the northern Gulf of Mexico).

VMED 9040 MARINE MAMMAL STRANDING RESPONSE AND NECROPSY TECHNIQUES (1) LEC. 1, LAB. 0-3. SU. Departmental approval. This course will provide an overview of the stranding response and necropsy techniques for small cetacean, manatees, and pinnipeds (manatee necropsy based on availability). The course will include lectures and necropsies at Dauphin Island Sea Lab.

VMED 9050 PROFESSIONAL DEVELOPMENT AND BUSINESS FUNDAMENTALS (1) LEC. 15. Auburn University CVM Professional Development and Business Fundamentals course is a 1 credit-hour course encompassing the study, understanding and application of pertinent business disciplines guiding the decision-making responsibilities of practice owners, veterinarians, veterinary students, veterinary technicians and practice managers that seek to improve profitability and efficiency allowing for a competitive advantage and long term success in their personal and professional careers.

VMED 9060 ELEVATING YOUR IMPACT: TOOLS FOR COMMUNITY-CENTERED MEDICINE (1) LEC. 12. LAB. 1. SU. This experience will provide students with an introduction to a wide range of animal welfare topics in a hands-on interactive environment. Subject matter experts will present, lead discussions, and facilitate student activities throughout this 2-day intensive weekend elective. Students will have the opportunity to practice spay/neuter techniques using easily buildable string models, become the crime scene investigator on animal cruelty cases, and learn countless other skills that will help them become better advocates for the animals and pet owners in their communities regardless of the specific veterinary field they choose to enter post-graduation.

VMED 9070 APPLIED CLINICAL PATHOLOGY (1) LEC. 1. SU. This course covers the use and interpretation of hematologic, clinical biochemical, coagulation, urinalysis and cytologic laboratory data in the diagnosis of diseases and pathophysiologic processes, building on the foundation established in the first two years of the professional DVM curriculum. The data discussed in this course are taken from clinical cases from the AU teaching hospitals.

VMED 9080 VETERINARY PAIN MANAGEMENT (1) LEC. 1. SU. The veterinary pain management course will serve to increase a student's knowledge base on many aspects of pain management of the veterinary patient. Subjects covered in this course will include in depth review of neuroanatomy and physiology of pain, pathophysiology of pain, pharmacology of medications used for pain management, non-pharmacologic treatments for pain, and specific pain management strategies for various domestic species, and exotic and zoo animals. Content in this class will be delivered through lecture or other formats depending on the presenting faculty. Departmental approval required.

VMED 9090 CANINE AND FELINE DENTISTRY (1) LEC. 1. SU. This elective is designed to build upon Small Animal Dentistry knowledge and teach entry level abilities to help 2nd and 3rd year veterinary students become clinic and practice ready. Departmental approval required.

VMED 9100 PROFESSIONAL PREPAREDNESS (1) LEC. 1. SU. Departmental approval. This course will introduce principles of preparedness for the major challenges students will face both now and after graduation from veterinary school (student loans, home mortgage, vehicle purchase, retirement plan, etc.).

VMED 9110 PHYSIOLOGY I (5) LEC. 5. LAB. 1. Cellular, Cardiovascular, Renal, and Respiratory Physiology.

VMED 9111 VETERINARY ANATOMY I (SMALL ANIMAL) (4) LEC. 2. LAB. 2. Basic concepts of body structure and small animal gross anatomy with veterinary medical applications. Credit will not be given for both VMED 5111 and VBMS 6111.

VMED 9120 PHYSIOLOGY II (4) LEC. 5. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VMED 9121 VETERINARY ANATOMY II (3) LEC. 1. LAB. 2. In-depth study of the gross anatomy of the ox, horse, and minor species with inclusion of clinical relevance.

VMED 9130 GENETIC AND CELLULAR BASIS OF ANIMAL DISEASE (1) LEC. 3. One credit course focused on the relationship between genetics and animal diseases.

VMED 9131 BASIC MICROANATOMY/DOMESTICS ANIMALS (3) LEC. 1. LAB. 2. Functional comparative microstructure of cells, basic tissues, cardiovascular system, urinary system, skeleton and osteogenesis, respiratory system, and blood of domestic animals.

VMED 9140 ADVANCED ANESTHESIA AND PAIN MANAGEMENT (1) LEC. 1. SU. This course is intended to expand on the basic topics covered in the veterinary curriculum. The content will be selected by the participants on the first day and a syllabus generated based on a consensus of topics the group would like to discuss. All topics in the realm of anesthesia and pain management are within the scope of possibilities. This course is not designed to be a review of topics already covered in other classes, but to expand on those topics. Departmental approval required.

VMED 9141 ORGANOLOGY OF DOMESTIC ANIMALS (2) LEC. 1. LAB. 2. Comparative microstructure of the digestive system, lymphoid system, endocrine system, integumentary system, reproductive system, and placentation of domestic animals.

VMED 9150 DIAGNOSTIC IMAGING (2) LEC. 2. LAB. 1. Basic radiographic and ultrasonographic physics; introduction to computed tomography, magnetic resonance imaging, and nuclear imaging.

VMED 9151 VETERINARY NEUROSCIENCES (4) LEC. 3. LAB. 1. Gross and microscopic morphology and physiology of the peripheral and central nervous systems. Course may be repeated for a maximum of 12 credit hours.

VMED 9160 VETERINARY PUBLIC HEALTH (3) LEC. 3. This first half of this class will include instruction on the zoonoses, and the principles of epidemiology or population medicine. For the zoonoses primary mechanisms of transmission and inclusion in differential diagnosis lists will be emphasized. The role of the veterinarian in prevention of human disease from the zoonoses will be stressed. Epidemiologic methods for investigation of disease distribution and dynamics in populations also will be covered. The second half of the course will provide a broad One Health/ Public Health overview of food safety and food security issues, including pet food and animal feeds. Basic concepts and principles will be illustrated and reinforced through the study of food- and water-borne diseases. This part of the course will address food and water-borne pathogens, their public health impacts (historic and present-day), prevention and mitigation measures (sanitary production and processing, pasteurization, and preservation techniques). The history and importance of regulatory controls and oversight in order to assure food and feed safety, consumer confidence, sustainability, and stable markets for American agriculture will be discussed.

VMED 9170 PROFESSIONAL COMMUNICATION SKILLS (1) LEC. 1. SU. Departmental approval. Students will develop skills in communication with colleagues, clients and staff through lecture and interactive laboratory sessions. Students will also improve their ability to give and receive feedback from peers. Professional presentation skills will be developed during the course with a final presentation given in laboratory setting.

VMED 9180 VETERINARY ETHOLOGY (2) LEC. 2. Basic concepts of ethology and other approaches to animal behavior, introduce diagnostic and treatment methods, discuss relevant cases. Course may be repeated for a maximum of 6 credit hours.

VMED 9190 INTRODUCTION TO VETERINARY PHARMACOLOGY (1) LEC. 3. An organized foundation of information to develop clincial thinking skills in veterinary pharmacology. Course may be repeated for a maximum of 16 credit hours.

VMED 9200 VETERINARY PARASITOLOGY I (3) LEC. 3. LAB. 1. Platyhelminthes, trematodes, and nematodes of domestic animals.

VMED 9210 VETERINARY PARASITOLOGY II (2) LEC. 3. LAB. 1. Arthopods, protozoa, helminths, and acanthocephalans of domestic animals. Parasiticides.

VMED 9220 PRINCIPLES OF VETERINARY PATHOLOGY (3) LEC. 4. LAB. 1. General principles of pathology and mechanisms of disease processes affecting animals.

VMED 9230 VETERINARY CLINICAL PATHOLOGY (4) LEC. 47. LAB. 8. Laboratory test principles and results interpretations in evaluation of hematopoietic, coagulation, hepatic, renal, gastrointestinal, acid/base and fluid status of animals.

VMED 9240 PRINCIPLES OF VETERINARY IMMUNOLOGY (3) LEC. 2. LAB. 1. Principles underlying the immune system's ability to protect animals from disease and mechanisms by which immune responses contribute to disease.

VMED 9250 VIROLOGY & PRIONS (2) LEC. 2. LAB. 1. Principles of infectious agents and their pathogenic attributes, infectious diseases of animals, and mechanisms of antimicrobial agents. Course may be repeated for a maximum of 6 credit hours.

VMED 9260 VETERINARY PHARMACOLOGY (3) LEC. 5. LAB. 1. Overview of drugs relevant to veterinary practice; pharmacoynamics, pharmacokinetics, clinical application.

VMED 9280 BACTERIOLOGY & MYCOLOGY (3) LEC. 3. LAB. 1. Veterinary bacterial and fungal pathogens, diseases caused by each, prevention, treatement and presumptive laboratory diagnoses. Course may be repeated for a maximum of 9 credit hours.

VMED 9290 CLINICAL ANATOMY AND INTRO TO AQUATIC ANIMAL MEDICINE (1) DSL/LLB. SU. This course delves into the unique anatomic and physiologic features of aquatic animals and serves as an introduction into topics including aquaculture, aquatic toxicology, aquatic research models, diseases of fish, and aquatic medicine. In addition, basic fish anatomy and diagnostic techniques will be taught in laboratory sessions.

VMED 9300 REPTILE ANATOMY AND MEDICINE (1) LEC. 1. LAB. 1, LLB. 0. SU. This course will be divided evenly between anatomy and natural history of reptiles. There will be 15 one-hour lectures and 2 two-hour wet labs.

VMED 9301 PHYSICAL DIAGNOSES OF LARGE AND SMALL ANIMALS (2) LEC. 2. LAB. 1. Basic approach to physical examination of large and small animals.

VMED 9309 AVIAN ANATOMY AND MEDICINE (1) LLB. SU. This course will be divided between the anatomy and natural history of birds. There will be 15 one-hour lectures and 2 two-hour wet labs.

VMED 9310 INTRODUCTION TO SURGERY (2) LEC. 2. LAB. 2. Current standing in the DVM professional curriculum and completion of the first 3 semesters of the professional program. Introduction to the fundamental principles and techniques of veterinary surgery.

VMED 9311 SURGICAL PRACTICUM (0-1) LAB. 5. SU. Aseptic technique, instrument handling, suture patterns, surgical ties, anesthetic administration/monitoring, surgical incision/tissue handling, wound closure, postoperative patient management. Course may be repeated for a maximum of 1 credit hours.

VMED 9320 LARGE ANIMAL NUTRITION (2) LEC. 2. LAB. 0. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 5320 or VMED 5420. Course may be repeated for a maximum of 6 credit hours.

VMED 9330 EXOTIC COMPANION ANIMAL MEDICINE (2) LEC. 4. Care, diagnosis, and treatment of exotic companion animals. May count either VMED 5330 or VMED 5430. Course may be repeated for a maximum of 6 credit hours.

VMED 9340 EMERGENCY MEDICINE AND CRITICAL CARE (2) LEC. 5. Emergency presentations, critical care management.

VMED 9350 VETERINARY TOXICOLOGY (2) LEC. 2. LAB. 1. Poisons and poisonous plants affecting large and small animals, chemical properties, signs, lesions, diagnosis, treatment.

VMED 9360 PRODUCTION AND PREVENTATIVE MEDICINE (3) LEC. 5. Principles of disease prevention and maximization of production application of food safety principles.

VMED 9370 ONCOLOGY (1) LEC. 3. Diagnostic and therapeutic measures used to manage animals with oncologic diseases.

VMED 9380 PHYSICAL DIAGNOSIS II (1) LEC. 1. LAB. 2. Continued experience in the performance of routine physical examination in small and large animal species. Satisfactory advancement into the second year of the professional (DVM) program.

VMED 9390 ADVANCED ANATOMY AND SURGICAL SKILLS (1) LEC. 1. SU. This elective is based on a flipped classroom model. Each enrollee will be required to prepare one PowerPoint presentation selected from the list of cases provided (or the presenter can elect to bring his or her own case based on past experience) and then discuss it with the group. The presenter will carry out research at home ahead of the class. He will get guidance from instructor who will provide additional notes, video and anatomical resources for each of the listed cases. Departmental approval required.

VMED 9400 EQUINE THERIOGENOLOGY CASE OF THE WEEK (1) LEC. 1. SU. Departmental approval. This course provides students an introduction to equine theriogenology using clinical cases received on the equine theriogenology service of the J.T. Vaughan Large Animal Teaching Hospital.

VMED 9410 APPLIED CLINICAL IMAGING (2) LEC. 3. Define and describe abnormalities of various systems detected through imaging. Course may be repeated for a maximum of 6 credit hours.

VMED 9420 SMALL ANIMAL NUTRITION (2) LEC. 2. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 9320 or VMED 9420. Course may be repeated for a maximum of 6 credit hours.

VMED 9440 CLINICAL VETERINARY PARASITOLOGY (1) LEC. SU. Departmental approval. This course will provide students with a case-based lecture format for expansion of foundational parasite knowledge, focusing on further discussions of the diagnosis, treatment, and prevention of common parasitic problems faced by general practitioners (small animal, large animal, and mixed) in the US. Hosts will include, but not be limited to: dogs, cats, horses, cattle, small ruminants, camelids, poultry and swine.

VMED 9450 EQUINE VETERINARY HUSBANDRY (1) LEC. 1. SU. This course is designed to familiarize veterinary students with the basic principles of equine husbandry as related to veterinary medicine, including uses and medical conditions of certain breeds, biosecurity, infectious disease prevention, parasite control programs, dental and hoof care, transport, and nutrition.

VMED 9460 FELINE MEDICINE ELECTIVE (1) LEC/LLB. SU. Departmental approval. This course provides an opportunity to increase practical knowledge of a variety of topics in feline medicine. Topics are designed to supplement course work, or include areas that are not covered in depth in regular courses.

VMED 9470 PRACTICAL KNOWLEDGE FOR EQUINE PRACTITIONERS (1) LEC. 1. SU. Discussions of common equine practice topics by medicine and surgery clinicians and staff.

VMED 9480 SPECTRUM OF CARE SERIES: INFORMATION LITERACY (1) LEC. 1. LAB. 0, LLB. 0. SU. Pr. VMED 9780. As part of the Spectrum of Care Series, this course focuses on identifying, critically evaluating, and applying different types of veterinary literature in academia and different types of private practice models. Additionally, students will be exposed to clinical, novel experiences and research presentations where they will have the ability to think through clinical presentations, provide high-quality feedback, and reflect on applications to their future practice.

VMED 9490 SPECTRUM OF CARE SERIES: EMERGING TECHNOLOGY (1) LEC. 1, LAB. 0-2, LLB. 0. SU. Pr. VMED 9780. As part of the Spectrum of Care Series, this course focuses on emerging technologies in veterinary medicine with a heavy focus on the use of artificial intelligence. This course will focus on how research goes from the benchtop to clinical practice and explore how new technology is developed. Additionally, students will explore the risks, benefits, limitations, and use of artificial intelligence and emerging technologies in veterinary medicine.

VMED 9500 SPECTRUM OF CARE SERIES: PUBLIC SPEAKING AND SOCIAL MEDIA IN MEDICAL PRACTICE (1) LEC. 1, LAB. 0-2, LLB. 0. SU. Pr. VMED 9780. As part of the Spectrum of Care Series, this course focuses on public speaking and use of social media and its practical use in medical practice. This course will be aimed at discussing the various types of speaking that veterinarians and health care professionals are asked to do, how to prepare to give a talk/ continuing education event, and how to engage guest lecturers about best practices in public speaking.

VMED 9502 CURRENT TOPICS IN VETERINARY MEDICINE (1) LEC. 1. SU. Emerging topics in veterinary medicine, current literature. Course may be repeated for a maximum of 15 credit hours.

VMED 9510 HEMOLYMPHATIC SYSTEM (1) LEC. 3. LAB. 1. Diagnosis, treatment and prevention of diseases affecting the integumentary and hemolymphatic systems. Course may be repeated for a maximum of 3 credit hours.

VMED 9520 CARDIOVASCULAR SYSTEM (2) LEC. 3. LAB. 1. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the cardiovascular system.

VMED 9530 RESPIRATORY SYSTEM (3) LEC. 3. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the respiratory system.

VMED 9540 SMALL ANIMAL ALIMENTARY SYSTEM (2) LEC. 5. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9550 URINARY SYSTEM (2) LEC. 3. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of disease affecting the urinary system.

VMED 9560 ENDOCRINE SYSTEM (2) LEC. 3. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases of the endocrine system.

VMED 9570 THERIOGENOLOGY (4) LEC. 5. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment; and prevention of diseases of the reproductive system.

VMED 9580 NERVOUS SYSTEM (2) LEC. 5. LAB. 1. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of diseases affecting the nervous system.

VMED 9590 MUSCULOSKELETAL SYSTEM (3) LEC. 3. Pathophysiology; pathologic, radiographic and ultrasonographic lesions; diagnosis; treatment; and prevention of diseases affecting the musculoskeletal system.

VMED 9600 ADVANCED EQUINE PHYSICAL DIAGNOSIS I (1) LAB. 1. SU. Departmental approval. An introduction to basic physical examination techniques and clinical conditions commonly used when examining horses clinically. Part 1 of a 2 part series, this course introduces students to common clinical conditions that may be encountered in equine practice.

VMED 9601 VETERINARY CLINICAL ROTATIONS (0-3) CLN. 40. Clinical experiences through various specialty service in the Veterinary Medical Teaching Hospital. Course may be repeated with change in topics.

VMED 9602 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCE (1-10) RES. SU. Research problems in a variety of specialized disciplines for veterinary students and advanced undergraduates.

VMED 9610 ADVANCED EQUINE PHYSICAL DIAGNOSIS II (1) LAB. 1. SU. Departmental approval. This course is a continuation of physical examination techniques and diagnostic procedures used when examining horses clinically. This is the second part of a two part elective to introduce students to common procedures that may be encountered in clinical practice of equine medicine.

VMED 9620 INTEGRATIVE & COMPLEMENTARY MEDICINE (1) LEC. 1. SU. Departmental approval. This course will cover concepts in acupuncture, chiropractic adjustment, massage, and physical therapy as applied to veterinary medicine. The laboratory session will allow for hands on experience through application of techniques.

VMED 9621 CLINICAL ROTATIONS IN VETERINARY MEDICINE (0-2) CLN. 40. Clinical practicum experiences in large and small animal teaching hospitals on the veterinary medical campus. Course may be repeated with change in topics.

VMED 9630 LEGAL PRINCIPLES OF VETERINARY FORENSICS (1) LEC. 1. SU. Fundamental concepts of animal crimes and the role and responsibilities of veterinarians in reporting animal abuse and identifying, documenting, and processing forensic evidence in a criminal case.

VMED 9631 ALTERNATIVE ROTATIONS IN VETERINARY MEDICINE (2) CLN. 40. SU. Clinical practicum experiences in alternative large and small animal disciplines. Course may be repeated with change in topics.

VMED 9640 LARGE ANIMAL ALIMENTARY SYSTEM (2) LEC. 5. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases affecting the large animal alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9660 BASIC SPANISH FOR VETERINARIANS (1) LEC. 1. SU. Departmental approval. Learn basic words and terminology used in veterinary medicine, including species, household and farm items, basic body parts, etc.

VMED 9669 ADVANCED SPANISH FOR VETERINARIANS (1) LEC. 1. SU. Learn how to communicate in Spanish different diseases, treatments and recommendations for pet owners, including but not limited to dogs, cats, horses, cattle and farm animals. At the end of the course, students should be able to obtain a history, explanation of physical exam and diagnostic tests, description of clinical exam findings, treatments and recommendations.

VMED 9670 OPHTHALMOLOGY (1) LEC. 2. LAB. 1. Common procedures for evaluation, diagnoisis and treatment of eye disorders in domestic species are covered to provide basic veterinary ophthalmology knowledge to veterinary students.

VMED 9680 VACCINES (1) LEC. 1. SU. This course will cover animal and human vaccines, including their history, impact, and recent developments in vaccine technology through evaluation of current primary literature.

VMED 9690 REPTILE AND AMPHIBIAN MEDICINE (1) LEC. 1. SU. Diseases, treatment, husbandry, handling, restraint, examination, sample collection in reptiles and amphibians.

VMED 9700 INTRODUCTION TO ANESTHESIA (3) LEC. 3. LAB. 1. Principles and practices of veterinary anesthesia in large and small animals.

VMED 9720 DISASTER MEDICINE FOR VETERINARIANS (1) LEC. 1. SU. Pr. (VMED 9111 or VMED 5111). Explores the role of the veterinarian in preparing and responding to natural and man-made disasters, including animal health emergencies.

VMED 9730 SELECT TOPICS IN FOOD ANIMAL MEDICINE (1) LEC. 1. SU. This course covers a wide variety of topics involving food animals (bovine, swine, small ruminants, camelids and poultry) which are more in depth than in the standard DVM curriculum.

VMED 9750 DIAGNOSTIC VETERINARY ULTRASONOGRAPHY (1) LAB. 1. SU. Departmental approval. Basic physics, instrumentation, and scanning techniques of ultrasonography. Normal sonographic anatomy correlated with the cross-sectional anatomy of body structures and organs.

VMED 9760 INTRODUCTION TO AMERICAN SIGN LANGUAGE (1) LEC. 1, LAB. 0-1. SU. Introduction to American Sign Language using conversational methods. Covers vocabulary, grammatical usage, and culturally appropriate behavior within the deaf community.

VMED 9780 CLINICAL CONCEPTS & PROFESSIONAL DEVELOPMENT (1) LEC. 1. SU. A weekly case-based presentation that illustrates current concepts in the professional DVM curriculum, as well as concepts that are less commonly emphasized in the curriculum. Course may be repeated for a maximum of 6 credit hours.

VMED 9800 APPLIED SMALL ANIMAL NEUROLOGY (1) LEC. 1. SU. Clinical management of commonly occurring neurologic diseases of small domestic animals.

VMED 9801 PRECEPTORSHIP (3) LAB. 320. SU. Training in a practice situation under the direct supervision of a veterinarian or, under certain conditions, in specialized programs. Approval of Preceptorship Committee.

VMED 9802 DATA ANALYSIS OF EPIDEMIOLOGICAL STUDIES (1) LEC. 1. SU. Departmental approval. This course will cover basic data analysis of epidemiological studies that will be especially useful to students considering pursuit of an internship or residency. Epidemiologic techniques emphasized will be outbreak investigation, evaluation of diagnostic tests and disease surveillance.

VMED 9810 INTEGUMENTARY SYSTEM (2) LEC. 2. Diagnosis, treatment and prevention of diseases affecting the integumentary system.

VMED 9820 THERIOGENOLOGY: A CASE-BASED APPROACH (1) LEC. 1. LAB. 1. SU. Class discussions will surround those topics not covered elsewhere in the core reproductive curriculum (e.g., innate breeding behaviors, advanced techniques such as in-vitro production of embryos, in-depth penile injury management, and advanced dystocia management to name a few). There will be an emphasis placed on current research and literature discussion on a weekly basis.

VMED 9830 MARINE MAMMAL MEDICINE (1) LEC. 1. SU. Departmental approval. Students will receive basic, introductory, and cursory instruction on the clinical medicine involved in the management of some marine mammal species commonly found in oceanariums and marine parks. Provided laboratory session(s) will allow for minor hands-on experience to illustrate concepts. Course is off-site at Gulfworld Marine Park in Panama City Beach FL. Students are financially responsible for travel and lodging expenses.

VMED 9840 WILDLIFE DISEASES (1) LEC. 1. SU. Control and role of veterinarian in prevention of disease in wild animals, specifically wildlife indigenous to U.S.

VMED 9850 MARINE ANIMAL ANATOMY AND NECROPSY TECHNIQUES (2) LAB. SU. Departmental approval. This course will provide an overview of dolphin, pinniped and sea turtle anatomy, necropsy techniques and live and dead animal stranding response. This course will be spread over two weekend-long sessions.

VMED 9860 SURGERY THROUGH HISTORY AND APPLICATION (1) LEC/LLB. SU. Pr. P/C VMED 9310. This class will examine the history and development of surgery using many of the historical figures that shaped modern surgery. The overall goal is to obtain a deeper appreciation of the foundations of surgery and how this foundation impacts its current day practice. Classes will focus on the early contributors to both the performance of surgery and the required knowledge supporting its performance, such as aseptic technique and anesthesia.

VMED 9870 AQUATIC ANIMAL MEDICINE (1) LLB. SU. Departmental approval. Students will receive basic, introductory, and cursory instruction on the clinical medicine involved in the management of some aquatic animal species commonly found in oceanariums. Provided laboratory session(s) will allow for minor hands-on experience to illustrate concepts. Course is off-site at Gulfworld Marine Park in Panama City Beach FL. Students are financially responsible for travel and lodging expenses.

VMED 9890 GENOMICS AND PRECISION MEDICINE (1) LEC. 1. SU. With this course, the student is expected to have a thorough understanding of the historical and current status of the studies on genomics and personalized medicine, with a specific focus on veterinary species.

VMED 9900 DVM GRADUATION COURSE (0) LAB/LEC. SU. Successful completion of this course involves submission of all required competency and case logs, as well as all required graduation assessments.

VMED 9940 COMPANION ANIMAL THERIOGENOLOGY (1) LEC. 1. SU. This course gives students an overview of companion animal reproduction. It is clinically based and offers lectures and discussions to provide a better understanding and deeper knowledge of canine and feline reproduction in practice.

VMED 9950 SPECTRUM OF CARE SERIES: CAPSTONE PRESENTATION (1) SEM. 1. SU. Culminating the final course in the SOCS this course will allow students to apply the skills from their previous courses and implement them into a final Capstone Presentation. In this course students will work with a mentor to prepare an oral presentation and deliverable based on a clinical case, research project, or novel learning experience around the practice of veterinary medicine. Students will also be responsible for providing peer-to-peer feedback for fellow students.

VMED 9995 VETERINARY CLINICAL ROTATIONS - EXTERNSHIPS (0) CLN. Successful completion of didactic veterniary curriculum. Students will participate in clinical rotations including specialty rotations.

Veterinary Medicine - Biomedical Sciences - VBMS

Courses

VBMS 3050 STEWARDSHIP IN THE FACE OF CLIMATE CHANGE: LESSONS FROM THE GREAT BARRIER REEF AND BEYOND (2) AAB/FLD. 30. This 2.5 week course is intended to introduce students to the impact of global warming on the flora and fauna of a unique environment through familiarity with the challenges of maintaining health in domestic, wild and commercial land and marine animals of Australia's diverse ecological land and marine park environments. Activities will include implementation of research methods that assess health, service and outreach efforts that will maintain or improve health, and educational trips that will increase understanding of the fragility and strength of integrated yet every changing flora and fauna. A consistent focus will be the past, present and future impact of humans, and efforts intended to minimize or resolve that impact.

VBMS 3900 REPRODUCTIVE SCIENCE AND HEALTH (3) LEC. 3. P/C, One basic organismal biology, physiology or similar life science course. Sophomore level or higher. Foundational physiologic concepts in reproductive science linked to important animal and human reproductive health issues. May count either ANSC 3600 or VBMS 3600.

VBMS 4980 UNDERGRADUATE RESEARCH (1-3) RES. Directed, supervised undergraduate research in veterinary biomedical sciences (VBMS). Course may be repeated for a maximum of 9 credit hours.

VBMS 4987 HONORS RESEARCH (1-3) RES. Pr. Honors College. Supervised undergraduate research in veterinary biomedical science. May count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

VBMS 4997 HONORS THESIS (1-3) RES. Pr. Honors College. Undergraduate honors thesis development in veterinary biomedical science. May Count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

VBMS 5100 CANCER BIOLOGY & GENETICS (3) LEC. 3. Coreq. BIOL 5220. Biological and genetic mechanisms underlying the development of cancer with a focus on eukaryotic cell mechanisms regulating cell division and communication as well as genetic and phenotype instability. State-of-the-art genomic approaches to personalized medicine and immunotherapy will be discussed. Current literature will be used extensively. Undergraduate courses in genetics and molecular genetics are required or corequisite.

VBMS 6100 CANCER BIOLOGY & GENETICS (3) LEC. 3. Pr. BIOL 3003 and BIOL 5220. Biological and genetic mechanisms underlying the development of cancer with a focus on eukaryotic cell mechanisms regulating cell division and communication as well as genetic and phenotype instability. State-of-the-art genomic approaches to personalized medicine and immunotherapy will be discussed. Current literature will be used extensively. Undergraduate courses in genetics and molecular genetics are required. Additionally, completion of VBMS 7520 Eukaryotic Molecular Biology is encouraged.

VBMS 6111 VETERINARY ANATOMY I (4) LAB. 12. Departmental approval. Gross anatomy of the dog and cat including skeletal and muscular systems, neck, thorax, limbs, abdomen, pelvis, head, and nervous system. Credit will not be given for VMED 5111 and VBMS 6111.

VBMS 6121 VETERINARY ANATOMY II (3) LAB. 9. Pr. VBMS 6111 or VMED 9111. In-depth study of the gross anatomy of the ox, horse, and minor species (chicken) with inclusion of clinical relevance. In-depth presentation of a specific anatomy topics related to course material. May count either VMED 5121 or VBMS 6120.

VBMS 7000 NEUROANATOMY (5) LEC. 3. LAB. 4. Departmental approval. Functional morphology of nervous system from input/output through the long systems; limbic relations to endocrine and autonomic nervous system. Comparative among mammals.

VBMS 7010 PATHWAYS TO SUCCESSFUL RESEARCH (1) LEC. 1. An introduction to topics pertinent to performance of a successful graduate program and in the conduction of responsible research.

VBMS 7020 MICROSCOPIC ANATOMY I (3) LEC. 1. LAB. 4. Departmental approval. A detailed study of microscopic anatomy of basic tissues from multiple animal species. Light microscopy and electron micrograph preparations are used to describe and interpret morphology. Coursework will emphasize the dependence of morphological form on the functional demands of cells and tissue. The lectures characterize the structure and function of the four basic tissues (epithelium, connective tissue, muscle, and nerve) and organ systems. In the lab, students will examine the same structures and learn to identify tissues and organs.

VBMS 7030 MICROSCOPIC ANATOMY II (3) LEC. 1. LAB. 4. Departmental approval. Light microscopy and electron microscopy detailed study of the cardiovascular, hemopoietic, digestive, urinary and respiratory systems of domestic animals.

VBMS 7040 ADVANCED PHYSIOLOGY OF REPRODUCTION (3) LEC. 3. Pr. ANSC 3600 and BIOL 6240 or VBMS 7150. Departmental approval. Developmental, physiological, endocrinological, cellular and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.

VBMS 7070 ENDOCRINOLOGY (4) LEC. 4. Pr. BCHE 7200 and BCHE 7260 and BIOL 6600. Molecular and cellular endocrinology and physiological regulation of hormone synthesis, secretion, and action in mammalian species. Emphasis will be placed on the methodology and key concepts used for endocrine research.

VBMS 7080 MOLECULAR ENDOCRINOLOGY (2) LEC. 2. Pr. VBMS 7070. Departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems, and gene regulation.

VBMS 7090 ADVANCED PHARMACOLOGY (3) LEC. 3. Departmental approval. The principles of pharmacology in animals are addressed with a clinical perspective. The determinants of drug movement, pharmacokinetics (modeling) and pharmacodynamics, with a focus on drug-receptor interactions and their detection will be followed by a discussion of adverse drug events and selected drug categories, including cannabinoids, nonsteroidal anti-inflammatory drugs and antimicrobials. Student contributions to discussions through the review of contemporary, relevant literature is emphasized.

VBMS 7120 PRACTICAL FLOW CYTOMETRY AND CELL SORTING IN RESEARCH APPLICATION (2-4) LEC. 2. LAB. 4, LLB. 3. Combined Lecture and lab covering the principle of flow cytometry, experiment design, and data analysis. Instructor approval is highly recommended. Course may be repeated for a maximum of 4 credit hours.

VBMS 7130 VETERINARY MEDICINE DIAGNOSTIC ULTRASONOGRAPHY (3) LEC. 3. Pr. (VMED 9120 or VMED 9121 or VMED 5120) and VMED 5121. The principles and practice of veterinary medical diagnostic ultrasonography as they are utilized in evaluating normal and abnormal anatomy. All animal species are used in this course. DVM degree required.

VBMS 7140 PHYSIOLOGY I (5) LEC. 5. Departmental approval. Cellular, Cardiovascular, Renal and Respiratory Physiology.

VBMS 7150 PHYSIOLOGY II (4) LEC. 4. Pr. VBMS 7140. Departmental approval. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VBMS 7160 NEUROSCIENCE (4) LEC. 3. LAB. 2. Departmental approval. An overview of neuroscience on the subcellular, cellular and system levels.

VBMS 7170 SMALL ANIMAL SOFT TISSUE SURGERY ADVANCED TOPICS (1) LEC. Advanced topics in small animal soft tissue surgery and current literature are reviewed and discussed.

VBMS 7180 RECEPTOROLOGY (4) LEC. 4. Pr. VBMS 7070. Addresses structural and functional aspects of the four classes of receptors, including the mechanism of ligand binding, activation, inactivation, and their relevance to human and animal diseases. Methods used in addressing these questions will also be introduced.

VBMS 7200 VETERINARY ELECTRODIAGNOSTIC TESTING (3) LEC. 3. SU. Departmental approval. This course will cover principles of electrophysiology, electrodiagnostic testing, and pertinent electrodiagnostic literature. Modalities covered include: electromyography, nerve conduction velocity, late waves, repetitive nerve stimulation, evoked potentials, electroretinogram, electroencephalogram, and urethral pressure profile.

VBMS 7210 RADIATION BIOLOGY (4) LEC. 4. Exploration of biological, physical, and chemical basis of radiotherapy with emphasis on the biological effects of ionizing radiation at the cellular and molecular level. Effects of irradiation on the tumor, normal tissues, and the patient will be addressed. DVM degree; Residency in Radiation Oncology or Radiology or Small Animal Oncology and registered in the Graduate School.

VBMS 7220 STRUCTURE AND FUNCTION OF COMPANION ANIMAL SKIN (3) LEC. 3. The course will cover the comparative aspects of the structure and function of the skin of companion animals in healthy and diseases states.

VBMS 7230 CUTANEOUS DISORDERS OF LARGE AND EXOTIC ANIMALS (3) LEC. 3, IND/LEC. 9-12. In depth review of the common and uncommon dermatologic conditions affecting large animal and exotic animal species, including emphasis on those conditions considered zoonotic.

VBMS 7250 NORMAL RADIOLOGICAL ANATOMY (3) LEC. 3. A detailed study of the normal structure, size and position of the various organs of the cat, dog, horse, cow, and other veterinary species as they appear on plain and contrast radiographs. DVM Degree, acceptance in an established residency program.

VBMS 7260 ADVANCED RADIOLOGY (3-5) LEC. Detailed study of concepts and techniques of all imaging procedures. For graduate students and residents in DCS program or DVM or equivalent. Course may be repeated for a maximum of 5 credit hours.

VBMS 7270 RADIOLOGICAL INTERPRETATIONS (1-3) LEC. The interpretation of various diagnostic imaging modalities used in veterinary medicine and their applications in the diagnostic work-up of clinical cases presenting to the College of Veterinary Medicine. DVM Degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7280 PHYSICS OF DIAGNOSTIC IMAGING (3) LEC. 3. Principles of physics related to the imaging modalities of diagnostic radiology, ultrasonography, magnetic resonance imaging, scintigraphy, computed tomography, and radiation therapy. Students will study physics at the atomic level but must also develop an understanding of construction, function, and hazards of modern imaging equipment. DVM Degree.

VBMS 7290 GRADUATE SEMINAR (3) SEM. Departmental approval. This course offers hands-on experience on presenting cutting-edge research across a wide range of biological disciplines—including (but not limited to) genetics, comparative biology, quantitative biology. The course places emphasis on understanding hypotheses, experimental design, results, and interpretation from past studies. It applies a One Health concept. Course may be repeated for a maximum of 9 credit hours.

VBMS 7300 AVIAN DIAGNOSTIC PATHOLOGY (1-3) LAB. 1-3. SU. Residents enrolled in the Veterinary Biomedical Sciences Avian Pathology specialty program will interpret lesions for the diagnosis of avian diseases using necropsy procedures. Focus will be placed on an integrated comparative understanding of the pathophysiology of disease in commercial poultry. Course may be repeated for a maximum of 3 credit hours.

VBMS 7310 ADVANCED VETERINARY ANESTHESIOLOGY (1) LEC. 1. This course will be delivered in weekly one hour lecture format. The presenter for each lecture will rotate between course students and veterinary faculty. For each hour, the presenter will be required to deliver a lecture on a topic related to the overreaching subject for that semester course. The lecture will be delivered at an in-depth level utilizing currently scientific literature, text books, and other reference materials resulting in delivery of state of the art information. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have a DVM degree or equivalent. Course may be repeated for a maximum of 9 credit hours.

VBMS 7320 EVALUATION OF CURRENT AND EMERGING LITERATURE IN VETERINARY ANESTHESIA (1) LEC. 1. This course will be delivered in weekly one hour lecture format. The presenter for each lecture will rotate between course students and veterinary faculty. For each hour, the presenter will be required to deliver an in-depth evaluation and summary of two medial journal manuscripts related to veterinary anesthesiology. The presenter will be required to discuss the manuscript format, study design, data analysis, results, and conclusions including discussion on the pros and cons of the study. Manuscript selection for each class will be at the discretion of the presenter and copies of the manuscripts will be made available electronically to all faculty and students of the course one week prior to the class. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have a DVM degree or equivalent. Course may be repeated for a maximum of 9 credit hours.

VBMS 7340 LARGE ANIMAL SURGERY AND MEDICINE SEMINAR (1) SEM. 1. Departmental approval. Seminar required of all graduate students in large animal surgery and medicine. Meets at scheduled intervals each year.

VBMS 7350 ADVANCED LARGE ANIMAL UROGENITAL SURGERY (5) LEC. 3. LAB. 6. Departmental approval. Research in surgery. Advanced techniques for urogenital surgical procedures in large domestic animals.

VBMS 7360 ADVANCED LARGE ANIMAL SOFT TISSUE SURGERY (5) LEC. 4. LAB. 2. Departmental approval. Research in surgery. Advanced techniques for soft tissue surgical procedures in large domestic animals.

VBMS 7370 ADVANCED LARGE ANIMAL ORTHOPEDIC SURGERY (5) LEC. 3. LAB. 2. Research and advanced techniques for orthopedic surgical procedures in large domestic animals.

VBMS 7380 ADVANCED FOOD ANIMAL MEDICINE (2) LEC. 2. Departmental approval. In-depth study of food animal medical diseases of all body systems with emphasis on pathophysiologic mechanisms. DVM degree.

VBMS 7400 GYNECOLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Departmental approval. Diseases and problems of the reproductive system in the female domestic animals. Normal and abnormal conditions of various species are covered. DVM degree.

VBMS 7410 ANDROLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Departmental approval. Diseases and problems of the reproductive system in male domestic animals. DVM degree.

VBMS 7420 SCIENTIFIC COMMUNICATION (3) LEC. SU. Building skills towards effective and impactful communication of scientific evidence via writing, for thesis/dissertation and scientific journals, and via oral presentation.

VBMS 7440 ADVANCED EQUINE ARTHROSCOPIC SURGERY (5) LEC. 3. LAB. 6. Departmental approval. Research in surgery. Advanced techniques for arthroscopic surgical procedures in the horse. DVM degree.

VBMS 7450 SELECTED TOPICS IN GRADUATE EDUCATION RESEARCH (3) LEC. 3. Departmental approval. This course offers a deep dive into molecular or quantitative research. This course can be designed for students looking to build strong analytic and computational skills. The course emphasizes practical techniques for working with large and complex datasets across a range of research domains. Students will learn to write clear, efficient, and reproducible code while developing workflows that support rigorous, transparent analysis. Course may be repeated for a maximum of 9 credit hours.

VBMS 7460 MICROBIAL PATHOGENESIS (3) LEC. 3. Departmental approval. Mechanisms of infection and disease production by bacteria, viruses, and parasites in animals.

VBMS 7470 ADVANCED EPIDEMIOLOGY (3) LEC. 3. Departmental approval. Advanced epidemiological techniques and their application to disease research, clinical retrospective and prospective studies, and disease outbreak investigation. Introductory statistics course

VBMS 7480 METHODS IN IMMUNOLOGY (5) LEC. 1. LAB. 8. Pr. VBMS 7500. Departmental approval. Theoretical concepts underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.

VBMS 7500 CELLULAR AND MOLECULAR IMMUNOLOGY (3) LEC. Departmental approval. Current literature in immunobiology, emphasis on cellular/ biochemical/genetic basis of immune response.

VBMS 7510 VETERINARY CLINICAL ROTATIONS (3) CLN/LEC. 40. Post-DVM (Doctor of Veterinary Medicine) clinical experiences through various specialty services in the Veterinary Medical Teaching Hospital. Departmental approval required. Course may be repeated for a maximum of 24 credit hours.

VBMS 7520 EUKARYOTIC MOLECULAR BIOLOGY (3) LEC. 3. Genetic mechanisms regulating genomes and gene expression by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

VBMS 7530 EXPERIMENTAL TECHNIQUES IN MOLECULAR AND CELL BIOLOGY (3) LEC. 2. LAB. 6. Nucleic acid detection/ amplification/sequencing, primer design, CRISPR, transfection, protein/ antibody chemistry, flow cytometry, immunofluorescence microscopy, fluorochromes, radioisotopes, centrifugation, and cell culture will be discussed.

VBMS 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3. Pr. (VBMS 7520 or BIOL 5230 or BIOL 6230). Departmental approval. Viral gene expression and evasion of host defense mechanisms.

VBMS 7550 ADVANCED GENERAL PATHOLOGY (1-3) LEC. SU. Departmental approval. Structured examination of current textbooks and literature related to the pathologic basis of veterinary diseases. Open to residents in anatomic and clinical pathology and other post-DVM students with special approval. Course may be repeated for a maximum of 3 credit hours.

VBMS 7570 DIAGNOSTIC PATHOLOGY (1-3) LEC. SU. Diagnosis of animal diseases using necropsy procedures and histopathology. Required every semester of all graduate students and residents in pathology. DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7580 SURGICAL PATHOLOGY (1-3) LEC. SU. Histopathologic diagnosis of surgical biopsy or necropsy specimens. Available to residents in anatomic and clinical pathology. Course may be repeated for a maximum of 3 credit hours.

VBMS 7600 ADVANCED CLINICAL PATHOLOGY I (3) LEC. 3. Pr. VMED 5230 or VMED 9230. Departmental approval. The lymphohematopoietic system. Normal components and evaluation of disease states.

VBMS 7610 ADVANCED CLINICAL PATHOLOGY II (3) LEC. 3. Departmental approval. Laboratory evaluation of organ function; disease pattern recognition.

VBMS 7620 DIAGNOSTIC ONCOLOGY (3) LEC. 3. Pr. VMED 9220. Departmental approval. Principles of gross and microscopic interpretation of animal neoplasms using basic and specialized techniques.

VBMS 7630 BASIC AND CLINICAL ONCOLOGY (3) LEC. 3. Comparative aspects of the etiology, pathophysiology, diagnosis and treatment of cancer.

VBMS 7640 MECHANISMS OF DISEASE (3) LEC. 3. Pr. VMED 9220. Departmental approval. Understanding of disease through in-depth discussion of pathophysiology of various disease processes, disorders and diagnostic modalities. Focus will be placed on an integrated comparative understanding of the pathophysiology of disease in major veterinary species as it pertains to current and historically significant disease, as well as emerging diseases. Emphasis is placed on the morphologic, molecular and genetic aspects of disease processes.

VBMS 7650 VETERINARY DERMATOPATHOLOGY I (1-3) LEC. SU. This course aims to share theoretical and practical foundations on dermatopathology with residents in the Anatomic Pathology and/or Veterinary Dermatology program(s). The lectures will consist of 1-hour long Powerpoint presentations or case discussions on relevant integumentary diseases, with summarized clinical features and a particular focus on the histopathology perspective of cases that usually warrant biopsy. At the end of the course, it is expected that residents learn the fundamental terminologies used in dermatopathology, in addition to pattern recognition of major cutaneous diseases that afflict domestic animals. Course may be repeated for a maximum of 3 credit hours.

VBMS 7660 VETERINARY DERMATOPATHOLOGY II (1-3) LEC. SU. This course aims to share theoretical and practical foundations on dermatopathology with residents in the Anatomic Pathology and/or Veterinary Dermatology program(s). The lectures will consist of 1-hour long PowerPoint presentations or case discussions on relevant integumentary diseases, with summarized clinical features and a particular focus on the histopathology perspective of cases that usually warrant biopsy. At the end of the course, it is expected that residents learn the fundamental terminologies used in dermatopathology, in addition to pattern recognition of major cutaneous diseases that afflict domestic animals. Course may be repeated for a maximum of 3 credit hours.

VBMS 7680 PATHOLOGY SEMINAR (1) LEC. 1. Pr. VMED 9220. Departmental approval. Weekly conference to discuss gross and histologic pathology in animal tissues. Open to residents in anatomic and clinical pathology. Course may be repeated for a maximum of 3 credit hours.

VBMS 7690 READINGS IN IMMUNOLOGY AND INFECTIOUS DISEASE (1-3) LEC. 1-3. To familiarize students with current scientific literature in immunology and infectious diseases and the methods employed. Course may be repeated for a maximum of 6 credit hours.

VBMS 7710 ADVANCED EUKARYOTIC MOLECULAR BIOLOGY (3) LEC. 3. Pr. VBMS 7520. Current literature in molecular mechanisms of information transfer and regulation in eukaryotes.

VBMS 7720 DEVELOPMENTAL MOLECULAR BIOLOGY (3) LEC. 3. Genetic mechanisms by which eukaryotes differentiate from single cells to complex multicellular organisms will be covered. Important examples of biomedical dysfunction will be used to illustrate developmental pathways. Current literature will be used extensively.

VBMS 7750 GRADUATE COLLOQUIUM IN VETERINARY CLINICAL SCIENCE (1) CLN. 1. SU. Departmental approval. Forum to present topics relevant to the students clinical and research interests. This a mandatory seminar for graduate students in the Department of Clinical Science. DVM degree Course may be repeated for a maximum of 5 credit hours.

VBMS 7760 ADVANCED VETERINARY NEUROSURGERY (4) LEC. 1. LAB. 3. Enrolled in the CVM's MS or PHD program. Veterinary neurosurgery. All aspects of veterinary neurosurgery will be covered. Content delivery is via didactic lecture, small group discussion, and skills laboratories.

VBMS 7770 ADVANCED SMALL ANIMAL GENERAL SURGERY (3) LEC. 2. LAB. 3. Application of critical thinking skills to perioperative plans and tasks. DVM or VMD degree, or equivalent.

VBMS 7780 VETERINARY WOUND MANAGEMENT AND RECONSTRUCTIVE SURGERY (4) LEC. 2. LAB. 2. Techniques in veterinary wound management and reconstructive surgery in large and small animals. DVM degree or equivalent.

VBMS 7790 SMALL ANIMAL ORTHOPEDICS (2) LEC. 2. Review of orthopedic diseases in small animals, interactive review of recent literature and advanced laboratory sessions intended for residents in small animal surgery. DVM degree or equivalent.

VBMS 7800 ADVANCED SMALL ANIMAL NEUROLOGY (3) LEC. 3. Advanced study of neurodiagnostics and non-surgical therapy of neurological disorders in small domestic animals.

VBMS 7810 ADVANCED SMALL ANIMAL MEDICINE I (3) LEC. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical urogenital diseases of small animals. DVM degree.

VBMS 7820 ADVANCED SMALL ANIMAL MEDICINE II (3) LEC. 3. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical gastrointestinal diseases of small animals. DVM degree.

VBMS 7830 ADVANCED VETERINARY ONCOLOGY (3) LEC. 3. SU. Departmental approval. Special study of veterinary oncology and general tumor biology. DVM degree required. Course may be repeated for a maximum of 6 credit hours.

VBMS 7840 ADVANCED CRITICAL CARE MEDICINE I: PATHOPHYSIOLOGY (2) LEC. 2. Advanced topics in veterinary critical care are discussed. Topics include pathophysiology, pharmacology, and specific therapy of critical illness. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Course may be repeated for a maximum of 5 credit hours.

VBMS 7850 ADVANCED VETERINARY MEDICAL SPECIALTY TRAINING (1-4) LEC. 1. LAB. 2. SU. Advanced veterinary medical specialty training is provided to residents and board-eligible veterinary trainees with hands-on instruction in clinical activities commensurate with the board-certification expectation of various veterinary medical specialties. Up to 3 hours may be used toward BMS degree program, course may be repeated for a maximum of 6 credit hours.

VBMS 7860 SPECIAL TOPICS IN COMPARATIVE OPHTHALMOLOGY (1) LLB/ST1. SU. This weekly 1 hour course will consist of chapter reviews of veterinary ophthalmology and equine ophthalmology. House officers will develop and present power point slides outlining assigned chapters. Course assignments will also include reading and presenting journal articles from the required list for board preparation, as well as taking mock boards practice journal and image recognition questions. Course may be repeated for a maximum of 15 credit hours.

VBMS 7870 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7880 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 1. LAB. 6. Pr. VBMS 7870. Advanced ophthalmology with emphasis on ophthalmic surgery.

VBMS 7890 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC BASIC SCIENCES (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7900 VETERINARY OPHTHALMIC PATHOLOGY (1) LLB. This course aims to share theoretical and practical foundations on ocular pathology with residents in the Anatomic Pathology and/or Veterinary Ophthalmology program(s). The lectures will consist of 1-hour long PowerPoint presentations on significant ocular/orbital abnormalities, with summarized clinical features and a particular focus on the histopathology perspective of cases that usually warrant biopsy, enucleation, evisceration, or orbital exenteration. At the end of the course, it is expected that residents build acquaintance with the fundamental terminologies used in ocular pathology, in addition to the recognition of major pathologic processes of the ocular/orbital structures.

VBMS 7910 THERIOGENOLOGY JOURNAL CLUB (1) LEC. 1. SU. This course is aimed at discussing current literature in the field of theriogenology, or animal reproduction. Any graduate student in the reproductive sciences is encouraged to participate. Course may be repeated for a maximum of 6 credit hours.

VBMS 7930 ADVANCED SMALL ANIMAL ORTHOPEDICS: AXIAL SKELETON (2) LEC. 2. Advanced topics in small animal orthopedics are discussed. Topics include anatomy, pathophysiology, pharmacology, and medical/surgical therapy of axial skeletal disease in small animals.

VBMS 7940 CURRENT TOPICS IN IMMUNOBIOLOGY (1) LEC. 1. The focus of this journal club is to discuss recently published advanced research topics in immunobiology research field pertaining to graduate student’s research work. Course may be repeated for a maximum of 12 credit hours.

VBMS 7950 NEUROLOGY & NEUROSURGERY JOURNAL CLUB (1) LEC. 1. LAB. 0, LEC/SEM. 0. This course is aimed at discussing current literature in the field of veterinary neurology & neurosurgery. Any graduate student in the neurology & neurosurgery residency/internship program is encouraged to participate. Course may be repeated for a maximum of 10 credit hours.

VBMS 7960 VETERINARY NEURORADIOLOGY (1) LEC. 1. SU. Departmental approval. This course will cover fundamental concepts and principles of imaging modalities commonly used in veterinary neurology, namely MRI, CT, & radiography. Course material includes imaging of common neurologic lesions including congenital, neoplasia, trauma, vascular, inflammatory, and infectious diseases.

VBMS 7970 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCES (1-5) RES. Departmental approval. Research problems for graduate students, under supervision of faculty, in variety of specialized disciplines related to the biomedical sciences. Faculty approval. Course may be repeated for a maximum of 15 credit hours.

VBMS 7980 NON-THESIS PROJECT (1-3) LEC. SU. Departmental approval. Non-thesis project, to be determined by faculty advisor and student's graduate advisory committee. DVM degree

VBMS 7990 RESEARCH AND THESIS IN BIOMEDICAL SCIENCES (1-10) MST. Credit to be arranged. Course may be repeated with change in topics.

VBMS 8000 ADVANCED SMALL ANIMAL EMERGENCY AND CRITICAL CARE LITERATURE REVIEW (1) LEC. 1. SU. Review of current literature pertaining to Small Animal Emergency and Critical Care. Review includes group discussion of study design, procedural and physiologic concepts, statistical analysis, and relevance of outcomes.

VBMS 8010 EMERGING PEDAGOGIES IN ANATOMIC PATHOLOGY (1-3) LLB. SU. The overall objective of this course is to expose Graduate Teaching Assistants (GTA) to pedagogy strategies related to general pathology with specific emphasis on competency-based medical education for second-year veterinary students. Trainees will be introduced to diverse classroom dynamics, such as case- and problem-based laboratories, flipped classroom, and other collaborative learning techniques.

VBMS 8360 ADVANCED EQUINE MEDICINE I: GI DISEASE (2) LEC. 2. Advanced topics in equine gastrointestinal disease are discussed. Topics include pathophysiology, pharmacology, and specific therapy of GI disease in horses. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have DVM or equivalent.

VBMS 8370 ADVANCED EQUINE MEDICINE II: RENAL/ENDOCRINE (2) LEC. 2. Advanced topics in equine renal and endocrine disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8380 ADVANCED EQUINE MEDICINE III: NEUROMUSCULAR (2) LEC. 2. Advanced topics in equine neuromuscular disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8390 ADVANCED EQUINE MEDICINE IV: CARDIORESPIRATORY (2) LEC. 2. Advanced topics in equine cardiorespiratory disease are discussed. Topics include pathophysiology, pharmacology and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8480 EXPERIMENTAL METHODS IN VETERINARY MEDICINE (3) LEC. 3. Departmental approval. This course is intended to provide the biomedical sciences graduate student with the necessary tools to design and analyze a straightforward Masters-level veterinary biomedical research study, and interpret common statistical methods in the veterinary biomedical literature. Students will review and discuss examples from the veterinary research literature and acquire experience performing analysis using commonly available software packages.

VBMS 8950 BIOMEDICAL SCIENCES SEMINAR (1) SEM. 1. SU. Recent advances in biochemistry, cell biology and molecular biology will be critically presented and discussed by graduate faculty and students. Course may be repeated for a maximum of 10 credit hours.

VBMS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Wildlife Sciences - WILD

Courses

WILD 1050 INTRODUCTION TO FIREARMS, HUNTING, AND CONSERVATION (2) LEC. 2. Introduction to firearms, proper and safe use of firearms for hunting, how and why people hunt, the important social, economic, and biological role hunting plays in the conservation of wildlife. Course will provide students with basic technical knowledge of firearms and safe handling practices for completion of the Alabama Hunter Education program.

WILD 1100 WILDLIFE FOOD PLOT ESTABLISHMENT (2) LEC. 2. Fundamental concepts, issues, and concerns related to wildlife food plots and practical procedures for establishment of wildlife food plots.

WILD 1200 HUNTING AND FISHING THE WORLD (3) LEC. 3. Provides students with an introduction to the diversity of hunting and fishing opportunities available worldwide, the types of businesses that cater to these opportunities, and how these recreational activities contribute to game conservation and management.

WILD 1300 WILDLIFE: PEOPLE, ANIMALS, AND THEIR INTERACTIONS (3) LEC. 3. This course offers a general survey of wildlife, including basic ecology, characteristics of wildlife, their habitats, and methods of conserving species. Human interactions with wildlife, as well as the impacts of human activities on wildlife, will be explored.

WILD 1400 BIODIVERSITY IN A CHANGING WORLD (3) LEC. 3. The science of biodiversity focuses on understanding patterns and trends in the variability of life on Earth. This course explores how this diversity arose, the ecological forces that shape it, the consequences of its loss, and the steps we can take to conserve it.

WILD 2050 WILDLIFE CONSERVATION HISTORY AND LAW (3) LEC. 3. The history of wildlife conservation in North America, the conservation problems that have arisen since European settlement, and the laws and practices that have evolved to remedy them.

WILD 2310 BIOLOGY OF PLANTS IMPORTANT TO WILDLIFE (2) LEC. 1. LAB. 1. Introduction to taxonomy, structure, function, and distribution of plants that are important for wildlife species, with an emphasis on why those characteristics make them important.

WILD 2400 SPORTING FIREARMS AND ARCHERY (2) LEC. 2. Provides students with a thorough understanding of the role of sporting firearms and archery equipment in hunting and the wildlife enterprise management field, including the variety of equipment available and their effectiveness with different game species. WLEM students only.

WILD 2410 INTRODUCTION TO PISTOL (2) LLB. This course introduces the students to the basic knowledge, skills, and attitude necessary for owning and using a pistol safely. Through this course, the students will learn about pistol parts and operation, ammunition, gun safety, pistol shooting fundamentals, and pistol shooting activities. Instruction will primarily utilize air-powered pistols and move up to .22 rimfire pistols the last few weeks of class.

WILD 2420 INTRODUCTION TO ARCHERY (2) LEC/LLB. This course introduces the students to the basic knowledge, skills, and attitude necessary for owning and using archery equipment safely. Through this course, the students will learn about archery equipment and operation, archery safety, shooting fundamentals, and shooting activities. Instruction will primarily utilize Genesis (compound) and recurve bows.

WILD 3280 WILDLIFE ECOLOGY, CONSERVATION, AND MANAGEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Fundamentals of wildlife management theory, application, and administration.

WILD 3281 WILDLIFE MANAGEMENT LABORATORY (1) LAB. 3. Pr. P/C WILD 3280. Laboratory/Field experiences in wildlife management. Optional, hands-on course that explores the application of topics covered in WILD 3280.

WILD 3287 HONORS WILDLIFE ECOLOGY, CONSERVATION, AND MANAGEMENT (3) LEC. 3. Pr. Honors College. BIOL 1030 or BIOL 1037. Fundamentals of wildlife management theory, application, and administration.

WILD 3500 OUTDOOR SAFETY AND LIABILITY (1) LEC. 1. Exposes students to the safety and liability risks associated with outdoor activities that are common in the wildlife enterprise industry. Students will learn techniques to meet the needs of clientele, while maximizing revenue and minimizing risks.

WILD 3600 WILDLIFE ENTERPRISE FIELD TECHNIQUES (4) LEC. 3. LAB. 2. Pr. WILD 3280. Equip students majoring in wildlife enterprise management with the technical skills to complete a variety of tasks related to wildlife habitat and population management on private properties used in recreational or lodge enterprises.

WILD 3800 INTRODUCTION TO WILDLIFE MANAGEMENT IN SOUTHERN AFRICA (1) LEC. 1. Pr. WILD 2050 and WILD 3280. Provide students with knowledge of important wildlife management issues in southern Africa. Students will develop an understanding of pressing wildlife management issues in the region and learn how to apply that knowledge to future learning.

WILD 3810 STUDY ABROAD - WILDLIFE MANAGEMENT IN SOUTHERN AFRICA (3) AAB. 60. Pr. WILD 3800. Travel overseas to Swaziland and South Africa to engage in many of southern Africa's most pressing wildlife management issues.

WILD 3920 INTERNSHIP IN WILDLIFE ENTERPRISE MANAGEMENT (3) INT. This class is a supervised work experience in a Wildlife Enterprise Management (WLEM) setting for a minimum of 400 hours for at least 10 consecutive weeks and may be repeated for a maximum of 6 hours credit. The mission of WLEM is to prepare professionally competent individuals who will make a contribution to the Wildlife Enterprise Management industry.

WILD 4340 CONSERVATION GENETICS (3) LEC. 3. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. The science of how populations genetics have been affected by habitat loss, over-exploitation, or environmental change, with a focus on inheritance and evolution, and with the goal of informing conservation and management.

WILD 4400 PROBLEM SOLVING IN WILDLIFE SCIENCES (2) LEC. 2. Pr. (WILD 3280 or WILD 3287) and P/C WILD 5750. Applied training and tools used to solve problems in wildlife science.

WILD 4500 ADVANCED WILDLIFE ENTERPRISE MANAGEMENT (3) LEC. 3. Pr. (WILD 3280 or WILD 3287) and HOSP 2350. Integration and synthesis of the skills learned throughout the Wildlife Enterprise Management curriculum. Because wildlife enterprises are unique in the business world, students will learn to apply various material from previous courses to managing a wildlife enterprise.

WILD 4750 CONSERVATION BIOLOGY OF THE HAWAIIAN ISLANDS (3) FLD. 1. Pr. BIOL 3060 or WILD 3280 or WILD 3287 or FORY 4230 or FOWS 5220. Hawaii is the endangered species and invasive species capital of the world. As a model system, the course will focus on the management of threatened and endangered species and invasive species. Direct interaction with practitioners and visiting active management locations will be a key component. May need instructor permission.

WILD 4890 WILDLIFE POPULATION SCIENCE (3) LEC. 2. LAB. 2. Pr. (WILD 3280 or WILD 3287) and P/C WILD 5750 and BIOL 3060. WILD 3280 or WILD 3287 & WILD 5750 with a C or better; BIOL 3060. Principles of wildlife population dynamics, estimation of population parameters, and application of these principles and techniques to wildlife conservation and management.

WILD 4910 WILDLIFE SCIENCES SUMMER PRACTICUM (8) PRA. 8. Pr. (WILD 5750 and WILD 4400 and BIOL 3060 and FORY 3100) or (BIOL 5120) and (BIOL 5740 or BIOL 5750 or BIOL 5760 or FISH 5380). Training and tools for wildlife ecology, conservation, and management, with emphasis on applied problem-solving. Summer.

WILD 4920 WILDLIFE MANAGEMENT INTERNSHIP (4) PRA. 4. SU. Departmental approval. Practical job experience under joint supervision of the Internship advisor and appropriate state, federal, or private agency. Training will prepare student for potential career employment.

WILD 4930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

WILD 4970 SPECIAL TOPICS (1-4) AAB. Course may be repeated for a maximum of 8 credit hours.

WILD 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

WILD 5140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

WILD 5200 DISEASE ECOLOGY (3) LEC. 3. Pr. BIOL 1030. An ecological approach to traditional microbiology and parasitology by applying principles of population biology to understand disease dynamics in wildlife. Topics include: classification of infectious disease-causing agents, their life cycles, and transmission patterns; dynamics at the individual and host levels; ecologically informed strategies to control diseases; and current topics.

WILD 5280 AVIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. (WILD 3280 or WILD 3287 or WILD 3280 or WILD 3287) and BIOL 3060. Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants.

WILD 5290 MAMMALIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. (WILD 3280 or WILD 3287 or WILD 3280 or WILD 3287) and BIOL 3060. WILD 3280 or WILD 3287 (C or better) and BIOL 3060. Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps.

WILD 5300 CONSERVATION BIOLOGY OF THE HAWAIIAN ISLANDS (3) FLD. 3. Pr. BIOL 3060 or WILD 3280 or WILD 3287 or FORY 4230 or FOWS 5220. Hawaii is the endangered species and invasive species capital of the world. As a model system, the course will focus on the management of threatened and endangered species and invasive species. Direct interaction with practitioners and visiting active management locations will be a key component. May need instructor permission.

WILD 5350 CONSERVATION GENETICS (3) LEC. 3. Pr. BIOL 1020 or BIOL 1023 or BIOL 1027. The science of how populations genetics have been affected by habitat loss, over-exploitation, or environmental change, with a focus on inheritance and evolution, and with the goal of informing conservation and management.

WILD 5410 HUMAN-WILDLIFE CONFLICTS (3) LEC. 2. LAB. 1. Pr. WILD 3280. Familiarizes students with basic philosophy, biology, and techniques related to managing negative human wildlife interactions.

WILD 5430 ONE HEALTH PERSPECTIVES: EXPLORING THE HUMAN-WILDLIFE INTERFACE IN INDIA (3) AAB. 30. One Health is an interdisciplinary concept emphasizing the interconnectedness of human, animal, and environmental health. This course provides students with hands-on experience in exploring these connections through case studies, fieldwork, and discussions. Set in the biodiverse Western Ghats region of India, students will examine real-world scenarios to gain practical insights into how human activities, wildlife, and ecosystems interact, shaping health outcomes across species and environments.

WILD 5440 ONE HEALTH CONNECTIONS: HOW DO DISEASES SPREAD BETWEEN ANIMALS AND HUMANS? (2) LEC. 2. The linkages and connections between humans, animals, and the environment they share. Using real-world case studies, we discuss the myriad ways in which pathogens (disease-causing agents) are transmitted between humans and animals. The goal is to develop an understanding of the principles of One Health so that we are better equipped to deal with current and future disease risks and improve the health and security of our society.

WILD 5750 ANALYSIS FOR ENVIRONMENTAL AND HEALTH SCIENCES (4) LEC. 3. LAB. 2. Pr. STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010. Applied training in data analysis tools commonly used in environmental and health sciences.

WILD 5880 WILDLIFE HABITAT ASSESSMENT AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. (WILD 3280 or WILD 3287 or WILD 3280 or WILD 3287) and BIOL 3060. BIOL 3060 and C or better in WILD 3280 or WILD 3287. The wildlife value, management, and restoration of common southeastern habitats.

WILD 5950 SEMINAR (1) SEM. 1. Pr. BIOL 3060 or WILD 3280 or FORY 4230. Discussion of scientific publications from a selected area in wildlife sciences. Course may be repeated for a maximum of 6 credit hours.

WILD 6140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

WILD 6200 DISEASE ECOLOGY (3) LEC. 3. An ecological approach to traditional microbiology and parasitology by applying principles of population biology to understand disease dynamics in wildlife. Topics include: classification of infectious disease-causing agents, their life cycles, and transmission patterns; dynamics at the individual and host levels; ecologically informed strategies to control diseases; and current topics.

WILD 6280 AVIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280. Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants.

WILD 6290 MAMMALIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280. Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps.

WILD 6300 CONSERVATION BIOLOGY OF THE HAWAIIAN ISLANDS (3) FLD. 3. Pr. FOWS 6220. Hawaii is the endangered species and invasive species capital of the world. Using it as a model system, the focus will be on the management of threatened and endangered species and invasive species. Direct interaction with practitioners and visiting active management locations will be a key component of the course. Instructor permission.

WILD 6410 HUMAN-WILDLIFE CONFLICTS (3) LEC. 2. LAB. 1. This course is designed to familiarize students with the basic philosophy, biology, and techniques related to managing negative human wildlife interactions.

WILD 6750 ANALYSIS FOR ENVIRONMENTAL AND HEALTH SCIENCES (4) LEC. 3. LAB. 1. Applied training in data analysis tools commonly used in environmental and health sciences.

WILD 6880 WILDLIFE HABITAT ASSESSMENT AND MANAGEMENT (4) LEC. 3. LAB. 1. Pr. WILD 3280. C or better in WILD 3280. The wildlife value, management, and restoration of common southeastern habitats.

WILD 6950 SEMINAR (1) SEM. Discussion of scientific publications from a selected area in wildlife sciences. Course may be repeated for a maximum of 6 credit hours.

WILD 7100 APPLIED ECOLOGICAL MODELING (2) LEC. 2. Principles and techniques for modeling ecological systems in applied, management decision oriented contexts.

WILD 7150 ADVANCED ANALYSIS FOR ECOLOGICAL SCIENCES (4) LEC. 3. LAB. 2. Pr. STAT 7000 or AGRI 5010 or AGRI 5013 or AGRI 6010 or AGRI 6013 or WILD 5750 or WILD 6750. Departmental approval. Applied training in advanced analytical procedures commonly used in ecological sciences including modeling of survival, reproduction, habitat selection, population growth, density-dependence, and morphometrics.

WILD 7200 WILDLIFE NUTRITIONAL ECOLOGY (3) LEC. 3. Exploration of the basic nutrient requirements of free-ranging wildlife and comparison of requirements to related domestic species.

WILD 7250 WILDLIFE POPULATION ANALYSIS (3) LEC. 2. LAB. 3. Pr. P/C WILD 7150. Estimation of survival and success rates for wildlife and fisheries populations. Theoretical approaches for model selection and population modeling.

WILD 7300 STRUCTURED DECISION MAKING IN NATURAL RESOURCES MANAGEMENT (1-3) LEC. 2. LAB. 1. Structured Decision Making (SDM) is a common-sense framework for addressing decision problems amenable to logical decomposition and analysis. Through this course, students will become familiar with principles and tools of SDM and begin applying skills and concepts to conservation and management decision problems. This course will build a foundation that increasingly is essential for most professional biologists working in resource management positions or conducting applied field research. The intended audience of this course includes graduate students in wildlife, forestry, natural resources, biology, fisheries, or any other field who work with applied natural resource management issues. Course may be repeated for a maximum of 5 credit hours.

WILD 7310 CURRENT TOPICS IN WILDLIFE HEALTH (1) DSL. This course focuses on free-ranging wildlife and wildlife health topics within the broader context of One Health and functional ecosystems. Course may be repeated for a maximum of 2 credit hours.

WILD 7340 CONSERVATION GENETICS (3) LEC. 3. The science of how populations genetics have been affected by habitat loss, over-exploitation, or environmental change, with a focus on inheritance and evolution, and with the goal of informing conservation and management.

WILD 7400 DEVELOPING AGENT-BASED MODELS FOR WILDLIFE (3) LEC. 2. LAB. 1. Departmental approval. Course will use lecture and hands-on coding exercises designed to introduce students to agent-based models in wildlife sciences. The course lectures will include coding best practices such as organization, archiving, and version control, as well as wildlife and evolution-specific factors to consider when creating a models.

WILD 7450 TOOLS AND CHALLENGES FOR THE MODERN SCIENTIST (2) LEC. 2. Contemporary tools used and challenges encountered by modern scientists and how these factors have altered the process of science. Specific topics will be crowdsourced and tailored to students' interests, but examples include: diversity in science, reproducibility crisis, open science practices, version control, online teaching, artificial intelligence, work expectations, ethics of internships and volunteer positions, citizen science, modern computing power, cloud computing, self promotion, and mental health in academia

WILD 7650 INTRODUCTION TO BAYESIAN MODELING IN NATURAL RESOURCES (2) LEC. 1. LAB. 1. Pr. WILD 7150. or instructor approval. Bayesian hierarchical modeling of ecological data. Advantages and criticisms of such models. Use of software for hierarchical modeling.

WILD 7870 SPATIAL ECOLOGY (4) LLB. Explicit consideration for how ecological processes play out over space, and how space feeds back to influence ecological processes. The course is a combination of lectures, discussions, and hands-on lab-based learning to explore the theory, tools, and challenges underlying the spatial aspects of ecology. The course covers a breadth of topics rather than focusing on any one in-depth, although students are provided resources to dig deeper into issues of particular interest.

WILD 7930 DIRECTED STUDIES (1-3) IND/LEC. Departmental approval. Directed studies in subject matter not covered by an existing course or to supplement knowledge gained from existing course offerings. Course may be repeated for a maximum of 9 credit hours.

WILD 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Provides graduate students seeking the master's degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 12 credit hours.

WILD 7990 RESEARCH AND THESIS (1-12) MST. Credit to be arranged.

WILD 8930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 9 credit hours.

WILD 8970 SPECIAL TOPICS (1-4) RES. Departmental approval. Provides graduate students seeking the doctoral degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 12 credit hours.

WILD 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Women's Studies - WMST

Courses

WMST 2100 INTRODUCTION TO WOMEN'S AND GENDER STUDIES (3) LEC. 3. Interdisciplinary examination of the definitions of gender and impact of culture on the construction of gender. Diversity of representation, reflecting upon the histories of woman from a local and global perspective will be the keynote of the course.

WMST 3500 GENDER, BEAUTY, AND CULTURE (3) LEC. 3. An overview of how cultural perspectives on gender and beauty inform one another and shape ideals of femininity and masculinity and impact individual's lives and identities.

WMST 3900 DIRECTED READINGS IN WOMEN'S AND GENDER STUDIES (1-3) LEC. Directed study in an area of special interest. Course may be repeated for a maximum of 3 credit hours.

WMST 3970 SPECIAL TOPICS IN WOMEN'S AND GENDER STUDIES (3) LEC. 3. Special topics approached through the lens of women and gender studies. Topics vary. Course may be repeated for a maximum of 6 credit hours.

WMST 5980 FEMINIST THEORY (3) LEC. 3. Pr. WMST 2100. Perspectives on feminist theory, with emphasis on intersections of race, class, sexual orientation, and gender as they affect women's position in culture.

WMST 6980 FEMINIST THEORY (3) LEC. 3. Perspectives on feminist theory, with emphasis on intersections of race, class, sexual orientation, and gender as they affect women's position in culture.

WMST 7910 TEACHING PRACTICUM (1) LEC. 1. Pr. (WMST 5980 or WMST 6980). Intended women's studies minor. Feminist pedagogical theory and practice. Course may be repeated for a maximum of 2 credit hours.

World Languages - FLNG

Courses

FLNG 1000 ELEMENTARY WORLD LANGUAGE ABROAD (1-10) AAB/FLD. Pr., Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 1010 ELEMENTARY WORLD LANGUAGE (4) LEC. 4. Pr., Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures.

FLNG 1020 ELEMENTARY WORLD LANGUAGE (4) LEC. 4. Pr. FLNG 1010 or Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures.

FLNG 2000 INTERMEDIATE WORLD LANGUAGE (1-10) AAB/LEC. Pr., Departmental approval. For languages not currently taught in the Department of World Languages, Literatures, and Cultures but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 2150 FOUNDATIONS OF TRANSLATION AND INTERPRETING (3) LEC. 3. LAB. 0. Pr. Completed courses from FLNG 1010-1017 or FLNG 1020-1027 or FLCN 1010-1017 or FLCN 1020-1027 or FLFR 1010-1017 or FLFR 1020-1027 or FLGR 1010-1017 or FLGR 1020-1027 or FLGK 1010-1017 or FLGK 1020-1027 or FLIT 1010-1017 or FLIT 1020-1027 or FLJP 1010-1017 or FLJP 1020-1027 or FLKN 1010-1017 or FLKN 1020-1027 or FLLN 1010-1017 or FLLN 1020-1027 or FLRU 1010-1017 or FLRU 1020-1027 or FLSP 1010-1017 or FLSP 1020-1027. Introduction to the theory and skills necessary for written translation and oral interpreting.

FLNG 3110 INTRODUCTION TO LINGUISTICS: A MULTILINGUAL APPROACH (3) LEC. 3. In this course, students will learn about language structure, language history, and language acquisition through a multilingual perspective.

FLNG 4997 HONORS THESIS (1-6) IND. Pr. Honors College or Departmental approval. Directed readings and research culminating in a thesis. Course may be repeated for a maximum of 6 credit hours.

World Language - Arabic - FLAR

Courses

FLAR 1010 ELEMENTARY ARABIC I (4) LEC. 4. Elementary Arabic I is a course for students who have no prior knowledge of Arabic. The course offers students the opportunity for authentic practice in speaking, listening, reading, writing, grammar, and culture.

FLAR 1020 ELEMENTARY ARABIC II (4) LEC. 4. This course Arabic 1020 is a continuation of Arabic 1010 taken in first semester of the first year of Modern Standard Arabic (MSA). The course aims to develop students' reading, writing, listening and speaking skills.

FLAR 2010 INTERMEDIATE ARABIC I (4) LEC. Pr. FLAR 1020. Intermediate Arabic I is for students who have completed Elementary Arabic II or acceptable score on language placement test. The course emphasizes the development of reading, writing, listening, and speaking skills in Modern Standard Arabic (MSA).

FLAR 2020 INTERMEDIATE ARABIC II (4) LEC. Pr. FLAR 2010. Intermediate Arabic II is for students who have completed Intermediate Arabic I or acceptable score on language placement test. Continued development of Arabic vocabulary and grammar. Increased emphasis on developing practical listening and speaking skills. Exposure to Arab culture through media and literature.

World Languages - Asian Culture - FLAS

Courses

FLAS 2050 ASIAN FILM (3) LEC. 3. Major works of Asian film from China, Japan, and Korea. No knowledge of world language required.

FLAS 2450 SURVEY OF MODERN ASIAN LITERATURE (3) LEC. 3. Major works of modern Asian literature from China, Japan, and Korea in translation.

FLAS 2550 GATEWAY TO ASIA (3) LEC. 3. Introduction to Asia from an interdisciplinary perspective, including scholarship on history, anthropology, political science, philosophy, literature, and film.

FLAS 3450 TOPICS IN ASIAN CULTURE (3) LEC. 3. Study of traditional and/or modern Asian culture with special emphasis on cross-cultural and transnational interactions with in Asia, as well as with the west. Course may be repeated for a maximum of 6 credit hours.

FLAS 3550 TOPICS IN ASIAN AMERICAN CULTURE (3) LEC. 3. Topics of interest in Asian American culture. No knowledge of world language required. Course may be repeated for a maximum of 6 credit hours.

World Languages - Chinese - FLCN

Courses

FLCN 1000 ELEMENTARY CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Elementary coursework on approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 1010 ELEMENTARY CHINESE I (4) LEC. 4. Exposure to Chinese language and culture for students with little or no knowledge of Chinese.

FLCN 1020 ELEMENTARY CHINESE II (4) LEC. 4. Pr. FLCN 1010 or Departmental approval. Continued exposure to Chinese language and culture. Departmental approval. Fulfills College of Liberal Arts world language core requirement.

FLCN 2000 INTERMEDIATE CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by the department. Intermediate course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 2010 INTERMEDIATE CHINESE I (4) LEC. 4. Pr. FLCN 1020 or Departmental approval. Continued exposure to Chinese culture; introduction to intermediate language skills.

FLCN 2020 INTERMEDIATE CHINESE II (4) LEC. 4. Pr. FLCN 2010 or Departmental approval. Continued exposure to Chinese culture; intermediate language skills with emphasis on grammar.

FLCN 3000 ADVANCED CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by department. Advanced course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 3010 CHINESE COMPOSITION AND CONVERSATION (3-6) AAB/LEC. Pr. FLCN 2010 or Departmental approval. Intense practice in spoken and written Chinese, both text-and situation-based. Course may be repeated for a maximum of 6 credit hours.

FLCN 3020 CHINESE COMPOSITION AND CONVERSATION II (3) LEC. 3. Pr. FLCN 3010. In this course, students will continue to develop integrated Chinese language skills of listening, speaking, reading, and writing. There will be increased focus on reading and writing skills in Chinese and on learning grammar patterns needed to write in Chinese.

FLCN 3050 CHINESE CINEMA (3) LEC. 3. Major works of Chinese cinema from 1920s to present with emphasis on cultural and literary aspects.

FLCN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN CHINESE (1) IND. 1. Pr. FLCN 1020 or Departmental approval. Language component with reading and in-class discussion to complement a lecture course in English and in a discipline other than Chinese. Course may be repeated for a maximum of 3 credit hours.

FLCN 3450 TOPICS IN CHINESE LITERATURE AND CULTURE (3-6) AAB/LEC. Directed study of topics of interest. Course may be repeated for a maximum of 6 credit hours.

FLCN 3510 INTRODUCTION TO CHINESE CULTURE IN ENGLISH (3-6) LEC. Chinese culture as depicted in art, film, literature, history. Course may be repeated for a maximum of 6 credit hours.

FLCN 3650 SURVEY OF MODERN CHINESE LITERATURE (3) LEC. 3. Introduction to major works of modern Chinese literature translated into English.

FLCN 3750 SURVEY OF TRADITIONAL CHINESE LITERATURE (3) LEC. 3. Introduction to major works of traditional Chinese literature translated into English.

FLCN 3930 DIRECTED STUDY IN CHINESE (1-6) IND. Pr. FLCN 2010. Directed study in area of special interest for the superior student in Chinese. Course may be repeated for a maximum of 6 credit hours.

FLCN 5010 TEACHING CHINESE AS A WORLD LANGUAGE (3) LEC. 3. Teaching Chinese as a world language is an introduction course to world language teaching theories with an emphasis on their application to Chinese language teaching. Students who are fluent in speaking Chinese will acquire basic knowledge of teaching Chinese.

FLCN 5020 SYNTACTIC STRUCTURE OF THE CHINESE LANGUAGE (3) LEC. 3. Pr. FLCN 2010. Exploration of the fundamentals of Chinese syntax.

FLCN 6010 TEACHING CHINESE AS A WORLD LANGUAGE (3) LEC. 3. Teaching Chinese as a world language is an introduction course to world language teaching theories with an emphasis on their application to Chinese language teaching. Students who are fluent in speaking Chinese will acquire basic knowledge of teaching Chinese as a world language and practical teaching skills and strategies through the critical reading of course materials, classroom discussion, class observation, and research project.

FLCN 6020 SYNTACTIC STRUCTURE OF THE CHINESE LANGUAGE (3) LEC. 3. Exploration of the fundamentals of Chinese syntax.

World Languages - French - FLFR

Courses

FLFR 1000 ELEMENTARY FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in French. Course may be repeated for a maximum of 10 credit hours.

FLFR 1010 ELEMENTARY FRENCH I (4) LEC. 3. LAB. 2. Basic language skills with emphasis on conversation. Exposure to culture.

FLFR 1020 ELEMENTARY FRENCH II (4) LEC. 3. LAB. 2. Pr. LFRE score of 0241 or FLFR 1010. Basic language skills with emphasis on conversation. Exposure to culture. Fulfills College of Liberal Arts core world language requirement.

FLFR 1030 READING PROFICIENCY IN FRENCH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly materials in French related to their field of study. May not be used to satisfy undergraduate language requirements.

FLFR 2000 INTERMEDIATE FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level, taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLFR 2010 INTERMEDIATE FRENCH I (4) LEC. 3. LAB. 2. Pr. LFRE score of 0325 or FLFR 1020. Language skills, grammar review, readings in French culture, literature, and history.

FLFR 2020 INTERMEDIATE FRENCH II (4) LEC. 3. LAB. 2. Pr. LFRE score of 0372 or FLFR 2010. Systematic review of problems in French grammar for speakers of English. Prepares students for conversation, composition and civilization in the third-year sequence.

FLFR 3000 JUNIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 3010 THE SOUNDS OF FRENCH (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Basic principles of French phonetics through sound recognition discrimination and intensive practice.

FLFR 3030 FRENCH CONVERSATION AND CULTURE I (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Intensive practice in spoken French, based on texts and everyday situations, especially in contemporary French society. Includes review of vocabulary.

FLFR 3040 READING & WRITING IN FRENCH I (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLFR 3050 GLOBAL FRENCH CINEMA (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Sampling of important films from the beginnings of French cinema in 1895 to the present day, including the intellectual, historical, cultural, and literary matrix of each film.

FLFR 3100 INTRO TO LITERATURE, ARTS, & MEDIA (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 3040 or FLFR 3030 or Departmental approval. Grounding in basic analytical approaches, language, and organizational skills needed to discuss French literature effectively and coherently, orally or in writing.

FLFR 3110 CONTEMPORARY CULTURE & POLITICS (3) LEC. 3. Pr. FLFR 2020 or Departmental approval. Cultural heritage of France as reflected in present-day life patterns, traditions, and institutions.

FLFR 3140 LITERATURE, ARTS, & MEDIA I (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. The Middle Ages to the 1800s, emphasizes coherent and effective writing in French.

FLFR 3150 LITERATURE, ARTS, & MEDIA II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Readings in French literature prose, drama, and poetry from the 19th century to the present, centered on a theme or topic.

FLFR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN FRENCH (1) LEC. 1. Pr. FLFR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than French. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLFR 3310 FRENCH BUSINESS COMMUNICATION (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428. Intensive practice in preparing commercial correspondence and reading contracts, agreements, and related documents in French. Emphasis will be placed on the acquisition of a business vocabulary.

FLFR 3510 TOPICS IN FRENCH LITERATURE AND CULTURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Topics drawing from French literature, history, fine arts, or culture of general interest to students with little or no previous study of French.

FLFR 3930 DIRECTED STUDIES (1-3) AAB/IND. Pr., Departmental approval. Directed study in an area of special interest to the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4000 SENIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior or advanced level, taken on an approved Study Abroad program. Students should consult with the undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 4020 APPLIED FRENCH SKILLS (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Practice in writing and analyzing French texts, with emphasis on advanced grammar topics and stylistics.

FLFR 4030 FRENCH CONVERSATION AND CULTURE II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in spoken French to maintain and upgrade proficiency. Major credit will not be given for FLFR or FLFT majors.

FLFR 4040 READING & WRITING IN FRENCH II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in written French to maintain and upgrade proficiency.

FLFR 4310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. A grade of D or higher in FLFR 3000-3999 or Departmental approval. Practical exercises in preparing and translating trade correspondence and documents in French as well as assigned group work and case studies under simulated on-the-job pressures.

FLFR 4410 ADVANCED TOPICS IN FRENCH LITERATURE, CULTURE, OR LANGUAGE (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428 or Departmental approval. Study of a special aspect or theme of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

FLFR 4740 TRANSLATION (3) LEC. 3. Basic techniques and problem areas in translating from French into English and from English into French.

FLFR 4930 ADVANCED DIRECTED STUDY (1-3) IND. Pr. A least 3 courses in FLFR 3000-3999. Directed study in area of special interest for the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4980 FRENCH SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLFR 5310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Practice in managing, preparing, and translating international trade correspondence documents and related legal procedures in French. Development of case studies and other international trade group work in French and in English under simulated real-life pressures.

FLFR 5970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999. Pr., Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 5980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Seminar in advanced languages skills or topics from French literary genres and movements.

FLFR 6310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Departmental approval. Practice in handling, preparing, and translating international trade correspondence documents and related legal procedures in French.

FLFR 6970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 6980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) AAB/SEM. 3. Seminar in advanced languages skills or topics from French literary genres and movements. Course may be repeated for a maximum of 9 credit hours.

FLFR 7000 GRADUATE FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken in an approved Study Abroad program. Students should consult with the French graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 7010 ADVANCED CONTEMPORARY CULTURE & POLITICS (3) LEC. 3. Pr., Departmental approval. In-depth study of French civilization with emphasis on the relationship of history, arts, and literature from prehistoric times to the present.

FLFR 7020 ADVANCED APPLIED FRENCH SKILLS (3) LEC. 3. Pr., Departmental approval. Acquisition of advanced writing skills in French. Techniques and strategies of appropriate stylistic expression through analysis of various sources of texts, including literary, historical, commercial, and popular.

FLFR 7430 FRENCH PRESS (3) LEC. 3. Pr., Departmental approval. Political, intellectual, and cultural events in France, Europe, and the world as reflected in major French daily and weekly publications.

FLFR 7740 ADVANCED TRANSLATION (3) LEC. 3. Pr., Departmental approval Acquisition of skills for translation from French to English and from English to French using a wide variety of texts including historical, literary, commercial, and popular sources.

FLFR 7920 WORLD LANGUAGE CAREER INTERNSHIP (1-6) INT. Pr., Departmental approval. Experiential learning either in the business community or in university-sponsored programs outside the United States. Course may be repeated for a maximum of 6 credit hours.

FLFR 7930 DIRECTED STUDIES IN LANGUAGE SKILLS (3) IND. 3. Departmental approval. Pr., Course may be repeated for a maximum of 6 credit hours.

FLFR 7960 SPECIAL PROBLEMS IN FRENCH LANGUAGE, LITERATURE OR CULTURE (1-3) IND. Pr., Departmental approval. Study in a specialized area under close supervision of an instructor. Course may be repeated for a maximum of 6 credit hours.

FLFR 7970 SPECIAL TOPICS (1-3) AAB. Pr., Departmental approval. Study of a specific aspect of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

World Languages - German - FLGR

Courses

FLGR 1000 ELEMENTARY GERMAN ABROAD (1-10) AAB/IND. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in German. Course may be repeated for a maximum of 10 credit hours.

FLGR 1010 ELEMENTARY GERMAN I (4) LEC. 3. LAB. 2. Fundamentals of German language skills stressed. Exposure to German-speaking cultures. For students with no previous background or less than two years of high school German.

FLGR 1020 ELEMENTARY GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0241 or FLGR 1010. or acceptable score on the FL placement test. Review of basic German grammar and vocabulary. Fundamentals of German language skills with progressive emphasis on conversation. Fulfills the College of Liberal Arts world language core requirement.

FLGR 1030 READING PROFICIENCY IN GERMAN (3) LEC. 3. Instruction to enable graduate students to read and understand scholarly material in German related to their field of student. requirements. May not be used to satisfy undergraduate language requirements. Fall.

FLGR 1100 ACCELERATED ELEMENTARY GERMAN (6) LEC. 6. Basic concepts of German grammar, vocabulary, and culture. Fulfills the College of Liberal Arts world language requirement.

FLGR 2000 INTERMEDIATE GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 2010 INTERMEDIATE GERMAN I (4) LEC. 3. LAB. 2. Pr. LGER score of 0325 or FLGR 1020. or acceptable score on FL placement test. Language skills stressed; structural review and composition; introduction of longer reading texts and cultural comparisons.

FLGR 2020 INTERMEDIATE GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0372 or FLGR 2010. or acceptable score on FL placement test. Structural review and extemporaneous language skills stressed; additional work in composition; longer reading texts and cultural comparisons.

FLGR 3000 JUNIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 3010 GERMAN FLUENCY I: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German, German grammar, syntax, and vocabulary building for more formal settings.

FLGR 3017 HONORS GERMAN FLUENCY I: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German, German grammar, syntax, and vocabulary building for more formal settings.

FLGR 3020 GERMAN FLUENCY II: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German; continued review of German grammar and syntax; vocabulary building for formal settings.

FLGR 3027 HONORS GERMAN FLUENCY II: MASTERING CONVERSATIONAL AND WRITTEN GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German; continued review of German grammar and syntax; vocabulary building for formal settings.

FLGR 3030 THE SOUNDS OF GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Introduction of linguistic principles governing mechanics of spoken German; emphasizes English-German contrast and pronunciation difficulties; further development of conversation skills.

FLGR 3037 HONORS THE SOUNDS OF GERMAN (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Introduction of linguistic principles governing mechanics of spoken German; emphasizes English-German contrast and pronunciation difficulties; further development of conversation skills.

FLGR 3050 EXPLORING GERMAN CINEMA (3) LEC. Sampling of important films from the 1920’s to the present, including the intellectual, historical, cultural, and literary matrix of each film. Course may be repeated by majors for a maximum of 6 credit hours. Course may be repeated for a maximum of 6 credit hours.

FLGR 3100 TEXT AND CONTEXT: INTRODUCTION TO GERMAN LITERATURE (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Basic literary genres and important texts in the German-speaking literary landscape from the 18th century to the present. Analysis within their respective historical and cultural contexts. Learning critical concepts and skills around storytelling, narrative, and creative agency. Required of all majors.

FLGR 3110 GERMAN CULTURE THROUGH THE AGES (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political, and cultural history of German-speaking peoples from the Germanic tribes to 1870.

FLGR 3120 CONTEMPORARY ISSUES IN GERMAN CULTURE AND SOCIETY (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political, and cultural history of German-speaking countries from 1870 to the present.

FLGR 3150 TOPICS IN GERMAN LITERATURE, LANGUAGE, AND CULTURE (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428 or Departmental approval. Critical study of specific literary, linguistic, and/or cultural topics related to Germany. Course may be repeated with change in topics.

FLGR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN GERMAN (1) LEC. 1. Pr. FLGR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than German. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLGR 3930 DIRECTED STUDIES IN GERMAN (1-3) IND. Pr. LGER score of 0428 or Departmental approval. Directed study in area of special interest for the superior student in German. Course may be repeated for a maximum of 9 credit hours.

FLGR 4000 SENIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 4110 GERMAN LITERATURE IN CONTEXT I (3) LEC. 3. Pr. FLGR 3010 or Departmental approval. Selected readings by representative authors from the periods of Classicism, Romanticism, Realism, Naturalism. Analysis within their respective historical and cultural contexts. Mastering critical concepts and skills around storytelling, narrative, and creative agency.

FLGR 4120 GERMAN LITERATURE IN CONTEXT II (3) LEC. 3. Pr. FLGR 3010. or Departmental approval.Readings by representative German-speaking authors from the early 20th century to the post-war era. Textual analysis within their respective historical and cultural contexts. Mastering critical concepts and skills around storytelling, narrative, and creative agency.

FLGR 4150 UNDERSTANDING GERMAN THROUGH THEATER (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438. or Departmental approval.Consideration and analysis of selected theatrical works by German-speaking authors, playwrights, and performers from classical to contemporary traditions. Emphasis placed on audience awareness, performative practices, and mastering interactive language skills.

FLGR 4160 PERSPECTIVES ON GERMAN LITERATURE TODAY (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438 or Departmental approval. Consideration and analysis of contemporary texts. Focus on the broad diversity of genres and voices in the German literary scene.

FLGR 4310 GERMAN FOR THE PROFESSIONS AND THE WORKFORCE I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Refinement of language proficiency skills and cultural awareness in the context of professional and commercial German. Familiarization with German and European business practices.

FLGR 4317 HONORS GERMAN FOR THE PROFESSIONS AND THE WORKFORCE I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Refinement of language proficiency skills and cultural awareness in the context of professional and commercial German. Familiarization with German and European business practices.

FLGR 4320 GERMAN FOR THE PROFESSIONS AND THE WORKFORCE II (3) LEC. 3. Departmental approval. Continued development of German proficiency skills and cultural comparisons in the context of professional settings. Analysis of German and European business practices.

FLGR 4327 HONORS GERMAN FOR THE PROFESSIONS AND THE WORKFORCE II (3) LEC. 3. Continued development of German proficiency skills and cultural comparisons in the context of professional settings. Analysis of German and European business practices.

FLGR 4330 GERMAN FOR BUSINESS, SOCIETY, AND MEDIA (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428. Continued refinement of German proficiency skills and intercultural competence. Focus on current events, language variation, and debate culture through media.

FLGR 4337 HONORS GERMAN BUSINESS, MEDIA, AND SOCIETY (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428. Continued refinement of German proficiency skills and intercultural competence. Focus on current events, language variation, and debate culture through media.

FLGR 4910 PRACTICUM IN GERMAN (1-6) PRA. Pr., Departmental approval. Practical work experience related to major field. Number of credit hours and applicability toward major to be determined in consultation with the undergraduate director. Course may be repeated for a maximum of 6 credit hours.

FLGR 4950 SEMINAR IN GERMAN LITERATURE (3) SEM. 3. Pr. At least 3 credits in FLGR 3000-3999 or Departmental approval. Focused attention to texts from a specific period or genre. Analysis within their respective historical and cultural contexts. Mastering skills involved in literary analysis and rhetorical argument.

FLGR 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written paper and oral exam. Fall, Spring.

World Languages - Global Cultures - FLGC

Courses

FLGC 1150 GLOBAL FLUENCY AND AWARENESS (3) LEC. 3. Introduction to non-native languages as representational reflections of two different cultural regions and impetus for in-depth analysis of global identities. May count either FLGC 1150 or FLGC 1153.

FLGC 3150 GLOBAL FLUENCY FOR THE WORKPLACE (1) LEC. 1. Pr. FLGC 1150. Capstone course for the Workplace Intercultural Competency Certificate in which students are required to demonstrate awareness of and respect for differing cultural perspectives in professional settings.

World Languages - Greek - FLGK

Courses

FLGK 1010 ELEMENTARY ANCIENT GREEK I (4) LEC. 3. LAB. 2. Introduction to the knowledge and skills necessary for reading ancient Greek.

FLGK 1020 ELEMENTARY ANCIENT GREEK II (4) LEC. 3. LAB. 2. Pr. FLGK 1010. Pr. FLGK 1010 or Departmental approval. Introduction to the knowledge and skills necessary for reading ancient Greek.

FLGK 2010 INTERMEDIATE CLASSICAL GREEK I (4) LEC. 3. LAB. 2. Pr. FLGK 1020 or Departmental approval. Introduction to reading ancient Greek. prose and poetry.

FLGK 2020 INTERMEDIATE CLASSICAL GREEK II (4) LEC. 3. LAB. 2. Pr. FLGK 2010 or Departmental approval. Classical Greek. Continuation of FLGK 2010.

FLGK 2200 CLASSICAL MYTHOLOGY (3) LEC. 3. Survey, in English, of the major divine and heroic myths of ancient Greece and Rome, based on the ancient literary and artistic sources, their meanings/uses within cultural, literary, and historical contexts, and the long-lasting influence of classical mythology beyond antiquity.

FLGK 3110 CLASSICAL GREEK LITERATURE (3) LEC. 3. LAB. 2. Pr. FLGK 2010 or Departmental approval. Advanced readings in ancient Greek prose and poetry. Course may be repeated with change in topics.

FLGK 3510 CLASSICAL GREEK LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Classical Greek cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLGK 3930 DIRECTED STUDIES IN ANCIENT GREEK LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of classical Greek text(s). Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topics.

World Languages - Italian - FLIT

Courses

FLIT 1000 ELEMENTARY ITALIAN ABROAD (1-10) AAB/FLD. Pr. Departmental approval. Course work at the elementary level taken in an approved Study Abroad program. Students should consult the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 1010 ELEMENTARY ITALIAN I (4) LEC. 3. LAB. 2. Basic language skills in Italian; exposure to culture.

FLIT 1020 ELEMENTARY ITALIAN II (4) AAB/LLB. Pr. FLIT 1010 or FLIT 1013 or Departmental approval. Continuation of basic language skills; exposure to culture. Fulfills the College of Liberal Arts world language core requirement.

FLIT 2000 INTERMEDIATE ITALIAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 2010 INTERMEDIATE ITALIAN I (4) LEC. 3. LAB. 2. Pr. FLIT 1020 or Departmental approval. Special emphasis on conversation and Italian culture. Language skills stressed, grammar review. Fall.

FLIT 2020 INTERMEDIATE ITALIAN II (4) LEC. 3. LAB. 2. Pr. FLIT 2010 or Departmental approval. Special emphasis on reading skills and Italian culture. Review of Italian grammar for English speakers. Spring.

FLIT 3000 JUNIOR ADVANCED ITALIAN ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLIT 3030 ITALIAN CONVERSATION (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Intensive practice in spoken Italian, based on texts and everyday situations, especially in contemporary Italian society; includes review of vocabulary.

FLIT 3040 ITALIAN COMPOSITION (3) LEC. 3. Pr. FLIT 2020 or Departmental approval. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLIT 3050 ITALIAN CINEMA (3) LEC. 3. Sampling of important films from the time of the telefoni bianchi (1937) to the present (major directors and trends), including the intellectual, historical, cultural, and literary matrix of each film.

FLIT 3110 SPECIAL TOPICS IN ITALIAN (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Supplementary instruction in Italian language, literature, culture. Course may be repeated for a maximum of 9 credit hours.

FLIT 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN ITALIAN (1) LEC. 11. Pr. FLIT 1020 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Italian. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLIT 3510 INTRODUCTION TO ITALIAN CULTURE IN ENGLISH (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Italian culture, as reflected in arts, film, literature, history. Course may be repeated for a maximum of 9 credit hours.

FLIT 3930 DIRECTED STUDIES IN ITALIAN (1-3) IND. Departmental approval. Directed study in area of special interest for the superior student in Italian. Course may be repeated with change in topics.

FLIT 5970 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Pr., Departmental approval. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval.

FLIT 6970 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval. Course may be repeated for a maximum of 9 credit hours.

World Languages - Japanese - FLJP

Courses

FLJP 1000 ELEMENTARY JAPANESE ABROAD (1-10) LEC. Course work at the elementary level take on an approved Study Abroad program. Learning modern Japanese listening, writing, and reading in an integrated manner through an approved Study Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLJP 1010 ELEMENTARY JAPANESE I (4) LEC. 3. LAB. 2. Fundamentals of Japanese. Stress on language skills with progressive emphasis on conversation; exposure to Japanese civilization. Fall.

FLJP 1020 ELEMENTARY JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 1010 or Departmental approval. Stress on language skills; structural review and composition: readings in Japanese literature and exposure to Japanese culture and civilization.

FLJP 2000 INTERMEDIATE JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 2010 INTERMEDIATE JAPANESE I (4) LEC. 3. LAB. 2. Pr. FLJP 1020 or Departmental approval. Stress on language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 2020 INTERMEDIATE JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 2010 or Departmental approval. Continuation of FLJP 2010. Language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 3000 ADVANCED JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 3010 JAPANESE COMPOSITION AND CONVERSATION (3-6) AAB. Pr. FLJP 2010 or Departmental approval. Intensive practice of written and spoken Japanese, based on contemporary social situations and texts. Course may be repeated for a maximum of 6 credit hours.

FLJP 3020 JAPANESE COMPOSITION AND CONVERSATION II (3) LEC. 3. Pr. FLJP 3010. Additional intensive practice of written and spoken Japanese, based on contemporary social situations and texts.

FLJP 3050 JAPANESE CINEMA (3) LEC. 3. Introduction to Japanese films, with particular focus on representations of history from the 1930s to the present. Course may be repeated for a maximum of 6 credit hours.

FLJP 3100 EXTENSIVE READING: TADOKU (1) LEC. 1. SU. Pr. FLJP 1010. Development of Japanese reading skills, the acquisition of vocabulary and grammar and understandings of culture and context. Course may be repeated for a maximum of 3 credit hours. May need instructor’s approval. Students do not have to be currently enrolled in a Japanese language course.

FLJP 3450 TOPICS IN JAPANESE LITERATURE AND CULTURE (3-6) AAB/LEC. Critical study of specific Japanese literary and cultural topics. Course may be repeated for a maximum of 6 credit hours.

FLJP 3650 SURVEY OF MODERN JAPANESE LITERATURE (3) LEC. 3. Introduction to major works of modern Japanese literature translated into English, from the late 19th century to present.

FLJP 3750 SURVEY OF TRADITIONAL JAPANESE LITERATURE (3) LEC. 3. Introduction to major works of traditional Japanese literature translated into English, from Early (to 794 CE) to Edo (1600-1868) period.

FLJP 3930 DIRECTED STUDY IN JAPANESE (3) LEC. 3. Pr. FLJP 2020. Directed study in area of special interest for the superior student in Japanese. Course may be repeated for a maximum of 6 credit hours.

World Languages - Korean - FLKN

Courses

FLKN 1000 ELEMENTARY KOREAN ABROAD (1-10) LEC. 1-10. This is an entry level course for beginners without any background in Korean. This class will help students learn all four skills of modern Korean--speaking, listening, writing, and reading--while studying abroad. Course may be repeated for a maximum of 10 credit hours.

FLKN 1010 ELEMENTARY KOREAN I (4) LEC. 4. Course for beginners without any background in Korean. This class will help students learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 1020 ELEMENTARY KOREAN II (4) LEC. 4. Pr. FLKN 1010. Course to help students continue to learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 2000 INTERMEDIATE KOREAN ABROAD (1-10) LEC. 1-10. Pr. FLKN 1020. This course will help students learn all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level while studying abroad. Permission from instructor required. Course may be repeated for a maximum of 10 credit hours.

FLKN 2010 INTERMEDIATE KOREAN I (4) LEC. 4. Pr. FLKN 1020. Students will continue learning all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level.

FLKN 2020 INTERMEDIATE KOREAN II (4) LEC. 4. Pr. FLKN 2010. Students will master all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level.

FLKN 2100 KOREAN FOR HERITAGE LEARNERS (4) LEC. 4. The focus of this course is to help heritage learners of Korean improve all four skills of modern Korean--speaking, listening, writing, and reading, with a focus on reading and writing. Permission by instructor required.

FLKN 3000 ADVANCED KOREAN ABROAD (1-10) LEC. 1-10. Pr. FLKN 2020. This course will help students learn all four skills of modern Korean--speaking, listening, writing, and reading--at the advanced level while studying abroad. Approval by instructor required. Course may be repeated for a maximum of 10 credit hours.

FLKN 3010 ADVANCED KOREAN I (3) LEC. 3. Pr. FLKN 2010. Students will continue learning all four skills of modern Korean--speaking, listening, writing, and reading--at the advanced level.

FLKN 3020 ADVANCED KOREAN II (3) LEC. 3. Pr. FLKN 3010. Students will master all four skills of modern Korean--speaking, listening, writing, and reading--at the advanced level.

FLKN 3050 KOREAN CINEMA (3) LEC. 3. Major works of Korean film.

FLKN 3150 KOREAN PROFICIENCY THROUGH POPULAR CULTURE (3) LEC. 3. Pr. FLKN 3010. Students will improve their Korean proficiency through studying popular culture. Course may be repeated for a maximum of 6 credit hours.

FLKN 3450 TOPICS IN KOREAN LITERATURE AND CULTURE (3) LEC. 3. Pr. FLKN 3010. Advanced Korean class, focusing on the study of Korean language, culture, history, and religion. Course may be repeated for a maximum of 6 credit hours.

FLKN 3510 INTRODUCTION TO KOREAN CULTURE IN ENGLISH (3) LEC. 3. Introductory knowledge of Korean culture as depicted in literature, film, and history. No knowledge of Korean required. Course will be taught in English. Course may be repeated for a maximum of 6 credit hours.

FLKN 3930 DIRECTED STUDY IN KOREAN (3) LEC. 1, IND/ST1. 2. Pr. FLKN 2010. Departmental approval. Directed study in area of special interest for the superior student in Korean. Course may be repeated for a maximum of 6 credit hours.

FLKN 4010 ORAL PROFICIENCY IN KOREAN (3) LEC. 3. Proficiency oriented course designed to further develop speaking and comprehension skills in Korean on a variety of topics.

FLKN 4310 KOREAN FOR CAREER PROFESSIONALS (3) LEC. 3. Pr. FLKN 3010. Students will build advanced-level communication skills needed for a variety of Korean business settings.

World Languages - Latin - FLLN

Courses

FLLN 1010 ELEMENTARY LATIN I (4) LEC. 3. LAB. 2. For students with little or no knowledge of Latin. Knowledge and skills necessary for reading classical Latin.

FLLN 1020 ELEMENTARY LATIN II (4) LEC. 3. LAB. 2. Pr. FLLN 1010 or FLLN 1013. Departmental approval. Introduction to the knowledge and skills necessary for reading classical Latin. Fulfills College of Liberal Arts core world language requirement.

FLLN 2010 INTERMEDIATE LATIN I (4) LEC. 4. Pr. FLLN 1020 or FLLN 1023. Four years of high school Latin or Departmental approval. Review of classical Latin grammar with reading of selections from Latin literature. Fall.

FLLN 2020 INTERMEDIATE LATIN II (4) LEC. 3. LAB. 2. Pr. FLLN 2010. or Departmental approval.. Continuation of FLLN 2010. Review of classical Latin grammar with reading of selections from Latin literature. Fulfills the College of Liberal Arts world language core requirement.

FLLN 3110 LATIN LITERATURE (3) LEC. 3. Pr. FLLN 2010 or Departmental approval. Advanced readings in Latin prose and poetry. Course may be repeated with change in topic.

FLLN 3510 ROMAN LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Roman cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLLN 3930 DIRECTED STUDIES IN LATIN LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of Latin texts. Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topic.

World Languages - Russian - FLRU

Courses

FLRU 1010 ELEMENTARY RUSSIAN I (4) LEC. 3. LAB. 2. Fundamentals of Russian. Language skills; progressive emphasis on conversation; exposure to Russian culture and civilization.

FLRU 1020 ELEMENTARY RUSSIAN II (4) LEC. 3. LAB. 2. Pr. FLRU 1010 or FLRU 1013. Fundamentals of Russian. Stress on language skills; progressive emphasis on conversation; exposure to Russian culture and civilization. Fulfills College of Liberal Arts world language core requirement.

World Languages - Spanish - FLSP

Courses

FLSP 1000 ELEMENTARY SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program credit may substitute for required 1000-level courses in Spanish. Course may be repeated for a maximum of 10 credit hours.

FLSP 1010 ELEMENTARY SPANISH I (4) LEC. 3. LAB. 2. Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than two years of high school Spanish.

FLSP 1017 HONORS ELEMENTARY SPANISH I (4) LEC. 5. Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than two years of high school Spanish.

FLSP 1020 ELEMENTARY SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0241 or FLSP 1010 or FLSP 1013. or acceptable score on FL placement test. Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts world language core requirement.

FLSP 1027 HONORS ELEMENTARY SPANISH II (4) LEC. 5. Pr. LSPA score of 0241 or FLSP 1010 or FLSP 1013. or acceptable score on FL placement test. Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts world language core requirement.

FLSP 1030 READING PROFICIENCY IN SPANISH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly material in Spanish related to their field of study. May not be used to satisfy undergraduate language requirements. Spring.

FLSP 2000 INTERMEDIATE SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 2010 INTERMEDIATE SPANISH I (4) LEC. 3. LAB. 2. Pr. LSPA score of 0325 or FLSP 1020. or acceptable score on FL placement test or Departmental approval. Review of grammatical structures, development of reading, writing, and conversation skills, in addition to increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2017 HONORS INTERMEDIATE SPANISH I (4) LEC. 2. LAB. 2. Pr. Honors College. FLSP 1020 or LSPA minimum score of 325. Review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 2020 INTERMEDIATE SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0372 or FLSP 2010 or FLSP 2017. or acceptable score on FL placement test. Continued review of grammatical structures, development of reading, writing, and conversation skills, in addition to increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2027 HONORS INTERMEDIATE SPANISH II (4) LEC. 2. LAB. 2. Pr. Honors College. FLSP 2010 or FLSP 2013 or FLSP 2017 or LSPA minimum score of 372. Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 3000 JUNIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 3010 SPANISH PHONETICS (3) LEC. 45, AAB/LEC. 0. Pr. FLSP 3060 or FLSP 3063. Training in practical phonetics with an emphasis on pronunciation correctives. Fall, Spring.

FLSP 3050 SPANISH SYNTAX (3) LEC. 3. Pr. FLSP 2020 or FLSP 2027. or exam. In this course, the function of the different parts of speech (e.g., prepositions, adverbs, determiners, pronouns, verbs, conjunctions) will be examined, and students will learn to diagram simple and complex hierarchical sentence structure using syntactic trees.

FLSP 3060 COMMUNICATIVE SKILLS IN SPANISH I (3) LEC. 3. Pr. LSPA score of 0428 or FLSP 2020 or FLSP 2027. The first in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3070 COMMUNICATIVE SKILLS IN SPANISH II (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. The second in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3080 INTRO TO CULTURAL ANALYSIS (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. A general introduction to the analysis of Hispanic societies through their diverse cultural practices, local customs, and languages. This class explores how were Hispanic societies formed, the effects of globalization, and their diverse cultural and national identities. Spring.

FLSP 3090 SPANISH FOR HEALTH PROFESSIONS (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. Advanced Spanish for students interested in healthcare careers. Designed to improve spoken and written communicative skills in a Spanish-speaking environment.

FLSP 3097 HONORS SPANISH FOR HEALTH PROFESSIONS (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. Advanced Spanish for students interested in healthcare careers. Designed to improve spoken and written communicative skills in a Spanish-speaking environment.

FLSP 3100 INTRODUCTION TO HISPANIC LITERATURE (3) LEC. 3. Pr. FLSP 3060 or FLSP 3063. Study of literary genres, rhetorical figures, and other critical concepts. Literary analysis of Spanish and Spanish-American texts. Fall.

FLSP 3110 CULTURES OF SPAIN (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. An introduction to the social and cultural diversity of Spain. This class explores the ethnic and linguistic diversity of the country, the historical events that forged contemporary Spain, and the cultural plurality of the country.

FLSP 3130 TOPICS IN HISPANIC FILM (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Study of film as a window into Hispanic cultures, both Spanish and Spanish American. Course may be repeated for a maximum of 6 credit hours.

FLSP 3140 TOPICS IN HISPANIC MUSIC (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Study of the interrelationship of Hispanic music and Spanish and Spanish-American cultures. Course may be repeated for a maximum of 6 credit hours.

FLSP 3150 TOPICS IN HISPANIC MEDIA (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Develops students' cultural awareness through a series of written assignments organized around major journalistic and academic genres. We will investigate contemporary issues as presented in the media of Spain, Latin America and U.S. Latino communities. Course may be repeated for a maximum of 6 credit hours.

FLSP 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN SPANISH (1) LEC. 1. Pr. FLSP 2010 or FLSP 2017 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Spanish. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLSP 3210 CULTURES OF SPANISH AMERICA (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. An introduction to the social and cultural diversity of Spanish America. This class explores the cultural, ethnic and linguistic diversity of the Spanish American countries, and the historical events that forged them.

FLSP 3220 HISPANIC CULTURES IN THE U. S. (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. An introduction to the social and cultural diversity of Hispanic U.S. This class explores the diversity in ethnicity, traditions, and arts of Hispanics in the country, the historical events that forged such diversity, and their cultural plurality.

FLSP 3310 SPANISH TRANSLATION AND INTERPRETATION (3) LEC. 3. Pr. FLSP 3070. Introduction to the techniques of English/Spanish and Spanish/English translation in a commercial environment, including correspondence, technical documents, advertising and oral translation. Fall.

FLSP 3930 DIRECTED STUDY IN SPANISH (3) IND. 3. Pr. FLSP 3060. Departmental approval. Development of an advanced-level of Spanish proficiency in listening, speaking, reading, and writing. Course may be repeated for a maximum of 6 credit hours.

FLSP 4000 SENIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 4010 ORAL PROFICIENCY IN SPANISH (3) LEC. 3. Pr. FLSP 3060. Proficiency oriented course designed to further develop speaking and comprehension skills in Spanish in a variety of topics.

FLSP 4020 CONTINUING SPANISH SYNTAX (1-3) AAB/IND. Departmental approval. Continuing practice in Spanish syntax. Course may be repeated for a maximum of 3 credit hours.

FLSP 4030 SPANISH LINGUISTICS (3) LEC. 3. Pr. FLSP 3070. This course introduces students to Spanish linguistics and the basic concepts of some of its principal branches. The primary areas include phonetics and phonology, syntax, morphology, semantics, pragmatics, history of the Spanish language, and linguistics as a cognitive science.

FLSP 4110 MASTERPIECES OF SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100 or FLSP 3080. Major works of Spanish literature from medieval times to the present.

FLSP 4120 TOPICS IN SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100 or FLSP 3080. Readings in Spanish literature. Course may be repeated with change in topic.

FLSP 4210 MASTERPIECES OF SPANISH-AMER LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100 or FLSP 3080. Major works of Spanish American literature from colonial times to the present.

FLSP 4220 TOPICS IN SPANISH-AMERICAN LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100 or FLSP 3080. Readings in Spanish-American Literature. Course may be repeated with a change in topic.

FLSP 4310 BUSINESS SPANISH (3) LEC. 3. Pr. FLSP 3060. Business vocabulary and terminology, business practices, and cultural influences in the Hispanic world.

FLSP 4330 TOPICS IN HISPANIC COMMERCIAL WORLD (3) LEC. 3. Pr. FLSP 3070. Study of an aspect of Spanish business terminology or documentation. Course may be repeated with change in topic. Course may be repeated for a maximum of 6 credit hours.

FLSP 4420 TOPICS IN HISPANIC LITERATURE, CULTURE, AND LINGUISTICS (3) LEC. 3. Pr. FLSP 3080 or FLSP 3083 or FLSP 3100. Study of specialized periods or concepts in Hispanic literature, culture, or linguistics. Course may be repeated for a maximum of 6 credit hours.

FLSP 4910 PRACTICUM IN SPANISH (1-3) AAB/PRA. Pr., Departmental approval. Practical work experience related to the major field. Course may be repeated for a maximum of 3 credit hours.

FLSP 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLSP 5010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. FLSP 3070. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 5020 ADVANCED SPANISH SYNTAX (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3070. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students.

FLSP 5030 ADVANCED CULTURE AND LITERATURE OF THE SPANISH SPEAKING WORLD (3) LEC. 3. Pr. FLSP 3070 and FLSP 3080. A grade of C or better in at least 4 courses FLSP 3000-3999 or departmental approval. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 6010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Four courses or Departmental approval. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 6020 ADVANCED SPANISH SYNTAX (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Advanced training in Spanish syntax and morphology to carry out syntactic analysis for graduate students and undergraduate students who have previously completed FLSP 3050.

FLSP 6030 ADVANCED CULTURE AND LITERATURE OF SPANISH SPEAKING WORLD (3) LEC. 3. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 7000 GRADUATE SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken on an approved Study Abroad program. Students should consult with the Spanish graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 7010 HISTORY OF THE SPANISH LANGUAGE (3) LEC. 3. Diachronic study of the development of the Spanish language from its Latin origins to the present.

FLSP 7020 SPANISH LINGUISTICS (3) LEC. 3. Synchronic study of the Spanish language focusing on phonology, morphology, syntax, and lexicon, taking into consideration dialectal differences.

FLSP 7030 APPLIED SPANISH LINGUISTICS (3) LEC. 3. Critical study of current research in applied linguistics regarding the acquisition of Spanish by non-native speakers, with emphasis on the problems faced by adult English-speaking individuals.

FLSP 7050 LITERARY CRITICISM AND THEORY (3) LEC. 3. Contemporary literary criticism and theory as it relates to Spanish and Spanish-American literature.

FLSP 7060 RESEARCH METHODS (1) LEC. 1. SU. Methods of scholarly investigation in literary history and criticism. Credit may not be used to satisfy degree requirements.

FLSP 7090 INTRODUCTION TO COLLEGE LEVEL SPANISH INSTRUCTION (3) LEC. 3. Instruction for GTAs, including critical observation in performance and guidance by a designated supervisory professor. Required of all students who hold a graduate teaching assistantship.

FLSP 7100 SPANISH MEDIEVAL LITERATURE I (3) LEC. 3. Critical and historical study of medieval Spanish literature through representative texts from the various genres of the period beginning with the origins of Spanish literature until 1299.

FLSP 7110 SPANISH MEDIEVAL LITERATURE II (3) LEC. 3. Study of medieval Spanish literature through representative texts from the various genres of the period 1300-1500.

FLSP 7120 16TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres from around 1492 to the end of the 16th century.

FLSP 7130 17TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres in the 17th century with emphasis on Baroque literature.

FLSP 7140 SURVEY OF 18TH AND 19TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Survey of the major literary, cultural, and historical trends in 18th and 19th century Spanish literature.

FLSP 7150 HISPANIC COLONIAL LITERATURE OF THE UNITED STATES (3) LEC. 3. Literature about the colonial Hispanic exploration and colonization of the United States from the 16th to 19th centuries.

FLSP 7160 20TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of 20th-century Peninsular literature from the Generation of 98 to Spanish post-war literature through representative works in all genres.

FLSP 7170 CONTEMPORARY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of contemporary literature from the Spanish Civil War to the present through representative works in all genres.

FLSP 7210 COLONIAL SPANISH-AMERICAN LITERATURE (3) LEC. 3. Study of representative literary genres and authors of Vice Regal America from Spanish transcription of pre-Columbian works to those just prior to the Wars of Independence.

FLSP 7220 SPANISH-AMERICAN POETRY I (3) LEC. 3. Critical and historical study of Spanish-American poetry from 1824 to the first generation of modernism.

FLSP 7230 SPANISH-AMERICAN POETRY II (3) LEC. 3. Critical and historical study of Spanish-American poetry from post-modernism to the present.

FLSP 7240 SPANISH-AMERICAN POST-COLONIAL PROSE TEXTS TO THE NEW NARRATIVE (3) LEC. 3. Critical and historical study of representative essayists and fiction writers of the 19th and 20th centuries predating the New Narrative.

FLSP 7250 THE NEW NARRATIVE IN SPANISH-AMERICAN FICTION: MODERNIST AND POST-MODERNIST TEXTS (3) LEC. 3. Critical and historical study of major works of modernist and post-modernist fiction that achieved international acclaim during the second half of the 20th century.

FLSP 7270 SPANISH AMERICAN THEATER I (3) LEC. 3. Critical and historical study of the Spanish-American theater, with emphasis on the period prior to 1900.

FLSP 7280 SPANISH AMERICAN THEATER II (3) LEC. 3. Critical and historical study of the Spanish-American theater from 1900 to present.

FLSP 7300 DON QUIJOTE (3) LEC. 3. Critical study of Cervantes' masterpiece.

FLSP 7970 SPECIAL TOPICS IN LINGUISTICS, LITERATURE AND CULTURE (3) AAB. 3. Pr., BA in Spanish or BS in Foreign Language Education in Spanish. In-depth study of an author or authors and analysis of the cultural milieu influencing their creativity or investigation of a specific linguistic phenomenon in Spanish. Course may be repeated with a change in topic. Course may be repeated with change in topics.

FLSP 7990 RESEARCH AND THESIS (1-10) MST. Directed readings and research culminating in a thesis. Course may be repeated with change in topic.

Veterans Resource Center

The Auburn University Veterans Resource Center (VRC) assists veterans, guardsmen, reservists, active duty, military dependents and survivors with education resources in making a successful transition into the AU Community. The VRC devotes timely and comprehensive support and a range of services for military connected students, by collaborating with VA representatives, the AU Community, and civilian-advocate organizations.

Located at 020 Foy Hall, the VRC provides an array of resources for our military-affiliated students. One of our primary functions is to assist students navigating the VA Education system. We help students who are using Chapter 30: Montgomery GI Bill® (MGBI), Chapter 31: Veteran Readiness & Employment (VR&E), Chapter 33: Post 9/11 GI Bill®, Chapter 35: Dependents Education Assistance (DEA), Chapter 1606: Montgomery GI Bill®-Select Reserve (MGIB-SR) and the Fry Scholarship. Additionally, we help answer questions about the Alabama GI Dependent Scholarship (ALGI) and process the Alabama National Guard Education Assistance Program (ANGEAP).

In addition to helping students apply and utilize their GI Bill®, we also assist students determine if they qualify for resident tuition rates under Section 702 of The Veterans Choice & Accountability Act (Choice Act), the Alabama House Bill 424 (HB424), and the National Guard Waiver (NG Waiver). Auburn University also participates in the Yellow Ribbon Program (YRP), offering 100 slots a year.

For information on how to use VA Education benefits here at Auburn, and for a list of resources for military-affiliated students, please visit our website veterans.auburn.edu (https://veterans.auburn.edu/).

VA Reporting Information

If students have an issue or complaint about a school or training facility that is eligible to receive GI Bill® benefits, students can submit feedback to the Department of Veterans Affairs (VA). Students can submit feedback to alert the VA is a school isn't following the Principles of Excellence guidelines or if he/she has another concern or issue they would like to make the VA aware of. Feedback should be submitted via the following link: https://www.va.gov/education/submit-school-feedback/introduction (https://www.va.gov/education/submit-school-feedback/introduction/).

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